

JRC SCIENCE FOR POLICY REPORT

WASTE DISPOSAL – Interim Report: Annexes

*Assessment of the disposal
operations listed in Annex I to
Directive 2008/98/EC in the
light of the duty of care
obligation set out in Article 13
of the same Directive*

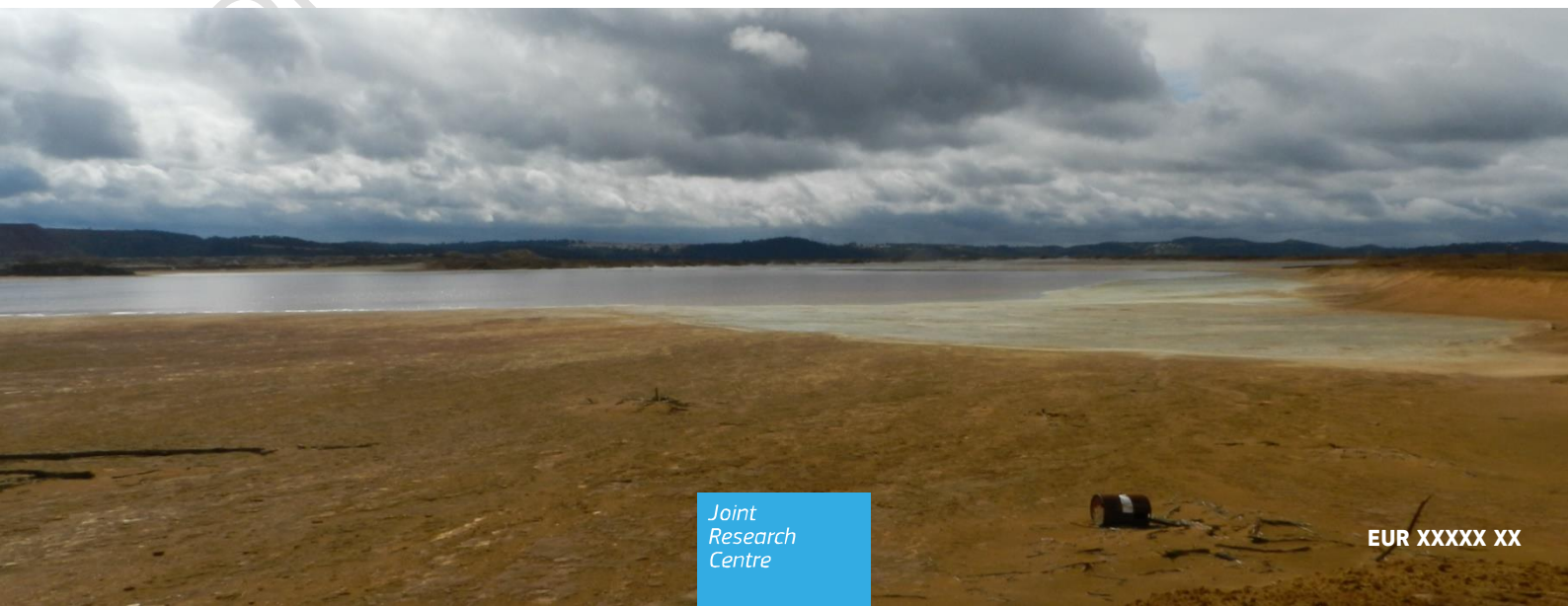
ORVEILLON, G.

GARBARINO, E.

SAVEYN, H. G. M.

EDER, P.

July 2020



This publication is a Science for Policy report by the Joint Research Centre (JRC), the European Commission's science and knowledge service. It aims to provide evidence-based scientific support to the European policymaking process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of this publication. For information on the methodology and quality underlying the data used in this publication for which the source is neither Eurostat nor other Commission services, users should contact the referenced source. The designations employed and the presentation of material on the maps do not imply the expression of any opinion whatsoever on the part of the European Union concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

DISCLAIMER: This report presents a non-exhaustive number of EU legislation and UN Conventions and Protocols identified by the authors as possibly relevant for waste disposal operations. This report is intended to include a general overview of EU legislation and UN Conventions and Protocols relative to waste disposal operations and protection of human health and the environment. However, this report DOES NOT provide any legal interpretation and IS NOT intended to assist in the application of the legislation presented. Only the Court of Justice of the European Union is competent to authoritatively interpret Union law. The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

Contact information

Name: European Commission – Joint Research Centre, Growth & Innovation, Circular Economy & Industrial Leadership
Address: Edificio EXPO, Calle Inca Garcilaso 3, 41092 Seville, Spain
Email: JRC-WASTE-RESEARCH@ec.europa.eu

EU Science Hub

<https://ec.europa.eu/jrc>

JRCXXXXXX

EUR XXXXX XX

PDF	ISBN XXX-XX-XX-XXXXX-X	ISSN XXXX-XXXX	doi:XX.XXXX/XXXXXX
Print	ISBN XXX-XX-XX-XXXXX-X	ISSN XXXX-XXXX	doi:XX.XXXX/XXXXXX

Luxembourg: Publications Office of the European Union, 2020

© European Union



The reuse policy of the European Commission is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Except otherwise noted, the reuse of this document is authorised under the Creative Commons Attribution 4.0 International (CC BY 4.0) licence (<https://creativecommons.org/licenses/by/4.0/>). This means that reuse is allowed provided appropriate credit is given and any changes are indicated. For any use or reproduction of photos or other material that is not owned by the EU, permission must be sought directly from the copyright holders.

All content © European Union, 20XX, except: [page XX, artist's name, image #], Year. Source: [Fotolia.com]
(unless otherwise specified)

How to cite this report: Orveillon G., Garbarino E., Saveyn H. G. M., Eder P., Waste Disposal, Assessment of the disposal operations listed in Annex I to Directive 2008/98/EC in the light of the duty of care obligation set out in Article 13 of the same Directive, EUR XXXXX XX, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-79-XXXXX-X, doi:10.2760/XXXXX, JRCXXXXXX.

Contents

11 Annexes	6
11.1 Annex I. Legal frame analysis of EU legislation and United Nations Conventions	6
11.1.1 EU legislation	6
11.1.1.1 Waste Framework, Directive 2008/98/EC	6
11.1.1.2 Waste Shipments, Regulation (EC) 1013/2006	8
11.1.1.3 Industrial Emissions, Directive 2010/75/EU	10
11.1.1.4 Landfill, Directive 1999/31/EC	11
11.1.1.5 Waste Acceptance Criteria, Council Decision 2003/33/EC	14
11.1.1.6 Guidance on landfill gas control, non-binding guidance	14
11.1.2 Specific waste streams	14
11.1.2.1 Batteries and Accumulators and Waste Batteries and Accumulators, Directive 2006/66/EC 14	14
11.1.2.2 Waste Electrical and Electronic Equipment, Directive 2012/19/EU	16
11.1.2.3 Restriction of the use of certain Hazardous Substances in electrical and electronic equipment, Directive 2011/65/EU	19
11.1.2.4 End-of Life Vehicles, Directive 2000/53/EC	19
11.1.2.5 Packaging and packaging waste, Directive 94/62/EC	21
11.1.2.6 PCBs-PCTs, Directive 59/96/EC	21
11.1.2.7 Urban Waste Water Treatment, Directive 91/271/EEC	22
11.1.2.8 Sewage sludge, Directive 86/278/EEC	23
11.1.2.9 Extractive Waste, Directive 2006/21/EC	23
11.1.3 Additional legislation on specific streams	25
11.1.3.1 Animal By-Products, Regulation (EU) 1069/2009	25
11.1.3.2 Nitrates, Directive 91/676/EEC	26
11.1.3.3 Ship Recycling, Regulation (EU) 1257/2013	26
11.1.3.4 Persistent Organic Pollutants, Regulation (EU) 2019/1021	26
11.1.4 Supplementary environmental legislation	27
11.1.4.1 Water Framework, Directive 2000/60/EC	27
11.1.4.2 Groundwater, Directive 2006/118/EC	28
11.1.4.3 Drinking water, Directive 98/83/EC	28
11.1.4.4 Bathing water, Directive 2006/7/EC	28
11.1.4.5 Marine Strategy Framework, Directive 2008/56/EC	28
11.1.4.6 Habitat and Birds, Directives 92/43/EEC and 2009/147/EC	29
11.1.4.7 Environmental Impact Assessment, Directive 2011/92/EU	29
11.1.4.8 Seveso III, Directive 2012/18/EU	31
11.1.4.9 Environmental Liability, Directive 2004/35/EC	32
11.1.5 Classification and reporting of waste	33
11.1.5.1 List of Waste, Decision 2000/532/EC	33

11.1.5.2	Commission notice on technical guidance on the classification of waste, (2018/C 124/01)	33
11.1.5.3	Waste Statistics, Regulation (EC) 2150/2002	33
11.1.5.4	Rules and calculation methods for verifying compliance with the targets, Decision 2011/753/EU	34
11.1.5.5	Registration, Evaluation, Authorisation and Restriction of Chemicals, Regulation 1907/2006	34
11.2	Other relevant EU documents	35
11.2.1	Best Available Techniques Reference Documents (BREFs)	35
11.2.1.1	Waste Incineration	35
11.2.1.2	Waste Treatment	35
11.2.1.3	Management of Waste from Extractive Industries	35
11.2.2	Other reference and guidance documents	35
11.2.2.1	Community eco-management and audit scheme (EMAS), Regulation (EC) 1221/2009	35
11.2.2.2	Best Environmental Management Practice for the Waste Management Sector	36
11.3	United Nations Conventions	36
11.3.1	Basel Convention	36
11.3.2	London Convention and Protocol	42
11.3.3	OSPAR Convention	43
11.3.4	Helsinki Convention	44
11.3.5	Barcelona Convention and its Protocols	44
11.3.6	Bucharest Convention and its Protocols	44
11.4	Annex II. Table of equivalence	47
11.5	Annex III. Data and information collection survey	49
11.6	Annex IV. List of contacted organisations	51
11.7	Annex V. Detailed answers provided by MS	53
11.7.1	Answers provided on D1	53
11.7.1.1	Definitions and current practices	53
11.7.1.2	Legal regimes	54
11.7.1.3	Waste flows	60
11.7.1.4	Protection measures	62
11.7.1.5	Suggestions for the revision	64
11.7.2	Answers provided on D2	66
11.7.2.1	Definitions and current practices	66
11.7.2.2	Legal regimes	67
11.7.2.3	Waste flows	71
11.7.2.4	Protection measures	73
11.7.2.5	Member States suggestions for the revision	75
11.7.3	Answers provided on D3	77
11.7.3.1	Definitions and current practices	77

11.7.3.2	Legal regimes	77
11.7.3.3	Waste flows.....	82
11.7.3.4	Protection measures.....	83
11.7.3.5	Member States suggestions for the revision.....	86
11.7.4	Answers provided on D4	87
11.7.4.1	Definitions and current practices	87
11.7.4.2	Legal regimes	88
11.7.4.3	Waste flows.....	93
11.7.4.4	Protection measures.....	95
11.7.4.5	Member States suggestions for the revision.....	97
11.7.5	Answers provided on D5	99
11.7.5.1	Definitions and current practices	99
11.7.5.2	Legal regimes	100
11.7.5.3	Waste flows.....	105
11.7.5.4	Protection measures.....	106
11.7.5.5	Member States suggestions for the revision.....	109
11.7.6	Answers provided on D6	111
11.7.6.1	Definitions and current practices	111
11.7.6.2	Legal regimes	111
11.7.6.3	Waste flows.....	115
11.7.6.4	Protection measures.....	117
11.7.6.5	Member States suggestions for the revision.....	119
11.7.7	Answers provided on D7	120
11.7.7.1	Definitions and current practices	120
11.7.7.2	Legal regimes	121
11.7.7.3	Waste flows.....	125
11.7.7.4	Protection measures.....	127
11.7.7.5	Member States suggestions for the revision.....	129
11.7.8	Answers provided on D8	130
11.7.8.1	Definitions and current practices	130
11.7.8.2	Legal regimes	131
11.7.8.3	Waste flows.....	136
11.7.8.4	Protection measures.....	138
11.7.8.5	Member States suggestions for the revision.....	140
11.7.9	Answers provided on D9	142
11.7.9.1	Definitions and current practices	142
11.7.9.2	Legal regimes	143
11.7.9.3	Waste flows.....	149
11.7.9.4	Protection measures.....	150

11.7.9.5 Member States suggestions for the revision.....	153
11.7.10 Answers provided on D10.....	155
11.7.10.1 Definitions and current practices.....	155
11.7.10.2 Legal regimes.....	156
11.7.10.3 Waste flows.....	161
11.7.10.4 Protection measures.....	163
11.7.10.5 Member States suggestions for the revision.....	166
11.7.11 Answers provided on D11.....	167
11.7.11.1 Definitions and current practices.....	167
11.7.11.2 Legal regimes.....	168
11.7.11.3 Waste flows.....	168
11.7.11.4 Protection measures.....	168
11.7.11.5 Member States suggestions for the revision.....	168
11.7.12 Answers provided on D12.....	169
11.7.12.1 Definitions and current practices.....	169
11.7.12.2 Legal regimes.....	170
11.7.12.3 Waste flows.....	174
11.7.12.4 Protection measures.....	175
11.7.12.5 Member States suggestions for the revision.....	178
11.7.13 Answers provided on D13.....	179
11.7.13.1 Definitions and current practices.....	179
11.7.13.2 Legal regimes.....	180
11.7.13.3 Waste flows.....	185
11.7.13.4 Protection measures.....	186
11.7.13.5 Member States suggestions for the revision.....	189
11.7.14 Answers provided on D14.....	191
11.7.14.1 Definitions and current practices.....	191
11.7.14.2 Legal regimes.....	191
11.7.14.3 Waste flows.....	196
11.7.14.4 Protection measures.....	198
11.7.14.5 Member States suggestions for the revision.....	200
11.7.15 Answers provided on D15.....	202
11.7.15.1 Definitions and current practices.....	202
11.7.15.2 Legal regimes.....	202
11.7.15.3 Waste flows.....	207
11.7.15.4 Protection measures.....	208
11.7.15.5 Member States suggestions for the revision.....	211
12 List of abbreviations and definitions.....	213
13 List of figures.....	215

14 List of tables.....	218
------------------------	-----

DRAFT - WORK IN PROGRESS

11 Annexes

11.1 Annex I. Legal frame analysis of EU legislation and United Nations Conventions

DISCLAIMER: This Section presents a non-exhaustive number of EU legislation and UN Conventions and Protocols identified by the authors as possibly relevant for waste disposal operations. This Section is intended to provide a general overview of EU legislation and UN Conventions and Protocols relative to waste disposal operations and protection of human health and the environment. However, this Section DOES NOT provide any legal interpretation and IS NOT intended to assist in the application of the legislation presented. Only the Court of Justice of the European Union is competent to authoritatively interpret Union law. The views expressed are purely those of the writer and may not in any circumstances be regarded as stating an official position of the European Commission.

11.1.1 EU legislation

11.1.1.1 Waste Framework, Directive 2008/98/EC

Directive 2008/98/EC on waste <https://eur-lex.europa.eu/eli/dir/2008/98/oj>, as last amended by Directive (EU) 2018/851, is known as the Waste Framework Directive (WFD).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2008/98/2018-07-05>.

The objective of the WFD are set in Article 1: 'This Directive lays down measures to protect the environment and human health by preventing or reducing the generation of waste, the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use, which are crucial for the transition to a circular economy and for guaranteeing the Union's long-term competitiveness'. This includes waste disposal operations according to Article 3(9) defining waste management as: 'waste management means the collection, transport, recovery (including sorting), and disposal of waste'.

The waste streams covered by this Directive are all the waste streams meeting the definition of waste as set in Article 3(1) 'any substance or object which the holder discards or intends or is required to discard'. However a number of streams are excluded from the scope according to Article 2(1)(d):

- '(a) gaseous effluents emitted into the atmosphere;
- (b) land (in situ) including unexcavated contaminated soil and buildings permanently connected with land;
- (c) uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated;
- (d) radioactive waste;
- (e) decommissioned explosives;
- (f) faecal matter, if not covered by paragraph 2(b), straw and other natural non-hazardous agricultural or forestry material used in farming, forestry or for the production of energy from such biomass through processes or methods which do not harm the environment or endanger human health'.

In addition, Article 2(2) partially excludes other streams 'to the extent that they are covered by other Community legislation':

- '(a) waste waters' for which the direct or indirect discharge may be covered by Directive 2010/75/EU (see Section 11.1.1.3);
- '(b) animal by-products including processed products covered by Regulation (EC) No 1774/2002, except those which are destined for incineration, landfilling or use in a biogas or composting plant' (see Section 11.1.3);

- '(c) carcasses of animals that have died other than by being slaughtered, including animals killed to eradicate epizootic diseases, and that are disposed of in accordance with Regulation (EC) No 1774/2002' (see Section 11.1.3);
- '(d) waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries covered by Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries' (see Section 11.1.2.9); and
- '(e) substances that are destined for use as feed materials as defined in point (g) of Article 3(2) of Regulation (EC) No 767/2009 of the European Parliament and of the Council (2) and that do not consist of or contain animal by-products'.

Waste disposal operations covered by the WFD are all the waste disposal operations. A non-exhaustive list of 15 waste disposal operations is provided in Annex I to the WFD (D codes). Furthermore, Article 12(1) sets the general requirements: *'Member States shall ensure that, where recovery in accordance with Article 10(1) is not undertaken, waste undergoes safe disposal operations which meet the provisions of Article 13 on the protection of human health and the environment'*.

Bans and restrictions of certain disposal operations are provided in Article 36: *'abandonment, dumping or uncontrolled management of waste, including littering'* is prohibited. Furthermore, according to Annex I footnote (1), D11 incineration at sea is prohibited too.

Reduction targets are not set directly for the waste disposal. However, a number of targets to reduce the generation of waste and to increase the preparing for re-use and the recycling of waste are set in the following Articles:

- Article 9(1)(g): 'reduce the generation of food waste';
- Article 11(2)(a): 'by 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall 50 % by weight';
- Article 11(2)(b): 'by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight';
- Article 11(2)(c): 'by 2025¹, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 55 % by weight';
- Article 11(2)(d): 'by 2030¹, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 60 % by weight';
- Article 11(2)(e): 'by 2035¹, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 65 % by weight'.

Furthermore, the possibility of setting future targets is planned by Article 11(6) for the preparing for re-use and recycling targets and Article 12(2) for the disposal reduction targets:

- Article 11(6): 'By 31 December 2024, the Commission shall consider the setting of preparing for re-use and recycling targets for construction and demolition waste and its material-specific fractions, textile waste, commercial waste, non-hazardous industrial waste and Other waste streams not listed, as well as preparing for re-use targets for municipal waste and recycling targets for municipal bio-waste'; and
- Article 12(2): 'By 31 December 2024, the Commission shall carry out an assessment of the disposal operations listed in Annex I, in particular in light of Article 13, and shall submit a report to the European Parliament and to the Council, accompanied, if appropriate, by a legislative proposal, with a view to

¹ MS may postpone the deadlines for attaining the target by up to five years provided that they meet provisions set by Article 11(3)

regulating disposal operations, including through possible restrictions, and to consider a disposal reduction target, to ensure environmentally sound waste management’.

Finally, **protection of the environment and human health** requirements are provided in Article 13:

‘Member States shall take the necessary measures to ensure that waste management is carried out without endangering human health, without harming the environment and, in particular:

(a) without risk to water, air, soil, plants or animals;

(b) without causing a nuisance through noise or odours; and

(c) without adversely affecting the countryside or places of special interest’.

In addition, a number of additional provisions require to meet provisions of Article 13, when it comes e.g. to the collect or transport (Article 15(4)), the treatment of hazardous waste (Article 17), the derogation on the ban on the mixing of hazardous waste (Article 18(2)), the issuing of permits (Article 23) and conditions for exemptions (Article 25(1)), the adoption of ‘*minimum standards for waste treatment activities*’, which includes disposal (Article 27), and the conformity of waste management plans (Article 28(5)).

More details on protection measures are provided in Article 27 on minimum standards. Article 27 refers to a set of ‘*technical minimum standards for treatment activities*’, which take into consideration Best Available Techniques (BAT). In addition, it is clarified that these minimum standards ‘*shall cover only those waste treatment activities that are not covered by Directive 96/61/EC or are not appropriate for coverage by that Directive*’, Directive 96/61/EC being the Integrated Pollution Prevention and Control Directive (IPPCD) now replaced by the Industrial Emissions Directive (IED, see Section 11.1.1.3).

11.1.1.2 Waste Shipments, Regulation (EC) 1013/2006

Regulation (EC) 1013/2006 on shipments of waste <https://eur-lex.europa.eu/eli/reg/2006/1013/oj>, as last amended by Commission Regulation (EU) 2015/2002 (11/11/2015), is known as the Waste Shipments Regulation.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/reg/2006/1013/2018-01-01>.

The objective of the Waste Shipments Regulation is given in Article 1: ‘This Regulation establishes procedures and control regimes for the shipment of waste, depending on the origin, destination and route of the shipment, the type of waste shipped and the type of treatment to be applied to the waste at its destination’.

‘This Regulation implements into EU law the provisions of the ‘Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal’² (see Section 11.3.1 on Basel Convention).

The Regulation ‘establishes procedures and control regimes for the shipment of waste, depending on the origin, destination and route of the shipment, the type of waste shipped and the type of treatment to be applied to the waste at its destination’. The Regulation does not exclude or include any specific waste stream from its **scope** but rather refers to specific shipment activities.

According to Article 1(3), the Regulation excludes the following from its scope:

- ‘(a) the offloading to shore of waste, including waste water and residues, generated by the normal operation of ships and offshore platforms, provided that such waste is subject to the requirements of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (Marpol 73/78), or other binding international instruments;
- (b) waste generated on board vehicles, trains, aeroplanes and ships, until such waste is offloaded in order to be recovered or disposed of;

² <https://ec.europa.eu/environment/waste/shipments/>, 15/04/2020

- (c) shipments of radioactive waste as defined in Article 2 of Council Directive 92/3/Euratom of 3 February 1992 on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community (1);
- (d) shipments which are subject to the approval requirements of Regulation (EC) No 1774/2002;
- (e) shipments of the waste referred to in point 1(b)(ii), (iv) and (v) of Article 2 of Directive 2006/12/EC, where such shipments are already covered by other Community legislation containing similar provisions;
- (f) shipments of waste from the Antarctic into the Community which are in accordance with the requirements of the Protocol on Environmental Protection to the Antarctic Treaty (1991);
- (g) imports into the Community of waste generated by armed forces or relief organisations in situations of crisis, peacemaking or peacekeeping operations where such waste is shipped, by the armed forces or relief organisations concerned or on their behalf, directly or indirectly to the country of destination. In such cases, any competent authority of transit and the competent authority of destination in the Community shall be informed in advance concerning the shipment and its destination;
- (h) shipments of CO₂ for the purposes of geological storage in accordance with Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (2);
- (i) ships flying the flag of a Member State falling under the scope of Regulation (EU) No 1257/2013 of the European Parliament and of the Council (3).

The Regulation covers in general shipment of waste but makes reference to disposal operations as defined in the WFD, and in particular it defines '*interim*' disposal operations as D13 to D15 operations.

The Regulation **prohibits** the following:

- the mixing waste during shipment (Article 19);
- '*exports of waste from the Community destined for disposal*' (Article 34(1)), except '*EFTA countries which are also Parties to the Basel Convention*' (Article 34(2)). This exception does not apply if the import of waste is prohibited in that country (Article 34(3)(a)) or if the waste '*will not be managed in an environmentally sound manner*' (Article 34(3)(b));
- exports of a number of hazardous waste streams from the Community '*destined for recovery in countries to which the OECD Decision does not apply*' (Article 36(1));
- '*exports of waste from the Community to the Antarctic*' (Article 39);
- '*exports from the Community of waste destined for disposal in overseas countries or territories*' (Article 40);
- '*imports into the Community of waste destined for disposal*' (Article 41) with the exception of:
 - imports from countries '*which are Parties to the Basel Convention*';
 - imports from countries that have a '*bilateral or multilateral agreement*' with a MS or the Community in accordance with Article 11 of the Basel Convention and '*compatible with Community legislation*'; and
 - '*exceptional cases*' as set down in Article 41;
- '*imports into the Community of waste destined for recovery*' (Article 43) with the exception of
 - imports from '*countries to which the OECD Decision applies*'; and
 - imports from countries '*which are Parties to the Basel Convention*';
 - imports from countries that have a '*bilateral or multilateral agreement*' with a MS or the Community in accordance with Article 11 of the Basel Convention and '*compatible with Community legislation*'; and
 - '*exceptional cases*' as set down in Article 43; and

— Imports and exports of waste if it will not be managed in ‘an environmentally sound manner’ (Article 43).

No specific **targets**, either on reduction of waste disposal or on recycling/recovery of waste are set in the Regulation.

The **protection of the environment and human health** is included in the Regulation through the different requirements on the ‘environmentally sound management’ of waste, which is defined in Article 2(8): ‘means taking all practicable steps to ensure that waste is managed in a manner that will protect human health and the environment against adverse effects which may result from such waste’.

11.1.1.3 Industrial Emissions, Directive 2010/75/EU

The Directive 2010/75/EU on industrial emissions <https://eur-lex.europa.eu/eli/dir/2010/75/oj>, is known as the Industrial Emissions Directive (IED).

The objective of this Directive is to ‘lay down rules on integrated prevention and control of pollution arising from industrial activities’ (Chapter I, Article 1).

The IED does not exclude or include any **specific waste stream** from its scope but rather refers to specific industrial activities, see below.

The waste management activities covered by the IED are provided in Section 5 of Annex I to the Directive:

— ‘Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities:

(a) biological treatment;

(b) physico-chemical treatment;

(c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2;

(d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2;

(k) surface impoundment’ this may be classified as D4 when implemented as a disposal operation.

— Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants:

(a) for non-hazardous waste with a capacity exceeding 3 tonnes per hour;

(b) for hazardous waste with a capacity exceeding 10 tonnes per day.

— (a) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment (39):

(i) biological treatment;

(ii) physico-chemical treatment;

(iii) pre-treatment of waste for incineration or co-incineration;

(iv) treatment of slags and ashes;

(v) treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components.

— (b) Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities, and excluding activities covered by Directive 91/271/EEC:

(i) biological treatment;

- (ii) *pre-treatment of waste for incineration or co-incineration;*
- (iii) *treatment of slags and ashes;*
- (iv) *treatment in shredders of metal waste, including waste electrical and electronic equipment and end-of-life vehicles and their components.*

— When the only waste treatment activity carried out is anaerobic digestion, the capacity threshold for this activity shall be 100 tonnes per day.

— Landfills, as defined in Article 2(g) of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (40), receiving more than 10 tonnes of waste per day or with a total capacity exceeding 25 000 tonnes, excluding landfills of inert waste

— Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity exceeding 50 tonnes, excluding temporary storage, pending collection, on the site where the waste is generated

— Underground storage of hazardous waste with a total capacity exceeding 50 tonnes’.

Obviously, this list may cover almost any of the D codes provided in Annex I to the WFD, with the exception of D6, D7 and D11, that may not apply to any of the categories listed in Annex I to the IED.

The IED focuses on pollution prevention and control techniques, in particular the determination of Best Available Techniques (BAT), to **protect the environment and human health**.

BAT are adopted following a process called Sevilla Process, Commission Implementing Decision 2012/119/EU (https://eur-lex.europa.eu/eli/dec_impl/2012/119/oj).

Two BAT reference documents (BREFs) may be more particularly relevant for waste disposal:

- the BREF on waste incineration (see Section 11.2.1.1); and
- the BREF on waste treatment (see Section 11.2.1.2).

11.1.1.4 Landfill, Directive 1999/31/EC

Directive 1999/31/EC on the landfill of waste <https://eur-lex.europa.eu/eli/dir/1999/31/oj>, as last amended by Directive (EU) 2018/850, is known as the Landfill Directive (LfD).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1999/31/2018-07-04>.

The objective of the LfD are set in Article 1: ‘With a view to supporting the Union’s transition to a circular economy and meeting the requirements of Directive 2008/98/EC of the European Parliament and of the Council, and in particular Articles 4 and 12 thereof, the aim of this Directive is to ensure a progressive reduction of landfilling of waste, in particular of waste that is suitable for recycling or other recovery, and, by way of stringent operational and technical requirements on the waste and landfills, to provide for measures, procedures and guidance to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, from landfilling of waste, during the whole life-cycle of the landfill’. In other words, the LfD provides technical requirements to ensure the protection of the environment and human health (Article 13 of Directive 2008/98/EC) for certain types of waste disposal operations, namely landfills, i.e. (according to Article 2(g)) ‘a waste disposal site for the deposit of the waste onto or into land (i.e. underground)’, including:

- ‘internal waste disposal sites (i.e. landfill where a producer of waste is carrying out its own waste disposal at the place of production); and
 - a permanent site (i.e. more than one year) which is used for temporary storage of waste’
- but excluding:
- ‘facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere, and
 - storage of waste prior to recovery or treatment for a period less than three years as a general rule, or

- storage of waste prior to disposal for a period less than one year';
- and excluding, according to Article 3, points (2) and (3):
- 'the spreading of sludges, including sewage sludges, and sludges resulting from dredging operations, and similar matter on the soil for the purposes of fertilisation or improvement,
- the use of inert waste which is suitable, in redevelopment/restoration and filling-in work, or for construction purposes, in landfills,
- the deposit of non-hazardous dredging sludges alongside small waterways from where they have been dredged out and of non-hazardous sludges in surface water including the bed and its sub soil'; and
- 'the management of waste from land-based extractive industries'.

In addition, Article 4 partially excludes (certain requirements of the LfD) non-hazardous or inert waste landfills located on 'islands and isolated settlements' and meeting the requirements of that same Article 4 on the number, capacity and use of the landfills.

The waste streams covered by this Directive are all the waste streams meeting the definition of waste set in Article 3(1) of the WFD. However a number of wastes and treatments are '*not acceptable in landfills*'. These are set in Article 5 of the LfD, see Section on Bans and Restriction below.

Waste disposal operations covered by the LfD are landfills for hazardous waste, landfills for non-hazardous waste and landfills for inert waste. No link with D codes is provided, however the WFD makes direct reference to landfills for codes D1, 'deposit into or on to land (e.g. landfill, etc.)', and D5, 'specially engineered landfill (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)'. In addition, D12, 'permanent storage (e.g. emplacement of containers in a mine, etc.)', may also include permanent underground landfills. However, for codes D2, land treatment, D3 deep injection, and D4, surface impoundment; it is not clear if these codes may include certain types of landfills. On the one hand these operations refer to liquid, sludgy or pumpable discards. Nevertheless, even though liquid waste is clearly not allowed to landfills, according to Article 2(q) of the LfD sludges may be landfilled: '*liquid waste means any waste in liquid form including waste waters but excluding sludge*'. On the other hand, in the Section 8 of Annex II to Regulation (EC) No 2150/2002 on waste statistics, as last amended by Commission Regulation (EU) No 849/2010, these codes D2, D3, and D4 are not compiled (aggregated) with codes D1, D5 and D12, which are compiled together as Disposal Operation Item No 4 and usually labelled as '*Disposal – landfill*' treatment in Eurostat, whereas D2, D3 and D4 are compiled together with D6 and D7 and labelled '*Disposal – other*'.

Bans and restrictions of certain disposal operations are provided in Article 5:

Restriction on landfilling of biodegradable municipal waste is limited to 35% w/w. of the total amount of biodegradable municipal waste (Article 5(2)(c)).

Bans on landfilling of following wastes (Article 5(3)):

- (a) liquid waste;
- (b) waste which, in the conditions of landfill, is explosive, corrosive, oxidising, highly flammable or flammable, as defined in Annex III to Directive 91/689/EEC;
- (c) hospital and other clinical wastes arising from medical or veterinary establishments, which are infectious as defined (property H9 in Annex III) by Directive 91/689/EEC and waste falling within category 14 (Annex I.A) of that Directive;
- (d) whole used tyres from two years from the date laid down in Article 18(1), excluding tyres used as engineering material, and shredded used tyres five years from the date laid down in Article 18(1) (excluding in both instances bicycle tyres and tyres with an outside diameter above 1 400 mm);
- (e) any other type of waste which does not fulfil the acceptance criteria determined in accordance with Annex II;
- (f) waste that has been separately collected for preparing for re-use and recycling pursuant to Article 11(1) of Directive 2008/98/EC and Article 22 of that Directive, with the exception of waste resulting from

subsequent treatment operations of the separately collected waste for which landfilling delivers the best environmental outcome in accordance with Article 4 of that Directive’.

Finally, Article 6 sets requirements for the treatment of waste prior to landfill, with the exemption of certain inert wastes, and restricts the use of landfills classes to specific waste streams: i.e.:

— ‘(b) only hazardous waste that fulfils the criteria set out in accordance with Annex II is assigned to a hazardous landfill;

— (c) landfill for non-hazardous waste may be used for:

(i) *municipal waste;*

(ii) *non-hazardous waste of any other origin, which fulfil the criteria for the acceptance of waste at landfill for non-hazardous waste set out in accordance with Annex II;*

(iii) *stable, non-reactive hazardous wastes (e.g. solidified, vitrified), with leaching behaviour equivalent to those of the non-hazardous wastes referred to in point (ii), which fulfil the relevant acceptance criteria set out in accordance with Annex II. These hazardous wastes shall not be deposited in cells destined for biodegradable non-hazardous waste,*

— (d) inert waste landfill sites shall be used only for inert waste’.

Reduction targets are set in Article 5(5): ‘Member States shall take the necessary measures to ensure that by 2035 the amount of municipal waste landfilled is reduced to 10 % or less of the total amount of municipal waste generated (by weight)’. This target may be postponed by MS in certain conditions up to 2040 providing that MS ‘reduce by 2035 the amount of municipal waste landfilled to 25 % or less of the total amount of municipal waste generated (by weight)’, according to Article 5(6).

Furthermore, by 31 December 2024, the Commission may revise existing and/or adopt new targets according to Article 5(9).

Finally, the main objective of the LfD is the **protection of the environment and human health** as already stated. In addition to these requirements, specific technical requirements are provided in Articles 12 and 13 on monitoring of operational landfills and closure and after-care procedures, respectively, and in Annexes I, II, III to the LfD:

— Annex I: general requirements for all classes of landfills:

- Location
- Water control and leachate management
- Protection of soil and water
- Gas control
- Nuisances and hazards
- Stability
- Barriers
- Temporary storage of metallic mercury

— Annex II: waste acceptance criteria and procedures:

- Introduction
- General principles
- General procedures for testing and acceptance of waste
- Guidelines for preliminary waste acceptance procedures
- Specific requirements for metallic mercury

— Annex III: control and monitoring procedures in operation and after-care phases:

- Introduction

- Meteorological data
- Emission data: water, leachate and gas control
- Protection of groundwater
- Sampling
- Monitoring
- Trigger levels
- Topography of the site: data on the landfill body
- Specific requirements for metallic mercury

In addition to these technical requirements, an exchange of best practices among MS is planned in Article 5c.

11.1.1.5 Waste Acceptance Criteria, Council Decision 2003/33/EC

Council Decision 2003/33/EC <https://eur-lex.europa.eu/eli/dec/2003/33/1/oj>, establishes criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to the LfD.

11.1.1.6 Guidance on landfill gas control, non-binding guidance

In addition, a non-binding guidance document relevant to all landfills to which Annex I of the Landfill Directive applies was developed by the Commission in order to support the enforcement of the LfD requirements, and to provide clarifications on the gas control requirements

<https://ec.europa.eu/environment/waste/landfill/pdf/guidance%20on%20landfill%20gas.pdf>.

11.1.2 Specific waste streams

11.1.2.1 Batteries and Accumulators and Waste Batteries and Accumulators, Directive 2006/66/EC

The objective of Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators <https://eur-lex.europa.eu/eli/dir/2006/66/oj>, as last amended by Directive (EU) 2018/849, is to establish, among others, 'specific rules for the collection, treatment, recycling and disposal of waste batteries and accumulators to supplement relevant Community legislation on waste and to promote a high level of collection and recycling of waste batteries and accumulators'.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2006/66/2018-07-04>.

The scope covers 'Waste battery or accumulator' defined in Article 3(7) as: 'any battery or accumulator which is waste within the meaning of Article 1(1)(a) of Directive 2006/12/EC', the WFD (see Section 11.1.1.1), and 'battery or accumulator' is defined in Article 3(1): "battery" or "accumulator" means any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or consisting of one or more secondary battery cells (rechargeable)'.

The disposal of waste batteries and accumulators is **restricted** by requirements set in Article 14:

'Member States shall prohibit the disposal in landfills or by incineration of waste industrial and automotive batteries and accumulators. However, residues of any batteries and accumulators that have undergone both treatment and recycling in accordance with Article 12(1) may be disposed of in landfills or by incineration'.

And Article 12(1) stipulates that: 'producers or third parties set up schemes using **best available techniques**, in terms of the protection of health and the environment, to provide for the treatment and recycling of waste batteries and accumulators'.

In addition, Article 12(1) clarifies that: 'Member States may, in accordance with the Treaty, dispose of collected portable batteries or accumulators containing cadmium, mercury or lead in landfills or underground storage when no viable end market is available. Member States may also, in accordance with the Treaty, dispose of collected portable batteries or accumulators containing cadmium, mercury or lead in landfills or underground storage as part of a strategy to phase out heavy metals which, on the basis of a detailed assessment of the environmental, economic, and social impacts, shows that this disposal option should be preferred over recycling'.

Finally, Article 7 sets the overarching objective of the Directive, the reduction of batteries and accumulators disposal, but without providing any quantitative target: '*Member States shall, having regard to the environmental impact of transport, take necessary measures to maximise the separate collection of waste batteries and accumulators and **to minimise the disposal of batteries and accumulators as mixed municipal waste** in order to achieve a high level of recycling for all waste batteries and accumulators*'.

Nevertheless, Article 10(2) lays down **collection targets**, called minimum collection rates:

— 'Member States shall achieve the following minimum collection rates:

(a) 25 % by 26 September 2012;

(b) 45 % by 26 September 2016'.

'Collection rate' is defined in Article 3(17): 'means, for a given Member State in a given calendar year, the percentage obtained by dividing the weight of waste portable batteries and accumulators collected in accordance with Article 8(1) of this Directive or with Directive 2002/96/EC in that calendar year by the average weight of portable batteries and accumulators that producers either sell directly to end-users or deliver to third parties in order to sell them to end-users in that Member State during that calendar year and the preceding two calendar years'.

Whereas, '*the common methodology for the calculation of annual sales of portable batteries and accumulators to end-users*' is laid down in Commission Decision 2008/763/EC <https://eur-lex.europa.eu/eli/dec/2008/763/oj>.

In addition, Annex III, Part B, provides **recycling targets**, called minimum recycling efficiencies:

— 'Recycling processes shall achieve the following minimum recycling efficiencies:

(a) recycling of 65 % by average weight of lead-acid batteries and accumulators, including recycling of the lead content to the highest degree that is technically feasible while avoiding excessive costs;

(b) recycling of 75 % by average weight of nickel-cadmium batteries and accumulators, including recycling of the cadmium content to the highest degree that is technically feasible while avoiding excessive costs; and

(c) recycling of 50 % by average weight of other waste batteries and accumulators'.

The 'detailed rules regarding the calculation of recycling efficiencies of the recycling processes of waste batteries and accumulators' is laid down in Commission Regulation (EU) No 493/2012 <https://eur-lex.europa.eu/eli/reg/2012/493/oj>, which also defines 'recycling efficiency' as '*the ratio obtained by dividing the mass of output fractions accounting for recycling by the mass of the waste batteries and accumulators input fraction expressed as a percentage*'.

The protection of the environment and human health is achieved by requiring the use of BAT (Article 12), and in addition, specific treatment and recycling requirements are provided in Annex III, Part A:

— '1. Treatment shall, as a minimum, include removal of all fluids and acids.

— 2. Treatment and any storage, including temporary storage, at treatment facilities shall take place in sites with impermeable surfaces and suitable weatherproof covering or in suitable containers'.

Treatment is defined in Article 3(10) as 'any activity carried out on waste batteries and accumulators after they have been handed over to a facility for sorting, preparation for recycling or preparation for disposal'.

11.1.2.2 Waste Electrical and Electronic Equipment, Directive 2012/19/EU

The objective of Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE) <https://eur-lex.europa.eu/eli/dir/2012/19/oj>, as last amended by Directive (EU) 2018/849, is to lay down 'measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste from electrical and electronic equipment (WEEE) and by reducing overall impacts of resource use and improving the efficiency of such use in accordance with Articles 1 and 4 of Directive 2008/98/EC, thereby contributing to sustainable development'.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2012/19/2018-07-04>.

The scope covers all Electrical and Electronic Equipment (EEE) (Article 2(1)), and both EEE and WEEE are defined in Article 3(1) points (a) and (e):

— (a) 'electrical and electronic equipment' or 'EEE' means equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1 000 volts for alternating current and 1 500 volts for direct current (...)

— (e) 'waste electrical and electronic equipment' or 'WEEE' means electrical or electronic equipment which is waste within the meaning of Article 3(1) of Directive 2008/98/EC, including all components, sub-assemblies and consumables which are part of the product at the time of discarding'.

In addition, Annex III provides a list of categories of EEE covered by the Directive:

- '1. Temperature exchange equipment
- 2. Screens, monitors, and equipment containing screens having a surface greater than 100 cm²
- 3. Lamps
- 4. Large equipment (any external dimension more than 50 cm) including, but not limited to:
Household appliances; IT and telecommunication equipment; consumer equipment; luminaires; equipment reproducing sound or images, musical equipment; electrical and electronic tools; toys, leisure and sports equipment; medical devices; monitoring and control instruments; automatic dispensers; equipment for the generation of electric currents. This category does not include equipment included in categories 1 to 3.
- 5. Small equipment (no external dimension more than 50 cm) including, but not limited to:
Household appliances; consumer equipment; luminaires; equipment reproducing sound or images, musical equipment; electrical and electronic tools; toys, leisure and sports equipment; medical devices; monitoring and control instruments; automatic dispensers; equipment for the generation of electric currents. This category does not include equipment included in categories 1 to 3 and 6.
- 6. Small IT and telecommunication equipment (no external dimension more than 50 cm)'.

Along with the inclusions in the scope, a number of exclusions from the scope are set in Article 2 points (3) and (4) for specific EEE:

- '3. This Directive shall not apply to any of the following EEE:
 - equipment which is necessary for the protection of the essential interests of the security of Member States, including arms, munitions and war material intended for specifically military purposes;
 - equipment which is specifically designed and installed as part of another type of equipment that is excluded from or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment;
 - filament bulbs.
- 4. In addition to the equipment specified in paragraph 3, from 15 August 2018, this Directive shall not apply to the following EEE:
 - equipment designed to be sent into space;
 - large-scale stationary industrial tools;

- *large-scale fixed installations, except any equipment which is not specifically designed and installed as part of those installations;*
- *means of transport for persons or goods, excluding electric two-wheel vehicles which are not type-approved;*
- *non-road mobile machinery made available exclusively for professional use;*
- *equipment specifically designed solely for the purposes of research and development that is only made available on a business-to-business basis;*
- *medical devices and in vitro diagnostic medical devices, where such devices are expected to be infective prior to end of life, and active implantable medical devices’.*

The disposal of separately collected and untreated WEEE is prohibited according to Article 6(1):

‘Member States shall prohibit the disposal of separately collected WEEE which has not yet undergone the treatment specified in Article 8’.

While the requirements for disposal of unsorted WEEE are set in Article 5(1):

‘Member States shall adopt appropriate measures to minimise the disposal of WEEE in the form of unsorted municipal waste, to ensure the correct treatment of all collected WEEE and to achieve a high level of separate collection of WEEE, notably, and as a matter of priority, for temperature exchange equipment containing ozone-depleting substances and fluorinated greenhouse gases, fluorescent lamps containing mercury, photovoltaic panels and small equipment as referred to in categories 5 and 6 of Annex III’.

In addition, the WEEE Directive sets some **targets on collection and recycling**.

According to Article 7(1), collection rate of WEEE shall be ‘65 % of the average weight of EEE placed on the market in the three preceding years in the Member State concerned, or alternatively 85 % of WEEE generated on the territory of that Member State’. By way of derogation (Article 7(3)), in the case of Bulgaria, the Czech Republic, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia and Slovakia, the collection rate target may be either at least 40% or postponed to 14 August 2021 at the latest.

According to Article 11(1), recovery targets for separately collected WEEE shall meet the requirements of Annex V, i.e.:

- ‘(a) for WEEE falling within category 1 or 4 of Annex III,
 - *85 % shall be recovered, and*
 - *80 % shall be prepared for re-use and recycled;*
- (b) for WEEE falling within category 2 of Annex III,
 - *80 % shall be recovered, and*
 - *70 % shall be prepared for re-use and recycled;*
- (c) for WEEE falling within category 5 or 6 of Annex III,
 - *75 % shall be recovered, and*
 - *55 % shall be prepared for re-use and recycled;*
- (d) for WEEE falling within category 3 of Annex III, 80 % shall be recycled’.

Finally, in order to further **protect the environment and human health**, the WEEE Directive sets specific requirements for the treatment and storage of WEEE (Article 8, Annex VII and Annex VIII), this includes:

- Article 8(2): ‘Proper treatment, other than preparing for re-use, and recovery or recycling operations shall, as a minimum, include the removal of all fluids and a selective treatment in accordance with Annex VII’;
- Annex VII: ‘1. as a minimum the following substances, mixtures and components have to be removed from any separately collected WEEE:

- polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (10),
- mercury containing components, such as switches or backlighting lamps,
- batteries,
- printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
- toner cartridges, liquid and paste, as well as colour toner,
- plastic containing brominated flame retardants,
- asbestos waste and components which contain asbestos,
- cathode ray tubes,
- chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
- gas discharge lamps,
- liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps,
- external electric cables,
- components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (11),
- components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation (12),
- electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume).

These substances, mixtures and components shall be disposed of or recovered in compliance with Directive 2008/98/EC.

2. The following components of WEEE that is separately collected have to be treated as indicated:

- cathode ray tubes: the fluorescent coating has to be removed,
- equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15, such as those contained in foams and refrigeration circuits: the gases must be properly extracted and properly treated. Ozone-depleting gases must be treated in accordance with Regulation (EC) No 1005/2009,
- gas discharge lamps: the mercury shall be removed'

— In addition, in Annex VIII, specific technical requirements for storage sites and treatment sites are set:

- '1. Sites for storage (including temporary storage) of WEEE prior to its treatment (without prejudice to the requirements of Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (13)):
 1. impermeable surfaces for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,
 2. weatherproof covering for appropriate areas.
- 2. Sites for treatment of WEEE:
 3. scales to measure the weight of the treated waste,

4. *impermeable surfaces and waterproof covering for appropriate areas with the provision of spillage collection facilities and, where appropriate, decanters and cleanser-degreasers,*
5. *appropriate storage for disassembled spare parts,*
6. *appropriate containers for storage of batteries, PCBs/PCTs containing capacitors and other hazardous waste such as radioactive waste,*
7. *equipment for the treatment of water in compliance with health and environmental regulations'.*

In order to further promote best practices on the protection of the environment, Article 8(6) also refers to '*the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)*' (see Section 11.2.2)'.

11.1.2.3 Restriction of the use of certain Hazardous Substances in electrical and electronic equipment, Directive 2011/65/EU

The so-called RoHS Directive 2011/65/EU <https://eur-lex.europa.eu/eli/dir/2011/65/oj>, as last amended by Directive (EU) 2019/178, aims for '*the restriction of the use of hazardous substances in electrical and electronic equipment (EEE) with a view to contributing to the protection of human health and the environment, including the environmentally sound recovery and disposal of waste EEE*' (Article 1).

The RoHS Directive does not contain specific requirements either the treatment of waste prior to disposal or the disposal of WEEE. The Directive restricts the use of certain substances when placing on the market of EEE.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2011/65/2020-03-01>.

11.1.2.4 End-of Life Vehicles, Directive 2000/53/EC

The so-called End-of Life Vehicles Directive, 2000/53/EC <https://eur-lex.europa.eu/eli/dir/2000/53/oj>, as last amended by Directive 2020/363, '*lays down measures which aim, as a first priority, at the prevention of waste from vehicles and, in addition, at the reuse, recycling and other forms of recovery of end-of life vehicles and their components so as to reduce the disposal of waste, as well as at the improvement in the environmental performance of all of the economic operators involved in the life cycle of vehicles and especially the operators directly involved in the treatment of end-of life vehicles*'.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2000/53/2020-03-06>.

The scope of the Directive covers 'vehicles and end-of life vehicles, including their components and materials' (Article 3(1)). 'Vehicles' being defined in Article 2(1) as 'any vehicle designated as category M1 or N1 defined in Annex IIA to Directive 70/156/EEC, and three wheel motor vehicles as defined in Directive 92/61/EEC, but excluding motor tricycles' and 'end-of life vehicle' being defined in Article 2(2) as 'a vehicle which is waste within the meaning of Article 1(a) of Directive 75/442/EEC'.

The Directive does not contain any specific provision for **the disposal** of end-of life vehicles.

No quantitative **disposal reduction targets** are provided but in its objectives the reduction of waste disposal is clearly mentioned.

In addition, **reuse, recovery and recycling targets** are set in Article 7(2)(b): 'no later than 1 January 2015, for all end-of life vehicles, the reuse and recovery shall be increased to a minimum of 95 % by an average weight per vehicle and year. Within the same time limit, the re-use and recycling shall be increased to a minimum of 85 % by an average weight per vehicle and year'.

Finally, the **minimum requirements for the protection of the environment and human health** are including in the treatment requirements. According to Article 2(5) the definition of '*treatment*' includes '*preparation for disposal of the shredder*'

wastes, and any other operation carried out for the recovery and/or disposal of the end-of life vehicle and its components', which in return may encompass some of the D codes of the WFD. In addition, Article 6 lays down specific requirements on treatment:

— '1. Member States shall take the necessary measures to ensure that all end-of-life vehicles are stored (even temporarily) and treated in accordance with the waste hierarchy and the general requirements laid down in Article 4 of Directive 2008/98/EC of the European Parliament and of the Council (2), and in compliance with the minimum technical requirements set out in Annex I to this Directive, without prejudice to national regulations on health and environment'; and

— '3. Member States shall take the necessary measures to ensure that any establishment or undertaking carrying out treatment operations fulfils at least the following obligations in accordance with Annex I:

(a) end-of life vehicles shall be stripped before further treatment or other equivalent arrangements are made in order to reduce any adverse impact on the environment. Components or materials labelled or otherwise made identifiable in accordance with Article 4(2) shall be stripped before further treatment;

(b) hazardous materials and components shall be removed and segregated in a selective way so as not to contaminate subsequent shredder waste from end-of life vehicles;

(c) stripping operations and storage shall be carried out in such a way as to ensure the suitability of vehicle components for reuse and recovery, and in particular for recycling.

Treatment operations for depollution of end-of life vehicles as referred to in Annex I(3) shall be carried out as soon as possible'.

The minimum requirements being defined in Annex I as:

— '1. Sites for storage (including temporary storage) of end-of-life vehicles prior to their treatment:

- *impermeable surfaces for appropriate areas with the provision of spillage collection facilities, decanters and cleanser-degreasers,*
- *equipment for the treatment of water, including rainwater, in compliance with health and environmental regulations.*

— 2. Sites for treatment:

- *impermeable surfaces for appropriate areas with the provision of spillage collection facilities, decanters and cleanser-degreasers,*
- *appropriate storage for dismantled spare parts, including impermeable storage for oil-contaminated spare parts,*
- *appropriate containers for storage of batteries (with electrolyte neutralisation on site or elsewhere), filters and PCB/PCT-containing condensers,*
- *appropriate storage tanks for the segregated storage of end-of-life vehicle fluids: fuel, motor oil, gearbox oil, transmission oil, hydraulic oil, cooling liquids, antifreeze, brake fluids, battery acids, air-conditioning system fluids and any other fluid contained in the end-of-life vehicle,*
- *equipment for the treatment of water, including rainwater, in compliance with health and environmental regulations,*
- *appropriate storage for used tyres, including the prevention of fire hazards and excessive stockpiling.*

— 3. Treatment operations for depollution of end-of-life vehicles:

- *removal of batteries and liquefied gas tanks,*
- *removal or neutralisation of potential explosive components, (e.g. air bags),*
- *removal and separate collection and storage of fuel, motor oil, transmission oil, gearbox oil, hydraulic oil, cooling liquids, antifreeze, brake fluids, air-conditioning system fluids and any other fluid contained in the end-of-life vehicle, unless they are necessary for the re-use of the parts concerned,*
- *removal, as far as feasible, of all components identified as containing mercury.*

— 4. Treatment operations in order to promote recycling:

- removal or catalysts,
 - removal of metal components containing copper, aluminium and magnesium if these metals are not segregated in the shredding process,
 - removal of tyres and large plastic components (bumpers, dashboard, fluid containers, etc.), if these materials are not segregated in the shredding process in such a way that they can be effectively recycled as materials,
 - removal of glass.
- 5. Storage operations are to be carried out avoiding damage to components containing fluids or to recoverable components and spare parts’.

11.1.2.5 Packaging and packaging waste, Directive 94/62/EC

The objective of Directive 94/62/EC <https://eur-lex.europa.eu/eli/dir/1994/62/oj>, as last amended by Directive 2018/852, is to ‘to harmonize national measures concerning the management of packaging and packaging waste in order, on the one hand, to prevent any impact thereof on the environment of all Member States as well as of third countries or to reduce such impact, thus providing a high level of environmental protection, and, on the other hand, to ensure the functioning of the internal market and to avoid obstacles to trade and distortion and restriction of competition within the Community’ and to lay down ‘measures aimed, as a first priority, at preventing the production of packaging waste and, as additional fundamental principles, at reusing packaging, at recycling and other forms of recovering packaging waste and, therefore, at reducing the final disposal of such waste in order to contribute to the transition towards a circular economy’.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1994/62/2018-07-04>.

Nevertheless, the Directive does not contain any specific provision to the disposal operations.

11.1.2.6 PCBs-PCTs, Directive 59/96/EC

The objective of the so-called PCB-PCT Directive <https://eur-lex.europa.eu/eli/dir/1996/59/oj>, as last amended by Regulation (EC) 596/2009, is to ‘approximate the laws of the Member States on the controlled disposal of PCBs, the decontamination or disposal of equipment containing PCBs and/or the disposal of used PCBs in order to eliminate them completely on the basis of the provisions of this Directive’ (Article 1)

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1996/59/2009-08-07>.

The scope of the PCB-PCT Directive are ‘PCBs’, ‘equipment containing PCBs’ and ‘used PCBs’.

— According to Article 2(a), PCBs are:

- ‘polychlorinated biphenyls,
- polychlorinated terphenyls,
- monomethyl-tetrachlorodiphenyl methane, mono-methyl-dichloro-diphenyl methane, monomethyl-dibromo-diphenyl methane,
- any mixture containing any of the abovementioned substances in a total of more than 0,005 % by weight’.

— According to Article 2(b) ‘equipment containing PCBs’ means ‘any equipment containing PCBs or having contained PCBs (e.g. transformers, capacitors, receptacles containing residual stocks) which has not been decontaminated. Equipment of a type which may contain PCBs shall be treated as if it contains PCBs unless it is reasonable to assume the contrary’; and

— According to Article 2(c) ‘used PCBs’ means ‘any PCBs which are waste within the meaning of Directive 75/442/EEC’.

Article 3 sets requirements on **the disposal** of used PCBs by 2010:

'Without prejudice to their international obligations, Member States shall take the necessary measures to ensure that used PCBs are disposed of and PCBs and equipment containing PCBs are decontaminated or disposed of as soon as possible. For the equipment and the PCBs contained therein, which are subject to inventory in accordance with Article 4 (1), decontamination and/or disposal shall be effected at the latest by the end of 2010'.

In addition, disposal is defined in Article 2(f) as: 'operations D 8, D 9, D 10, D 12 (only in safe, deep, underground storage in dry rock formations and only for equipment containing PCBs and used PCBs which cannot be decontaminated) and D 15 provided for in Annex II A of Directive 75/442/EEC'

The disposal of PCBs and used PCBs by incineration on ships is **prohibited** (Article 7).

Finally, regarding **the protection of the environment and human health**, Article 3 requires decontamination, which is defined as '*all operations which enable equipment, objects, materials or fluids contaminated by PCBs to be reused, recycled or disposed of under safe conditions, and which may include replacement, meaning all operations in which PCBs are replaced by suitable fluids not containing PCBs*' (Article 2(e)).

In addition, Article 8 requires:

- '1. Member States shall take the necessary measures to ensure that all undertakings engaged in the decontamination and/or the disposal of PCBs, used PCBs and/or equipment containing PCBs obtain permits in accordance with Article 9 of Directive 75/442/EEC'; and
- '2. Where incineration is used for disposal, Council Directive 94/67/EC of 16 December 1994 on the incineration of dangerous waste shall apply. Other methods of disposing of PCBs, used PCBs and/or equipment containing PCBs may be accepted provided they achieve equivalent environmental safety standards — compared with incineration — and fulfil the technical requirements referred to as best available techniques'.

11.1.2.7 Urban Waste Water Treatment, Directive 91/271/EEC

The objective of Directive 91/271/EEC concerning urban waste water treatment <https://eur-lex.europa.eu/eli/dir/1991/271/oj>, as last amended by Directive 2013/64/EU, is '*to protect the environment from the adverse effects of the abovementioned waste water discharge*' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1991/271/2014-01-01>.

The scope of the Directive is also defined in Article 1: 'This Directive concerns the collection, treatment and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors'.

In addition, Article 12 requires that:

- '1. Treated waste water shall be reused whenever appropriate. Disposal routes shall minimize the adverse effects on the environment'; and
- '2. Competent authorities or appropriate bodies shall ensure that the disposal of waste water from urban waste water treatment plants is subject to prior regulations and/or specific authorization'.

According to Article 14(3), **the dumping** of waste water treatment sludge to surface water shall be '*phased out*'.

In addition, according to Article 14(2) **the disposal** waste water treatment sludge is subject to '*general rules or registration or authorization*'.

Finally, in order to **protect the environment and human health**, Article 14(1) and 14(4) require:

- '1. Disposal routes shall minimize the adverse effects on the environment'; and
- '4. Until the elimination of the forms of disposal mentioned in paragraph 3, Member States shall ensure that the total amount of toxic, persistent or bioaccumulable materials in sludge disposed of to surface waters is licensed for disposal and progressively reduced'.

In addition, Article 15(3) requires MS to monitor and verify that the disposal of sludge does not have any adverse effect on the environment: *'in the case of disposal of sludge to surface waters, Member States shall monitor and carry out any other relevant studies to verify that the discharge or disposal does not adversely affect the environment'*; and Annex I, requires industrial waste water sludge to be disposed of in *'an environmentally acceptable manner'*.

No further requirements are provided.

11.1.2.8 Sewage sludge, Directive 86/278/EEC

The objective of Directive 86/278/EEC on the protection of the environmental, and in particular of the soil, when sewage sludge is used in agriculture <https://eur-lex.europa.eu/eli/dir/1986/278/oj>, as last amended by Decision (EU) 2018/853, is *'to regulate the use of sewage sludge in agriculture in such a way as to prevent harmful effects on soil, vegetation, animals and man, thereby encouraging the correct use of such sewage sludge'* (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1986/278/2018-07-04>.

The scope of the Directive are sludge used in agriculture (Article 3(1)): *'The sludge referred to in Article 2 (a) (i) may only be used in agriculture in accordance with this Directive'*.

The disposal of sludge is not in the scope of this Directive.

11.1.2.9 Extractive Waste, Directive 2006/21/EC

The objective of Directive 2006/21/EC on the management of waste from extractive industries (extractive waste) <https://eur-lex.europa.eu/eli/dir/2006/21/oj>, as last amended by Regulation (EC) 596/2009, is to provide for *'measures, procedures and guidance to prevent or reduce as far as possible any adverse effects on the environment, in particular water, air, soil, fauna and flora and landscape, and any resultant risks to human health, brought about as a result of the management of waste from the extractive industries'* (Article 1).

The scope of the Directive is the management of extractive waste as defined in Article 2:

- '1. Subject to paragraphs 2 and 3, this Directive covers the management of waste resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries, hereinafter 'extractive waste'.

- 2. The following shall be excluded from the scope of this Directive:

(a) waste which is generated by the prospecting, extraction and treatment of mineral resources and the working of quarries, but which does not directly result from those operations;

(b) waste resulting from the offshore prospecting, extraction and treatment of mineral resources;

(c) injection of water and re-injection of pumped groundwater as defined in the first and second indents of Article 11(3)(j) of Directive 2000/60/EC, to the extent authorised by that Article.

- 3. Inert waste and unpolluted soil resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries and waste resulting from the extraction, treatment and storage of peat shall not be subject to Articles 7, 8, 11(1) and (3), 12, 13(6), 14 and 16, unless deposited in a Category A waste facility.

1 The competent authority may reduce or waive the requirements for the deposit of non-hazardous waste
2 generated from the prospecting of mineral resources, except oil and evaporites other than gypsum and
3 anhydrite, as well as for the deposit of unpolluted soil and of waste resulting from the extraction,
4 treatment and storage of peat as long as it is satisfied that the requirements of Article 4 are met.

5 Member States may reduce or waive the requirements of Articles 11(3), 12(5) and (6), 13(6), 14 and 16
6 for non-hazardous non-inert waste, unless deposited in a Category A waste facility.

- 7 — 4. Without prejudice to other Community legislation, waste which falls within the scope of this Directive
8 shall not be subject to Directive 1999/31/EC’.

9
10 The EWD does not refer to **disposal operations** but to the ‘management of extractive waste’, ‘accumulation or deposit of
11 extractive waste’ and ‘waste facilities’. Article 3(15) defines a ‘waste facility’ as:

- 12 — ‘any area designated for the accumulation or deposit of extractive waste, whether in a solid or liquid
13 state or in solution or suspension, for the following time-periods:

- 14 • *no time-period for Category A waste facilities and facilities for waste characterised as hazardous in*
15 *the waste management plan;*
- 16 • *a period of more than six months for facilities for hazardous waste generated unexpectedly;*
- 17 • *a period of more than one year for facilities for non-hazardous non-inert waste;*
- 18 • *a period of more than three years for facilities for unpolluted soil, non-hazardous prospecting waste,*
19 *waste resulting from the extraction, treatment and storage of peat and inert waste.*

20 Such facilities are deemed to include any dam or other structure serving to contain, retain, confine or
21 otherwise support such a facility, and also to include, but not be limited to, heaps and ponds, but
22 excluding excavation voids into which waste is replaced, after extraction of the mineral, for rehabilitation
23 and construction purposes’.

24
25 In addition to this definition, two specific examples of waste facilities are defined in Article 3 points (9) and (12):

- 26 — heap: ‘an engineered facility for the deposit of solid waste on the surface’; and
27 — pond: ‘a natural or engineered facility for disposing of fine-grained waste, normally tailings, along with
28 varying amounts of free water, resulting from the treatment of mineral resources and from the clearing
29 and recycling of process water’.

30
31 Finally, Annex III provides the criteria for determining if a waste facility is classified Category A:

- 32 — ‘A waste facility shall be classified under category A if:
- 33 • *a failure or incorrect operation, e.g. the collapse of a heap or the bursting of a dam, could give rise to*
34 *a major accident, on the basis of a risk assessment taking into account factors such as the present or*
35 *future size, the location and the environmental impact of the waste facility; or*
 - 36 • *it contains waste classified as hazardous under Directive 91/689/EEC above a certain threshold; or*
 - 37 • *it contains substances or preparations classified as dangerous under Directives 67/548/EEC or*
38 *1999/45/EC above a certain threshold’.*

39
40 Nevertheless, according to this Article 2, waste falling under the scope of the EWD shall not be subject to the LfD. However,
41 according to Annex I to the LfD the disposal operations D1 to D15 may include disposal of extractive waste.

42
43 Bans and restriction are included in Articles 4(1) and 13(6).

44 According to Article 4(1), ‘Member States shall also take the necessary measures **to prohibit** the abandonment, dumping or
45 uncontrolled depositing of extractive waste’.

Whereas, according to Article 13(6) the deposition of extractive waste containing cyanides is restricted: 'in the case of a pond involving the presence of cyanide (...) the concentration of weak acid dissociable cyanide at the point of discharge of the tailings from the processing plant into the pond does not exceed (...) 10 ppm as from 1 May 2018 and 10 ppm at waste facilities which are granted a permit after 1 May 2008'.

Finally, the general requirements for the protection of **the environment and human health** are included in Article 4:

— '1. Member States shall take the necessary measures to ensure that extractive waste is managed without endangering human health and without using processes or methods which could harm the environment, and in particular without risk to water, air, soil and fauna and flora, without causing a nuisance through noise or odours and without adversely affecting the landscape or places of special interest. Member States shall also take the necessary measures to prohibit the abandonment, dumping or uncontrolled depositing of extractive waste.

— 2. Member States shall ensure that the operator takes all measures necessary to prevent or reduce as far as possible any adverse effects on the environment and human health brought about as a result of the management of extractive waste. This includes the management of any waste facility, also after its closure, and the prevention of major accidents involving that facility and the limiting of their consequences for the environment and human health.

— 3. The measures referred to in paragraph 2 shall be based, inter alia, on the best available techniques, without prescribing the use of any technique or specific technology, but taking into account the technical characteristics of the waste facility, its geographical location and the local environmental conditions'.

In addition, a number of more specific requirements on the waste management plan (Article 5), the prevention of major accidents (Article 6), the excavation voids (10), the construction and the management of waste facilities (Article 11), the closure and after-closure of waste facilities (Article 12) and the prevention of water status deterioration, air and soil pollution (Article 13) are provided.

11.1.3 Additional legislation on specific streams

11.1.3.1 Animal By-Products, Regulation (EU) 1069/2009

The objective of Regulation (EU) 1069/2009, known as the Animal By-Products Regulation (ABPR) <https://eur-lex.europa.eu/eli/reg/2009/1069/oj>, as last amended by Regulation (EU) 2019/1009, is to lay down 'public health and animal health rules for animal by-products and derived products, in order to prevent and minimise risks to public and animal health arising from those products, and in particular to protect the safety of the food and feed chain' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/reg/2009/1069/2019-12-14>.

The disposal of animal by-products is addressed in Chapter II, and in particular section 2. Depending on the material category, different types of disposal requirements are set:

— Category 1 and 2 materials:

- Disposed by incineration or co-incineration or in some cases landfilling, directly or following processing by pressure sterilisation.

— Category 3 materials:

- Disposed by incineration, co-incineration or landfilling.

Article 20 sets the rules to use alternative methods.

Other disposal specific requirements with regard to possible bans, restriction or measures to protect the environment and human health have not been identified.

11.1.3.2 Nitrates, Directive 91/676/EEC

The objective of Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources <https://eur-lex.europa.eu/eli/dir/1991/676/oj>, as last amended by Regulation (EC) 1137/2008, is 'reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1991/676/2008-12-11>.

The Directive includes specific requirements for the management and application of manure in nitrates vulnerable zones.

11.1.3.3 Ship Recycling, Regulation (EU) 1257/2013

The objective of Regulation (EU) 1257/2013 on ship recycling <https://eur-lex.europa.eu/eli/reg/2013/1257/oj>, as last amended by Regulation (EU) 2018/853, is 'to prevent, reduce, minimise and, to the extent practicable, eliminate accidents, injuries and other adverse effects on human health and the environment caused by ship recycling' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/reg/2013/1257/2018-07-04>.

According to Article 3(6), the **disposal** of waste is excluded from the definition of 'ship recycling'.

11.1.3.4 Persistent Organic Pollutants, Regulation (EU) 2019/1021

The objective of Regulation (EU) 2019/1021 on persistent organic pollutants <https://eur-lex.europa.eu/eli/reg/2019/1021/oj>, is 'to protect human health and the environment from POPs by prohibiting, phasing out as soon as possible, or restricting the manufacturing, placing on the market and use of substances subject to the Stockholm Convention on Persistent Organic Pollutants, hereinafter 'the Convention', or the Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Persistent Organic Pollutants, hereinafter 'the Protocol', by minimising, with a view to eliminating where feasible as soon as possible, releases of such substances, and by establishing provisions regarding waste consisting of, containing or contaminated by any of those substances' (Article 1).

Article 7(2) sets requirements for **the disposal** of waste: 'waste consisting of, containing or contaminated by any substance listed in Annex IV to this Regulation shall be disposed of or recovered, without undue delay and in accordance with Part 1 of Annex V to this Regulation, in such a way as to ensure that the POP content is destroyed or irreversibly transformed so that the remaining waste and releases do not exhibit the characteristics of POPs'.

In addition, according to Article 7(4), by way of derogation from Article 7(2):

— '(a) waste containing or contaminated by any substance listed in Annex IV may be otherwise disposed of or recovered in accordance with the relevant Union legislation, provided that the content of the listed substances in the waste is below the concentration limits specified in Annex IV;

— (b) a Member State or the competent authority designated by that Member State may, in exceptional cases, allow wastes listed in Part 2 of Annex V containing or contaminated by a substance listed in Annex IV up to concentration limits specified in Part 2 of Annex V to be otherwise dealt with in accordance with a method listed in Part 2 of Annex V, provided that the following conditions are fulfilled:

- (i) the holder concerned has demonstrated to the satisfaction of the competent authority of the Member State concerned that decontamination of the waste in relation to substances listed in Annex IV was not feasible, and that destruction or irreversible transformation of the POP content, performed in accordance with best environmental practice or best available techniques, does not represent the environmentally preferable option and the competent authority has subsequently authorised the alternative operation;
- (ii) the holder concerned has provided information on the POP content of the waste to the competent authority;
- (iii) the operation is in accordance with relevant Union legislation and with the conditions laid down in relevant additional measures referred to in paragraph 5;
- (iv) the Member State concerned has informed the other Member States, the Agency and the Commission of its authorisation and the justification for it'.

Annex IV provides a list of substances and concentration limits, whereas Annex V specifies the disposal operations permitted (Part 1) and the waste categories, concentration limits and the disposal conditions for which the 'exceptional case' may apply.

In practice, D9 and D10 disposal operations are permitted for the disposal of waste.

In 'exceptional cases', 'permanent storage shall be allowed only when all the following conditions are met:

— (1) The storage takes place in one of the following locations:

- safe, deep, underground, hard rock formations,
- salt mines,
- a landfill site for hazardous waste, provided that the waste is solidified or partly stabilised where technically feasible as required for classification of the waste in subchapter 19 03 of Decision 2000/532/EC.

— (2) The provisions of Council Directive 1999/31/EC (6) and Council Decision 2003/33/EC (7) were respected.

— (3) It has been demonstrated that the selected operation is environmentally preferable'.

In practice, this may be a D3, D5 or D12 operations.

According to Article 7(3), 'disposal or recovery operations that may lead to recovery, recycling, reclamation or re-use on their own of the substances listed in Annex IV **shall be prohibited**'.

For **the protection of the environment and human health**, a specific reference to best environmental practice or best available techniques is made in Article 7(4) in the case of derogation ('exceptional case').

11.1.4 Supplementary environmental legislation

11.1.4.1 Water Framework, Directive 2000/60/EC

The objective of Directive 2000/60/EC establishing a framework for Community action in the field of water policy <https://eur-lex.europa.eu/eli/dir/2000/60/oj>, as last amended by Directive 2014/101/EU, is 'to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2000/60/2014-11-20>.

The Directive sets requirements on discharges of waste-water into water bodies and other sources of pollution but not disposal of waste.

11.1.4.2 Groundwater, Directive 2006/118/EC

The objective of Directive 2006/118/EC on the protection of groundwater against pollution and deterioration <https://eur-lex.europa.eu/eli/dir/2006/118/oj>, as last amended by Directive 2014/80/EU, is to establish '*specific measures as provided for in Article 17(1) and (2) of Directive 2000/60/EC in order to prevent and control groundwater pollution*' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2006/118/2014-07-11>.

The Directive does not include specific requirements on disposal of waste.

11.1.4.3 Drinking water, Directive 98/83/EC

The objective of Directive 98/83/EC on the quality of water intended for human consumption <https://eur-lex.europa.eu/eli/dir/1998/83/oj>, as last amended by Directive 2015/1787/EU, is '*to protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean*' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1998/83/2015-10-27>.

The Directive does not include specific requirements on disposal of waste.

11.1.4.4 Bathing water, Directive 2006/7/EC

The objective of Directive 2006/7/EC concerning the management of bathing water quality <https://eur-lex.europa.eu/eli/dir/2006/7/oj>, as last amended by Directive 2013/64/EU, is '*to preserve, protect and improve the quality of the environment and to protect human health by complementing Directive 2000/60/EC*' (Article 1(2)).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2006/7/2014-01-01>.

The Directive does not include specific requirements on disposal of waste.

Nevertheless, Article 9 requires visual inspection of bathing waters to manage pollution. Pollution includes '*the presence of waste affecting bathing water quality and presenting a risk to bathers*' (Article 2(5)).

11.1.4.5 Marine Strategy Framework, Directive 2008/56/EC

The objective of Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy, known as the Marine Strategy Framework Directive <https://eur-lex.europa.eu/eli/dir/2008/56/oj>, as last amended by Directive 2017/845/EU, is to establish '*a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest*' (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2008/56/2017-06-07>.

The Directive does not include specific requirements on disposal of waste.

Nevertheless, Articles 8, 9, 10, 11 and 13 on the assessment, determination of good environmental status, establishment of environmental targets, monitoring and programmes of measures, require to consider '*anthropogenic pressures on the marine environment*' and '*uses and human activities in or affecting the marine environment*', which include '*input of litter (solid waste matter, including micro-sized litter)*' and '*waste treatment and disposal*'.

11.1.4.6 Habitat and Birds, Directives 92/43/EEC and 2009/147/EC

The objectives of Directives 92/43/EEC and 2009/147/EC on the conservation of natural habitats and of wild fauna and flora, and on the conservation of wild birds, known as the Habitat Directive <https://eur-lex.europa.eu/eli/dir/1992/43/oj>, and the Birds Directive <https://eur-lex.europa.eu/eli/dir/2009/147/oj>, as last amended by Directive 2013/17/EU and Regulation (EU) 2019/1010 respectively, are '*to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies*' (Article 2(1) of Directive 92/43/EEC) and '*conservation of all species of naturally occurring birds in the wild state in the European territory of the Member States to which the Treaty applies*' (Article 1 of Directive 2009/147/EC).

The consolidated versions, texts with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/1992/43/2013-07-01> and <https://eur-lex.europa.eu/eli/dir/2009/147/2019-06-26>.

The Directives do not include specific requirements on disposal of waste.

11.1.4.7 Environmental Impact Assessment, Directive 2011/92/EU

The objective of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, known as the Environmental Impact Assessment (EIA) Directive <https://eur-lex.europa.eu/eli/dir/2011/92/oj>, as last amended by Directive 2014/52/EU, is to lay down provisions for '*the assessment of the environmental effects of those public and private projects which are likely to have significant effects on the environment*' (Article 1(1)).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2011/92/2014-05-15>.

The scope of the directive includes all projects defined in Article 1(1), however a number of projects may be entirely or partially excluded on a case-by-case basis (Article 1(3)): '*Member States may decide, on a case-by-case basis and if so provided under national law, not to apply this Directive to projects, or parts of projects, having defence as their sole purpose, or to projects having the response to civil emergencies as their sole purpose, if they deem that such application would have an adverse effect on those purpose*'.

Article 4 sets a list of projects subject to a minimum number of requirements:

- '1. Subject to Article 2(4), projects listed in Annex I shall be made subject to an assessment in accordance with Articles 5 to 10.
- 2. Subject to Article 2(4), for projects listed in Annex II, Member States shall determine whether the project shall be made subject to an assessment in accordance with Articles 5 to 10. Member States shall make that determination through:
 - (a) a case-by-case examination; or
 - (b) thresholds or criteria set by the Member State.

Member States may decide to apply both procedures referred to in points (a) and (b)'.

Annex I includes in the list the following waste disposal operations:

— '3(b) Installations designed:

- (iii) for the final disposal of irradiated nuclear fuel;
- (iv) solely for the final disposal of radioactive waste;
- (v) solely for the storage (planned for more than 10 years) of irradiated nuclear fuels or radioactive waste in a different site than the production site.

— 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste (11) under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive.

— 10. Waste disposal installations for the incineration or chemical treatment as defined in Annex I to Directive 2008/98/EC under heading D9 of non-hazardous waste with a capacity exceeding 100 tonnes per day'.

Whereas, Annex II includes in the list additional waste disposal operations not included in Annex I:

— '3. ENERGY INDUSTRY

- (g) Installations for the processing and storage of radioactive waste (unless included in Annex I);

— 11. OTHER PROJECTS

- (b) Installations for the disposal of waste (projects not included in Annex I)'.

Nevertheless, Article 2(4) stipulates that: 'Without prejudice to Article 7, Member States may, in exceptional cases, exempt a specific project from the provisions laid down in this Directive, where the application of those provisions would result in adversely affecting the purpose of the project, provided the objectives of this Directive are met'.

Article 3 defines the objectives of the EIA:

— '1. The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- (a) population and human health;
- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- (c) land, soil, water, air and climate;
- (d) material assets, cultural heritage and the landscape;
- (e) the interaction between the factors referred to in points (a) to (d).

— 2. The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned'.

Finally, measures for **the protection of the environment and human health** shall be part of the EIA report submitted by the developer of the project (Article 5(1)):

— '1. Where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least:

- (a) a description of the project comprising information on the site, design, size and other relevant features of the project;
- (b) a description of the likely significant effects of the project on the environment;

- (c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment
- (d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;
- (e) a non-technical summary of the information referred to in points (a) to (d); and
- (f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected'.

11.1.4.8 Seveso III, Directive 2012/18/EU

The objective of Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances, known as Seveso III Directive <https://eur-lex.europa.eu/eli/dir/2012/18/oj>, lay down 'rules for the prevention of major accidents which involve dangerous substances, and the limitation of their consequences for human health and the environment, with a view to ensuring a high level of protection throughout the Union in a consistent and effective manner' (Article 1).

In principle, according to Article 2(2)(h), waste landfills and underground storage are not in **the scope** of the Directive: 'waste land-fill sites, including underground waste storage'.

However, the last paragraph of the same Article 2(2) includes tailing ponds containing dangerous substances (a specific category of extractive waste facilities): 'Notwithstanding points (e) and (h) of the first subparagraph, onshore underground gas storage in natural strata, aquifers, salt cavities and disused mines and chemical and thermal processing operations and storage related to those operations which involve dangerous substances, as well as operational tailings disposal facilities, including tailing ponds or dams, containing dangerous substances shall be included within the scope of this Directive'.

According to Article 5, the general obligations of a waste disposal operators falling under the Seveso III Directive is to 'take all necessary measures to prevent major accidents and to limit their consequences for human health and the environment' and 'to prove to the competent authority referred to in Article 6, at any time, in particular for the purposes of inspections and controls referred to in Article 20, that the operator has taken all necessary measures as specified in this Directive'.

This includes, a major-accident prevention policy (MAPP), **to protect the environment and human health**, as required by Article 8(1): 'Member States shall require the operator to draw up a document in writing setting out the major-accident prevention policy (MAPP) and to ensure that it is properly implemented. The MAPP shall be designed to ensure a high level of protection of human health and the environment. It shall be proportionate to the major-accident hazards. It shall include the operator's overall aims and principles of action, the role and responsibility of management, as well as the commitment towards continuously improving the control of major-accident hazards, and ensuring a high level of protection'.

In addition, for upper-tier establishments this includes a safety report as required by Article 10, which includes among others the operators to demonstrate that 'major-accident hazards and possible major-accident scenarios have been identified and that the necessary measures have been taken to prevent such accidents and to limit their consequences for human health and the environment' and that 'internal emergency plans have been drawn up and supplying information to enable the external emergency plan to be drawn up'.

Major accidents are defined in Article 3(13) as: 'an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment covered by this Directive, and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances'.

Whereas for all upper-tier establishments, the objectives of the emergency plans are:

- (a) containing and controlling incidents so as to minimise the effects, and to limit damage to human health, the environment and property;
- (b) implementing the necessary measures to protect human health and the environment from the effects of major accidents;

- (c) communicating the necessary information to the public and to the services or authorities concerned in the area;
- (d) providing for the restoration and clean-up of the environment following a major accident’.

Article 19 requires the **prohibition** of ‘any establishment, installation or storage facility, or any part thereof where the measures taken by the operator for the prevention and mitigation of major accidents are seriously deficient’.

11.1.4.9 Environmental Liability, Directive 2004/35/EC

The objective of Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage <https://eur-lex.europa.eu/eli/dir/2004/35/oj>, as last amended by Regulation (EU) 2019/1010, is to ‘establish a framework of environmental liability based on the ‘polluter-pays’ principle, to prevent and remedy environmental damage’.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dir/2004/35/2019-06-26>.

The scope of the Directive includes (according to Article 3(1) and Annex III points 2 and 13): ‘waste management operations, including the collection, transport, recovery and disposal of waste and hazardous waste, including the supervision of such operations and after-care of disposal sites, subject to permit or registration in pursuance of Council Directive 75/442/EEC of 15 July 1975 on waste and Council Directive 91/689/EEC of 12 December 1991 on hazardous waste.

Those operations include, inter alia, the operation of landfill sites under Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste and the operation of incineration plants under Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste.

For the purpose of this Directive, Member States may decide that those operations shall not include the spreading of sewage sludge from urban waste water treatment plants, treated to an approved standard, for agricultural purposes.

(...)

The management of extractive waste pursuant to Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries’.

To protect the environment and human health the Directive sets a number of requirements including:

- ‘Preventive measures’ (Article 5)
- ‘Remedial measures’ (Articles 6 and 7)

According to Articles 2 points (10) and (11) preventive and remedial measures are defined as follows:

- ‘10. ‘preventive measures’ means any measures taken in response to an event, act or omission that has created an imminent threat of environmental damage, with a view to preventing or minimising that damage;
- 11. ‘remedial measures’ means any action, or combination of actions, including mitigating or interim measures to restore, rehabilitate or replace damaged natural resources and/or impaired services, or to provide an equivalent alternative to those resources or services as foreseen in Annex II’.

In addition, ‘damage’ and ‘environmental damage’ are defined in Article 2 points (1) and (2):

- ‘1. ‘environmental damage’ means:
 - (a) damage to protected species and natural habitats, which is any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species. The significance of such effects is to be assessed with reference to the baseline condition, taking account of the criteria set out in Annex I;

— Damage to protected species and natural habitats does not include previously identified adverse effects which result from an act by an operator which was expressly authorised by the relevant authorities in accordance with provisions implementing Article 6(3) and (4) or Article 16 of Directive 92/43/EEC or Article 9 of Directive 79/409/EEC or, in the case of habitats and species not covered by Community law, in accordance with equivalent provisions of national law on nature conservation.

- (b) 'water damage', which is any damage that significantly adversely affects:

- (i) the ecological, chemical or quantitative status or the ecological potential, as defined in Directive 2000/60/EC, of the waters concerned, with the exception of adverse effects where Article 4(7) of that Directive applies; or

- (ii) the environmental status of the marine waters concerned, as defined in Directive 2008/56/EC, in so far as particular aspects of the environmental status of the marine environment are not already addressed through Directive 2000/60/EC;

- (c) land damage, which is any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms;

— 2. 'damage' means a measurable adverse change in a natural resource or measurable impairment of a natural resource service which may occur directly or indirectly'.

Finally, according to Annex II point 1.2 and 1.3, 'remedial measures' are based on 'remedial options' which are in return determined using 'best available technologies'.

11.1.5 Classification and reporting of waste

11.1.5.1 List of Waste, Decision 2000/532/EC

Commission Decision 2000/532/EC <https://eur-lex.europa.eu/eli/dec/2000/532/oj>, as last amended by Commission Decision 2014/955/EU, is known as the European List of Waste (LoW).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/dec/2000/532/2015-06-01>.

The objective of the LoW is to provide operators with a list of hazardous and non-hazardous wastes taking into account 'origin and composition of the waste and, where necessary, the limit values of concentration of hazardous substances'.

No waste disposal requirements are provided in the LoW, nevertheless in the category 'wastes from natal care, diagnosis, treatment or prevention of disease in humans' and 'wastes from research, diagnosis, treatment or prevention of disease involving animals' specific categories referring 'wastes whose collection and disposal is subject to special requirements in order to prevent infection' are included.

11.1.5.2 Commission notice on technical guidance on the classification of waste, (2018/C 124/01)

The Commission provided this notice, technical guidance on the classification of waste 2018/C 124/01 [https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1586879391746&uri=CELEX:52018XC0409\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1586879391746&uri=CELEX:52018XC0409(01)) with **the objective** to help the public, e.g. national authorities and waste operators, to properly determine and identify waste properties, including the hazard properties, and then to ultimately classify the waste into the correct waste category, either hazardous or non-hazardous, as provided in the LoW.

11.1.5.3 Waste Statistics, Regulation (EC) 2150/2002

The Waste Statistics Regulation (EC) 2150/2002 <https://eur-lex.europa.eu/eli/reg/2002/2150/oj>, as last amended by Regulation 849/2010, establishes 'a framework for the production of Community statistics on the generation, recovery and disposal of waste'.

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/reg/2002/2150/2010-10-18>.

The Regulation requires reporting of the statistics on the following disposal operations:

- D10 Incineration on land
- D1 Deposit into or onto land (e.g. landfill etc.)
 - + D5 Special engineered landfill (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment etc.)
 - + D12 Permanent storage (e.g. emplacement of containers in a mine etc.)
- D2 Land treatment (e.g. biodegradation of liquid or sludgy discards in soils etc.)
 - + D3 Deep injection (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories etc.)
 - + D4 Surface impoundment (e.g. placement of liquid or sludge discards into pits, ponds or lagoons etc.)
 - + D6 Release into a water body except seas/oceans
 - + D7 Release into seas/oceans including seabed insertion

It also provides a tables of equivalence between the LoW and the substance oriented waste statistical nomenclature (EWC-Stat Rev 4) for which reporting of statistics is required.

11.1.5.4 Rules and calculation methods for verifying compliance with the targets, Decision 2011/753/EU

Decision 2011/753/EU, <https://eur-lex.europa.eu/eli/dec/2011/753/oj>, establishes 'rules and calculation methods for verifying compliance with the targets set in Article 11(2) of Directive 2008/98/EC'.

It also provides additional definitions of specific waste-streams:

- (1) 'household waste' means waste generated by households;
- (2) 'similar waste' means waste in nature and composition comparable to household waste, excluding production waste and waste from agriculture and forestry;
- (3) 'municipal waste' means household waste and similar waste; and
- (4) 'construction and demolition waste' means waste corresponding to the waste codes in Chapter 17 of the Annex to Commission Decision 2000/532/EC (3), excluding hazardous waste and naturally occurring material as defined in Category 17 05 04'.

11.1.5.5 Registration, Evaluation, Authorisation and Restriction of Chemicals, Regulation 1907/2006

The Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation 1907/2006, <https://eur-lex.europa.eu/eli/reg/2006/1907/2014-04-10>, as last amended by Regulation 2020/1149, aims at ensuring 'a high level of protection of human health and the environment, including the promotion of alternative methods for assessment of hazards of substances, as well as the free circulation of substances on the internal market while enhancing competitiveness and innovation' (Article 1(1)).

The REACH Regulation lays down provisions on substances and mixtures and on the articles that contain them, rather than on waste (Articles 1, 2 and 3). However, since substances, mixtures and articles often end up being waste, the REACH legal text does contain waste-related provisions (e.g., in Annex I on Chemical Safety Reports, in Annex II, on safety data sheets, in Annex

VI on information requirements and in Annex XVII on restrictions). Also certain Implementing Decisions based on REACH refer to waste treatment or waste disposal (e.g., some authorisations for the use of a substance of very high concern impose use conditions on waste management). Nevertheless, the Waste Framework Directive (2008/98/EC) remains the reference point. For example, the disposal considerations for substances and mixtures in section 13 of the safety data sheets (described in REACH Annex II) have to be consistent with what the Waste Framework Directive requires. Only where a risk assessment of the waste phase for a given substance (and substance use) has been done as part of the Chemical Safety Report (see REACH Annex I – 5.2.2; for related guidance: see R18 – Exposure scenario building and release estimation for the waste stage), this would be relevant in the context of this report.

11.2 Other relevant EU documents

11.2.1 Best Available Techniques Reference Documents (BREFs)

11.2.1.1 Waste Incineration

The best available techniques reference document (BREF) for incineration of waste <https://eippcb.jrc.ec.europa.eu/reference/waste-incineration-0>, includes incineration or co-incineration of municipal waste and other non-hazardous wastes, sewage sludge, hazardous wastes and clinical waste.

In addition to the incineration processes, it covers pyrolysis and gasification processes, thermal treatment, some pre-treatment techniques, and the reception, handling and storage prior to incineration or co-incineration.

11.2.1.2 Waste Treatment

The best available techniques reference document (BREF) for incineration of waste <https://eippcb.jrc.ec.europa.eu/reference/waste-treatment-0>, covers among others:

- ‘common waste treatments such as the temporary storage of waste, blending or mixing, repackaging, waste reception, sampling, checking and analysis, waste transfer and handling installations, and waste transfer stations
- biological treatments of waste such as aerobic/anaerobic treatments and mechanical and biological treatments
- physico-chemical treatments of waste such as neutralisation, chromic acid and cyanide treatments, dewatering, filtration, harbour reception facilities, oil/water separation, precipitation, separation of mercury from waste, settlement, solidification and stabilisation, and UV and ozone treatments’

11.2.1.3 Management of Waste from Extractive Industries

The best available techniques reference document (BREF) for the management of waste from extractive industries <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/best-available-techniques-bat-reference-document-management-waste-extractive-industries>, covers the management of extractive waste and the extractive waste facility (in the planning and design, operational, closure and after-closure phases).

11.2.2 Other reference and guidance documents

11.2.2.1 Community eco-management and audit scheme (EMAS), Regulation (EC) 1221/2009

The EMAS regulation <https://eur-lex.europa.eu/eli/reg/2009/1221/oj>, as last amended by Regulation (EU) 2018/2026, aims to ‘*promote continuous improvements in the environmental performance of organisations by the establishment and implementation of environmental management systems by organisations, the systematic, objective and periodic evaluation of the performance of such systems, the provision of information on environmental performance, an open dialogue with the public and other interested parties and the active involvement of employees in organisations and appropriate training*’ (Article 1).

The consolidated version, text with no legal effect, is available at <https://eur-lex.europa.eu/eli/reg/2009/1221/2019-01-09>.

11.2.2.2 Best Environmental Management Practice for the Waste Management Sector

The Best Environmental Management Practice (BEMP) for waste management sector, <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/best-environmental-management-practice-waste-management-sector>, covers ‘the waste management areas which determine the most the overall waste management performance: setting a waste management strategy, promoting waste prevention, establishing an efficient waste collection that supports re-use and recycling, and stimulating waste and product re-use’. The BEMP covers the management of municipal solid waste, but also of construction and demolition waste and healthcare waste. Additionally, it provides a ‘set of environmental performance indicators that organisations can use to assess their waste management performance and monitor progress as well as benchmarks of excellence that give an indication of the levels achieved by best performers’. The report represents the technical basis for the voluntary participation to the EMAS (see Section 11.2.2.1).

11.3 United Nations Conventions

11.3.1 Basel Convention

The general presentation of the Basel Convention is available at:

<http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>

The protocol of the Basel Convention is available at:

<http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx>

A number of the provisions of the Convention are interpreted differently by Parties. The need for a common understanding of substances, objects and activities falling under the scope of the Basel Convention led the Conference of the Parties, at its tenth meeting (COP 10), to initiate some work towards providing additional [legal clarity](#). The review of Annexes I, III, IV and related aspects of Annex IX to the Convention was initiated by the Conference of the Parties at its twelfth meeting (COP 12).

Annex IV to the Basel Convention lists the disposal operations; it includes two sections, namely section A “final disposal operations”, and section B “recovery operations”. Further information are available at:

<http://www.basel.int/Implementation/LegalMatters/LegalClarity/ReviewofAnnexes/AnnexesI,III,IVandrelatedaspects/Annexes/tabid/6269/Default.aspx>

More in detail, the way forward for Annex IV foresees that amendment proposals are presented and discussed during the Open-ended Working Group (OEWG) 12 in 2020 and that they are negotiated and possibly adopted at the COP 15 in 2021.

Furthermore, the specific activities undertaken by the Expert Working Group (EWG) on the review of Annexes during the biennium 2020-2021 are available at:

<http://www.basel.int/Implementation/LegalMatters/LegalClarity/ReviewofAnnexes/AnnexesI,III,IVandrelatedaspects/Annexes/Activities20202021/tabid/8050/Default.aspx>

At the time of writing, the EWG held its third meeting in November 2019 and developed [recommendations](#) on the review of Annex IV. Parties and observers were invited to provide comments by April 2020.

The general comments from EU concerned the inclusion of examples of specific operations, the differentiation of interim from non-interim operations, and the inclusion of catch-all operations or the need of developing guidance to further clarify the operations in Annex IV. The [preferred options](#) by EU and its MS are also highlighted in Table 1. It has to be underlined that all the options are still under discussion by the Members of the EWG.

Table 1: Summary of the options for possible amendment proposals to Annex IV section A, including the preferred options of EU and its Member States (dated 30/04/2020)

Options for possible amendment proposals to Annex IV A	EU and MS comments, rationale:
<p>D1: Deposit into or onto land, (e.g., landfill, etc.)</p> <p>1. Deposit into or onto land, (e.g. non-engineered landfill, dumpsites) other than by any operations D2 to D5, D12 or D12bis</p> <p>2. Deposit into or onto land, [(e.g. dumpsites, [placement into wells, salt domes or naturally occurring repositories])] other than covered by D2, [D3], D4, D5, D12 or D12bis (e.g. placement into wells, salt domes of naturally occurring repositories)</p>	<p>We think Option 2 has merits. We suggest an editorial change and deletion of the example “dumpsites”, a) because we think that D3 may be deleted since it may practically not be very relevant and could be covered under D1 and b) because we generally do not think that examples should be chosen that are always non-environmentally sound as choosing such examples could mislead the reader that only non-environmentally sound operations could be covered under D1.</p> <p>We note that there may also be environmentally sound deposit into or onto land, e.g. the placement of suitable waste into suitable areas. The example “non-engineered landfill” seems redundant since the deposit in engineered landfills will be covered by D5 and therefore a non-engineered landfill will be covered by D1 without mentioning it. Examples could also be omitted.</p>
<p>D2: Land treatment, (e.g., biodegradation of liquid or sludgy discards in soils, etc.)</p> <p>0. Status quo</p> <p>1. {Treatment of land or through interaction with land other than covered by R10 in section B (e.g. {biological or chemical treatment}, [landfarming]) [as a non-interim operation]}</p>	<p>Option 1 has advantages as it is clearer than the status quo. We suggest adding text in order to clearly distinguish with the related operation R10. We think that the term “landfarming” could be misinterpreted and does not add something in addition to biological or chemical treatment. As to “as a non-interim operation”, see the general comments above on the differentiation between interim and non-interim operations.</p>
<p>D3: Deep injection, (e.g., injection of pumpable discards into wells, salt domes of naturally occurring repositories, etc.)</p> <p>0. Status quo</p> <p>1. Delete and merge with D1</p>	<p>We think that D3 may be deleted because it may practically not be very relevant and could be covered under D1.</p>
<p>D4: Surface impoundment, (e.g., placement of liquid or sludge discards into pits, ponds or lagoons, etc.)</p> <p>0. Status quo</p> <p>1. Surface impoundment (e.g. placement of liquids or sludge into pits, tailings ponds, tailings dams or tailings lagoons)</p>	<p>Option is clearer than the status quo.</p>
<p>D5: Specially engineered landfill, (e.g., placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)</p> <p>1. Deposit in an engineered landfill isolated from the environment</p> <p>2. [Deposit in an] Engineered landfill ([i.e.] [e.g.] placement isolated from the environment with[, if needed,] venting systems, leachate collection and draining systems)</p>	<p>We think that option 1 is simpler and clearer.</p> <p>The technical features in the examples for option 2 do not seem necessary as these are explained in detail in the technical guidelines on D5 that is currently under revision</p>
<p>D6: Release into a water body except seas/oceans</p> <p>0. Status quo</p>	
<p>D7: Release into seas/oceans including sea-bed insertion</p> <p>0. Status quo</p>	

Options for possible amendment proposals to Annex IV A	EU and MS comments, rationale:
<p>D8: Biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations in Section A</p> <p>1. Biological treatment not specified elsewhere in this Annex, prior to submission to any of the operations in Section A</p> <p>2. Biological treatment prior to submission to any of the operations in Section A</p> <p>3. Biological treatment as an interim operation prior to any of operations in section A</p> <p>D8.01: aeration lagoons D8.02: bioventilation (bioventing) D8.03: activated sludge D8.04: biopiles with added nutrients (composting) D8.05: UASB reactors D8.06: full mix digesters D8.07: another aerobic treatment D8.08: another anaerobic treatment</p>	<p>We think Option 2 has merits because it is clear and simple. In option 1, "not specified elsewhere in this Annex" is unclear; there does not seem to be another biological treatment as interim operation in section A.</p> <p>With regard to option 3, see the general comments above on including subcategories. As to "as an interim operation", see the general comments above on the differentiation between interim and non-interim operations.</p>

Options for possible amendment proposals to Annex IV A	EU and MS comments, rationale:
<p>D9: Physico chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations in Section A, (e.g., evaporation, drying, calcination, neutralization, precipitation, etc.)</p> <p>1. Manual treatment (e.g. separation), pPhysical/mechanical treatment (e.g. separation, size reduction, evaporation, drying, {autoclaving}), physical/chemical treatment (e.g. solvent extraction), chemical treatment (e.g. neutralization, precipitation) or immobilization (e.g. stabilization, solidification, encapsulation) prior to submission to any of the operations in Section A</p> <p>2. Physico chemical treatment as an interim operation prior to any of operations in section A</p> <p>D9.01: evaporation, drying, dehydration</p> <p>D9.02: precipitation, flotation, flocculation, coagulation, decantation</p> <p>D9.03: phase separation, adsorption, desorption, absorption</p> <p>D9.04: neutralization</p> <p>D9.05: treatment by adsorption / desorption of activated carbon</p> <p>D9.06: dechlorination</p> <p>D9.07: decomposition by oxidation and / or reduction</p> <p>D9.08: centrifugation, filtering and other selective separation media</p> <p>D9.09: steam air treatment, condensation</p> <p>D9.10: autoclave or other similar technology that uses pressure and temperature as process variables, for decontamination of contaminated solids</p> <p>D9.11: Washing or decontamination</p> <p>D9.12: Microencapsulated</p> <p>D9.13: Macroencapsulation</p> <p>D9.14: Chemical stabilization</p> <p>D9.15: Physical stabilization</p> <p>D9.16: Another waste conditioning operation for further treatment or final disposal</p>	<p>We think that option 1 has advantages because of its clarity. We think that "separation, size reduction" could be added as examples since the technical guidelines on D8 and D9 cover e.g. "size reduction" (which seems to cover e.g. compacting, shredding and crushing), "special physical sorting", "sieving and screening", "air classification" under "physical/mechanical treatment". In line with the discussion on D22, we think it is clearer to add "manual treatment (e.g. separation)" separately from "physical/mechanical treatment", although "manual separation" is covered under "physical/mechanical treatment" in the technical guidelines on D8 and D9. In light of these changes, D22 can be dropped. We also think that "autoclaving" can be listed as example, in line with the technical guidelines on D8 and D9. In addition, "encapsulation" should not be added as example since the technical guidelines on mercury wastes and the general technical guidelines on POPs clarify that solidification encapsulate waste.</p> <p>With regard to option 2, see the general comments above on including subcategories. As to "as an interim operation", see the general comments above on the differentiation between interim and non-interim operations.</p>
<p>D10: Incineration on land</p> <p>1. Thermal treatment {other than covered by R1 in Section B} {other than covered by D11 and D18 }(e.g. incineration)</p> <p>2. Thermal treatments other than covered by D11 and D18</p> <p>D10.01: incineration, thermic oxidation or pyrolysis</p> <p>D10.02: co-incineration</p> <p>D10.03: gasification</p> <p>D10.04: thermal desorption</p> <p>D10.05: vitrification</p> <p>D10.06: other D10</p>	<p>We think that option 1 is clearer. We think also that it is useful to include a reference to R1 for clarity. We note that we do not support keeping D11 and adding D18.</p> <p>With regard to option 2, see the general comments above on including subcategories.</p>

Options for possible amendment proposals to Annex IV A	EU and MS comments, rationale:
<p>D11: Incineration at sea</p> <p>0. Status quo</p> <p>1. Delete and merge with D10 option1</p>	<p>We think it has merit to merge with D10 option 1 for simplification and broadening. In addition, listing an operation that seems to cover non-environmentally sound management separately does not seem appropriate. We note that the London Convention stands on its own. We also note that the Basel Convention does not cover the transport to incineration at sea outside the area under the national jurisdiction of a State as the term transboundary movement does not cover such transport. Finally, we note that, given the provisions of the London Convention and the Basel Convention, it is unlikely that a notification is made for the transboundary movement where D11 is used.</p>
<p>D12: Permanent storage (e.g., emplacement of containers in a mine, etc.)</p> <p>Split in 2:</p> <p>D12: Permanent underground storage (e.g. emplacement of containers in a mine)</p> <p>D12bis: Permanent aboveground storage (e.g. emplacement of containers in a warehouse)</p>	
<p>D13: Blending or mixing prior to submission to any of the operations in Section A</p> <p>0. Status quo</p>	
<p>D14: Repackaging prior to submission to any of the operations in Section A</p> <p>0. Status quo</p>	
<p>D15: Storage pending any of the operations in Section A</p> <p>Temporary storage (as an interim operation) prior to submission to any of the operations in section A</p>	<p>As to "as an interim operation", see the general comments above on the differentiation between interim and non-interim operations.</p>
New operations	
<p>D16: Release to the atmosphere (e.g. venting of compressed or liquefied gases)</p>	
<p>D17: Treatment of waste by nanomaterials</p>	<p>We do not support this operation. The arguments in annex II to document UNEP/CHW/RA_EWG.3/INF/3 are not convincing. It seems that the processes described are not practically relevant and can be covered under D2 or D9, or if appropriate under R operations. Some of the processes described are not relevant for waste (e.g. production of drinking water from seawater). The links in this annex II are not all up to date, e.g. the "European Observatory for Nanotechnology" refers to a project run from 2008 until 2012 by an institute.</p>
<p>D18: Open burning</p>	<p>We do not support a separate operation for open burning as it is covered by operation D10 option 1. Listing an unsound operation separately does not seem appropriate; this is also not done for other unsound operations. We do not think it would be useful to develop specific codes for this type of undesired operations.</p>

Options for possible amendment proposals to Annex IV A	EU and MS comments, rationale:
<p>[D19: Sterilization or disinfection of [biopathological] [infectious] waste as an interim operation prior to submission to any of the operations in section A]</p> <p>D19.01: autoclave D19.02: microwave – radio waves. D19.03: physical sterilization D19.04: chemical sterilization D19.05: other method or technology not specified]</p>	<p>We do not support this operation as it refers to a certain waste type; see also the related general comments above. We note that the operations specified in the subcategories can be covered under D9 (autoclaving and microwave irradiation are mentioned in the technical guidelines on D8 and D9). In addition, see the general comments above on including subcategories. As to “as an interim operation”, see the general comments above on the differentiation between interim and non-interim operations.</p>
<p>[D20: Other treatment than covered by D1 option 2, D2 option1, D3 option1, D5 option1, D6, D7, D10 option1, D12, D12bis and D16 above]</p>	<p>We support this operation; see the general comments above on the including or not of catch-all operations.</p>
<p>[D21: Other treatment than covered by D8 option 2, D9 option1, D13, D14, <u>D15</u> and D22 above prior to submission to any of the operations in Section A]</p>	<p>We support this operation (D15 added as it is also an interim operation); see the general comments above on the including or not of catch-all operations.</p>
<p>[D22: Mechanical or manual [operations] [treatment] other than covered by D13 (e.g. dismantling, sorting, crushing, compacting, shredding, separating) prior to submission to any of the operations in section A]</p>	<p>Merged with D9; see comments on D9 option 1 above.</p>
<p>[D23 Treatment of land or through interaction with land (e.g. [biological or chemical treatment], [landfarming]) as an interim operation prior to submission to any of the operations in Section A.]</p>	<p>A treatment of land or through interaction with land prior to submission to any of the operations in Section A can in our view be covered under D8 or D9 (see also the related contents in the Technical guidelines on D8 and D9); therefore, a separate specific operation seems redundant. See also the general comments above on the differentiation between interim and non-interim operations.</p>
<p>[D24: Biological treatment as a non-interim operation not covered by D2]</p> <p>D24.01: aeration lagoons D24.02: bioventilation (bioventing) D24.03: UASB reactors]</p>	<p>We do not support the inclusion of this operation. It seems that the subcategories listed are interim operations, before water is released into the environment. Aerated lagoons and upflow anaerobic sludge blanket (UASB) reactors are wastewater treatment operations; after such interim operations, clean water seems to be released to the environment. Bioventing seems to be one of the interim operations for groundwater remediation, and we doubt that groundwater can be a waste. In addition, see the general comments above on including subcategories. As to “as a non-interim operation”, see the general comments above on the differentiation between interim and non-interim operations.</p>
<p>[D25: Physico-chemical treatment as a non-interim operation (e.g. neutralization)]</p>	<p>We do not support the inclusion of this operation. We seek clarification which non-interim operations are meant here; such treatment, e.g. neutralization, seems to be an interim operation, before a certain material that has been treated, e.g. neutralized, is released to the environment. If such material would be of use, it could be a non-waste and the treatment, e.g. neutralization, could be a recovery operation. As to “as a non-interim operation”, see the general comments above on the differentiation between interim and non-interim operations.</p>

The preferred options by EU are highlighted in green, the amended text in these options is ~~strikethrough~~ and the additions are underlined.
The discarded options by EU are highlighted in red and ~~strikethrough~~

- 1
- 2 The options for Annex IV section A, preliminarily proposed by the EU and its MS, have also been summarised in **Table 2** with
- 3 the only purpose to illustrate the order of disposal operations. More in detail, interim operations are listed after non-interim
- 4 operations, and the suggested catch-all operations are placed at the end of the non-interim and interim operations,
- 5 respectively.
- 6

1 **Table 2:** Summary of the options for final disposal operations proposed by the EU and its MS (dated 30/04/2020)

Annex IV – Disposal operations		Note
A.	Final disposal operations	
	A final disposal operation is an operation which is not a recovery operation even where the operation reclaims substances or energy as a secondary consequence.	
A1	Deposit in an aboveground landfill isolated from the environment	<i>D5 option 1</i>
A2	Surface impoundment (e.g. placement of liquids or sludge into pits, tailings ponds, tailings dams or tailings lagoons)	<i>D4 option 1</i>
A3	Permanent underground storage (e.g. emplacement of containers in a mine)	<i>from D12</i>
A4	Permanent aboveground storage (e.g. emplacement of containers in a warehouse)	<i>from D12bis</i>
A5	Deposit into or onto land other than covered by A1 to A4 (e.g. placement into wells, salt domes or naturally occurring repositories)	<i>D1 option 1</i>
A6	Treatment of land or through interaction with land other than covered by B5 in Section B (e.g. biological or chemical treatment)	<i>D2 option 1</i>
A7	Release into a water body except seas/oceans	<i>D6 option 0</i>
A8	Release into seas/oceans including sea-bed insertion	<i>D7 option 0</i>
A9	Release to the atmosphere (e.g. venting of compressed or liquefied gases)	<i>D16</i>
A10	Thermal treatment other than covered by B6 in Section B (e.g. incineration)	<i>D10 option 1</i>
A11	Other treatment than covered by A1 to A10 above	<i>D20</i>
A12	Biological treatment prior to submission to any of the operations in section A	<i>D8 option 1</i>
A13	Manual treatment (e.g. separation), physical/mechanical treatment (e.g. separation, size reduction, evaporation, drying, autoclaving), physical/chemical treatment (e.g. solvent extraction), chemical treatment (e.g. neutralization, precipitation) or immobilization (e.g. stabilization, solidification) prior to submission to any of the operations in Section A	<i>D9 option 1 merged with D22</i>
A14	Blending or mixing prior to submission to any of the operations in Section A	<i>D13 option 0</i>
A15	Repackaging prior to submission to any of the operations in Section A	<i>D14 option 0</i>
A16	Temporary storage prior to submission to any of the operations in Section A	<i>from D15</i>
A17	Other treatment than covered by A12 to A16 above prior to submission to any of the operations in Section A	<i>D21</i>

Note: These views are preliminary and the specific descriptions of the respective operations are without any prejudice to any future proposals that could be submitted by the EU and its Member States.

11.3.2 London Convention and Protocol

The general presentation of the London Convention and Protocol is available at:

<http://www.imo.org/en/ourwork/environment/specialprogrammesandinitiatives/pages/londonconvention.aspx>

The protocol of the London Convention is available at:

<http://www.imo.org/en/OurWork/Environment/LCLP/Documents/PROTOCOLAmended2006.pdf>

The London Convention's Protocol prohibit the 'dumping of wastes or other matter with the exception of those listed in Annex I' (as defined in the Protocol it includes deliberate disposal of, storage and abandonment) into the internal waters of the contracting parties.

Annex I includes the following wastes:

- .1 dredged material;
- .2 sewage sludge;
- .3 fish waste, or material resulting from industrial fish processing operations;
- .4 vessels and platforms or other man-made structures at sea;
- .5 inert, inorganic geological material;
- .6 organic material of natural origin;
- .7 bulky items primarily comprising iron, steel, concrete and similarly unarmful materials for which the concern is physical impact, and limited to those circumstances where such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping; and
- .8 Carbon dioxide streams from carbon dioxide capture processes for sequestration’.

11.3.3 OSPAR Convention

The general presentation of the OSPAR Convention are available at:

<https://www.ospar.org/convention>

The text of the OSPAR Convention is available at:

<https://www.ospar.org/convention/text>

The OSPAR Convention includes among others the objective of preventing and eliminating ‘pollution by dumping or incineration of wastes or other matter in accordance with the provisions of the Convention, in particular as provided for in Annex II’ into the ‘maritime area’, i.e. ‘the internal waters and the territorial seas of the Contracting Parties, the sea beyond and adjacent to the territorial sea under the jurisdiction of the coastal state to the extent recognised by international law, and the high seas, including the bed of all those waters and its sub-soil, situated within the following limits:

- (i) those parts of the Atlantic and Arctic Oceans and their dependent seas which lie north of 36° north latitude and between 42° west longitude and 51° east longitude, but excluding:
 - (1) the Baltic Sea and the Belts lying to the south and east of lines drawn from Hasenore Head to Griben Point, from Korshage to Spodsbjerg and from Gribjerg Head to Kullen,
 - (2) the Mediterranean Sea and its dependent seas as far as the point of intersection of the parallel of 36° north latitude and the meridian of 5° 36' west longitude;
- (ii) that part of the Atlantic Ocean north of 59° north latitude and between 44° west longitude and 42° west longitude’.

‘Dumping’ means:

- ‘(i) any deliberate disposal in the maritime area of wastes or other matter
 - (1) from vessels or aircraft;
 - (2) from offshore installations;
- (ii) any deliberate disposal in the maritime area of
 - (1) vessels or aircraft;
 - (2) offshore installations and offshore pipelines’.

Annex II to the Convention provides a list of wastes and materials that are exempted from the prohibition (https://www.ospar.org/site/assets/files/1169/pages_from_ospar_convention_a2.pdf):

- (a) dredged material;
- (b) inert materials of natural origin, that is solid, chemically unprocessed geological material the chemical constituents of which are unlikely to be released into the marine environment;
- (c) sewage sludge until 31st December 1998;
- (d) fish waste from industrial fish processing operations;
- (e) vessels or aircraft until, at the latest, 31st December 2004;
- (f) carbon dioxide streams from carbon dioxide capture processes for storage, provided:
 - i. disposal is into a sub-soil geological formation;*
 - ii. the streams consist overwhelmingly of carbon dioxide. They may contain incidental associated substances derived from the source material and the capture, transport and storage processes used;*
 - iii. no wastes or other matter are added for the purpose of disposing of those wastes or other matter;*
 - iv. they are intended to be retained in these formations permanently and will not lead to significant adverse consequences for the marine environment, human health and other legitimate uses of the maritime area'.*

11.3.4 Helsinki Convention

The general presentation of the Helsinki Convention are available at:

<https://helcom.fi/about-us/convention/>

The text of the Helsinki Convention is available at:

https://helcom.fi/media/publishingimages/Helsinki-Convention_July-2014.pdf

In its Articles 10 and 11, the Helsinki Convention prohibits incineration in the Baltic Sea Area and dumping in the Baltic Sea Area with the exception of dredged material, subject to a prior special permit and in case of human life safety.

11.3.5 Barcelona Convention and its Protocols

The general presentation of the Barcelona Convention are available at:

<https://web.unep.org/unepmap/who-we-are/legal-framework>

The text of the Barcelona Convention (renamed Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean after substantive amendments) is available at:

http://wedocs.unep.org/bitstream/handle/20.500.11822/7096/Consolidated_BC95_Eng.pdf

In its Articles 5 the Convention requires the following: 'the Contracting Parties shall take all appropriate measures to prevent, abate and to the fullest possible extent eliminate pollution of the Mediterranean Sea Area caused by dumping from ships and aircraft or incineration at sea'.

And Article 11: 'The Contracting Parties shall take all appropriate measures to prevent, abate and to the fullest possible extent eliminate pollution of the environment which can be caused by transboundary movements and disposal of hazardous wastes, and to reduce to a minimum, and if possible eliminate, such transboundary movements'.

11.3.6 Bucharest Convention and its Protocols

The general presentation of the Bucharest Convention are available at:

1 <http://www.blacksea-commission.org/Official%20Documents/The%20Convention/Overview/>

2 The text of the Bucharest Convention and its Protocols is available at:

3 <http://www.blacksea-commission.org/Official%20Documents/The%20Convention/full%20text/>

5 In its Articles X the Convention requires from the Contracting Parties to:

6 '1. The Contracting Parties shall take all appropriate measures and cooperate in preventing, reducing and controlling pollution
7 caused by dumping in accordance with the Protocol on the Protection of the Black Sea Marine Environment Against Pollution
8 by Dumping which shall form an integral part of this Convention.

9 2. The Contracting Parties shall not permit, within areas under their respective jurisdiction, dumping by natural or juridical
10 persons of non-Black Sea States'.

12 Whereas, Articles 2, 3 and 4 of the Protocols specifies the following:

13 — Article 2: 'Dumping in the Black Sea of wastes or other matter containing substances listed in Annex 1 to
14 this Protocol is prohibited. The preceding provision does not apply to dredged spoils provided that they
15 contain trace contaminants listed in Annex 1 below the limits of concentration to be defined by the
16 Commission within a 3 year period from the entry into force of the Convention'.

17 — Article 3: 'Dumping in the Black Sea of wastes or other matter containing noxious substances listed in
18 Annex II to this Protocol requires, in each case, a prior special permit from the competent national
19 authorities'.

20 — Article 4: 'Dumping in the Black Sea of all other wastes or matter requires a prior general permit from the
21 competent national authorities'.

23 Finally, Annex 1 provides the list of wastes containing hazardous substances and matter for which the dumping prohibition
24 applies:

25 — '1. Organohalogen compounds e.g. DDT, DDE, DDD, PCB's.

26 — 2. Mercury and mercury compounds.

27 — 3. Cadmium and cadmium compounds.

28 — 4. Organotin compounds

29 — 5. Persistent synthetic materials which may float, sink or remain in suspension.

30 — 6. Used lubricating oils.

31 — 7. Lead and lead compounds.

32 — 8. Radioactive substances and wastes, including used radioactive fuel.

33 — 9. Crude oil and hydrocarbons of any origin'.

11.4 Annex II. Table of equivalence

The table of equivalence was taken from Commission Regulation (EU) No 849/2010 of 27 September 2010 amending Regulation (EC) No 2150/2002 of the European Parliament and of the Council on waste statistics Text with EEA relevance:

<https://eur-lex.europa.eu/eli/reg/2010/849/oj>

DRAFT - WORK IN PROGRESS

11.5 Annex III. Data and information collection survey

The survey was divided into 5 sections and 36 questions (excluding contact details):

- Questions 2 to 7 on the current situation in each MS (current list of operations) included:
 - Q2: current definitions of D codes applied in MS;
 - Q3: differences between different D code;
 - Q4: differences between D and R codes;
 - Q5: examples of sites for disposal of waste; and
 - Q6: existence of unlisted disposal operations.
- Questions 8 to 15 on suggestions for the revision of Annex I to the WFD included:
 - Q8: suggestions on changing the title of the Annex I;
 - Q9: suggestions on rephrasing description of D code;
 - Q10: suggestions on merging D code;
 - Q11: suggestions on splitting D code;
 - Q12: suggestions on deleting D code;
 - Q13 and Q14: suggestions on adding D code; and
 - Q15: suggestions on regrouping D code.
- Questions 16 to 24 on the legal frame included:
 - Q16: information on bans of specific waste streams per D code;
 - Q17: information on restrictions of specific waste streams per D code;
 - Q18: data and information on the number of permitted and exempted from permit waste facilities per D code;
 - Q19: information on complementary requirements to the permit per D code;
 - Q20: information on permit conditions per D code;
 - Q21: information on permit exemptions, the general rules per D code;
 - Q22: information on permit exemptions, the specific conditions per D code;
 - Q23: information on environmental impact assessment or screening per D code; and
 - Q24: information on waste disposal operations, D codes, considered being part of the industrial emissions directive.
- Questions 25 to 35 on protection measures included:
 - Q25: information on site selection measures per D code;
 - Q26: information on major accident prevention measures per D code;
 - Q27: information on water management measures per D code;
 - Q28: information on prevention and control of water and soil emissions measures per D code;
 - Q29: information on prevention and control of air emissions measures per D code;
 - Q30: information on prevention and control of other nuisances and hazards measures per D code;
 - Q31: information on measures to secure safe access to site per D code;
 - Q32: information on measures in place to prevent or mitigate the impact on biodiversity or landscape per D code;

- Q33: information on waste acceptance criteria and procedures in place per D code;
- Q34: information on the control and monitoring procedure in place in the operational phase per D code; and
- Q35: information on the control and monitoring procedure in place in the after-care phase per D code.

— Question 36 and 37 on waste disposal data:

- Q36: on total aggregated amounts per D code and years (2010, 2012, 2014, 2016); and
- Q37: on disaggregated amounts per D code and years, using if possible 6-digit waste codes or other type of waste classification (an excel template was suggested and provided but raw data were also accepted in any format).

The survey was then distributed to MS on 25 July 2019 by DG Environment, and feedback was collected until January 2020 including two deadline extensions.

11.6 Annex IV. List of contacted organisations

The following organisations were contacted for complementary data and information:

- BDE (Bundesverband der Deutschen Entsorgungs-, Wasser- und Rohstoffwirtschaft)
- CEFIC (European Chemical Industry Council)
- CEMBUREAU (European Cement Association)
- CEPI (Confederation of European Paper Industries)
- CEWEP (Confederation of European Waste-to-Energy Plants)
- CIF (Irish Construction Industry Federation)
- CIRFS (European Man-Made Fibres Association)
- Concawe (a division of the European Petroleum Refiners Association)
- DWMA (Dutch Waste Management Association)
- EAA (European Aluminium Association)
- EBA (European Biogas Association)
- EBRA (European Battery Recycling Association)
- EEB (European Environment Bureau)
- EERA (European Energy Research Alliance)
- EPRC (European Paper Recycling Council)
- EPRO (European Association of Plastics Recycling & Recovery Organisations)
- ERP (European Recycling Platform)
- ERPA (European Recovered Paper Branch)
- ERSCP (European Roundtable for Sustainable Consumption and Production)
- ESWET (European Suppliers of Waste-to-Energy Technology)
- ETIRA (European Toner & Inkjet Remanufacturers Association)
- ETRA (European Tyre Recycling Association)
- ETRMA (European Tyre and rubber Manufacturers' Association)
- EUCOBAT (European association of national collection schemes for batteries)
- Eucopro (European association for co-processing)
- EURIC (European recycling industries)
- EURITS (European Union for Responsible Treatment of Special Waste)
- Euroalliages (Association of European ferro-alloy producers)
- Eurocommerce (European retail and wholesale)
- Eurofer (European Steel Association)
- Eurogypsum (European Gypsum Industry)
- EUROHEAT
- Eurometaux (non-ferrous metals producers and recyclers in Europe)
- ECN (European Compost Network)
- Europen (European Organization for Packaging and the Environment)
- FEAD (European Federation of Waste Management and Environmental Services)
- FEFCO (European Federation of Corrugated Board Manufacturers)

- 1 FIR (Fédération Internationale du Recyclage)
- 2 Food Drink Europe (European food and drink companies)
- 3 Fuels Europe (European petroleum refining industry)
- 4 GEIR (European Waste Oil Recycling Industry Association)
- 5 Go4Circle (Fédération belge des entreprises actives dans le traitement et le recyclage des déchets)
- 6 HWE (Hazardous Waste Europe)
- 7 ISWA (International Solid Waste Association)
- 8 MWE (Municipal Waste Europe)
- 9 Plastics Europe (Association of plastics manufacturers)
- 10 Pro Europe (Packaging recovery organisation Europe)
- 11 RReuse (Social enterprises active in reuse, repair and recycling)
- 12 UEPG (Union Européenne des Producteurs de Granulats)
- 13 WEEE forum (Association of WEEE producer responsibility organisations in Europe and globally)
- 14 WEI (European industry trade association representing the pressure treated wood industry)
- 15 Zero Waste Europe
- 16

11.7 Annex V. Detailed answers provided by MS

This Annex IV presents detailed answers provided by MS.

The section on current situation in MS provides an overview of the applied definitions and national interpretation of each D code.

The section on legal regimes presents the number of facilities and permitted facilities along with additional data and information on permitting practice and possible links with the EIA Directive and the IED.

The section on waste flows plots the waste flows as reported by MS to help visualising the main differences between MS in terms of types and amounts of wastes disposed of.

For the purpose of this study, 5 waste streams have been defined and used in the Sankey diagrams in addition to Eurostat's waste categories:

— construction and demolition wastes³ (coloured in blue in the Sankey diagrams): defined as all the wastes classified in Chapter 17 of the list of waste (all waste codes 17 XX XX);

— textile wastes (coloured in orange in the Sankey diagrams): defined as all wastes classified in Eurostat waste category as W076;

— municipal bio-waste (coloured in green in the Sankey diagrams): defined for the purpose of this study as all wastes classified as W09, according to Eurostat classification, but limited to those classified as municipal wastes, according to the list of waste (i.e. wastes classified as 20 XX XX within the W09 waste category);

— other municipal wastes (coloured in dark grey in the Sankey diagrams): defined for the purpose of this study as all the municipal wastes excluding bio-wastes (20 XX XX – municipal bio-wastes); and

— other industrial non-hazardous wastes (coloured in pink in the Sankey diagrams): defined for the purpose of this study as all the non-hazardous wastes excluding wastes from Chapters 15, 16, 17, 18 and 20 in the list of waste (i.e. packaging, unspecified, construction and demolition because already stand-alone category, human and health care, and municipal wastes) similarly to the Eurostat industrial waste indicator⁴.

It was not possible to differentiate between commercial wastes and household wastes. The lack of a definition of commercial wastes and the current classifications of waste streams do not allow to differentiate between these two waste streams considered of similar nature.

The remaining part, i.e. other wastes streams or unspecified waste streams were coloured in light grey.

11.7.1 Answers provided on D1

11.7.1.1 Definitions and current practices

Table 3 summarises the current situation in Member States (MS), providing an overview of the definition applied to D1 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D1 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D1 is defined in Austria, Finland, Hungary and Lithuania as a deposit of non-hazardous waste into or on to land, defined as landfill.

In Denmark D1 should be used for illegal dumping sites. However, in some cases, it is selected by default instead of D5 when reporting to competent authorities. In practice, this means that in Denmark, as in the Netherlands, D1 operations are open landfill not meeting the LfD requirements.

³ The table of equivalence provides the link between the codes provided in the list of waste and Eurostat classification (see Section 11.4). Chapter 17 waste codes are included in a number of W codes (Eurostat classification).

⁴ <https://www.eea.europa.eu/data-and-maps/indicators/industrial-waste-indicator>

In Spain and Romania, D1 waste disposal facilities are solid waste heaps, mostly extractive waste.

In Portugal, D1 is defined as a landfill without further details.

In Estonia, D1 is defined as a landfill not meeting the LfD requirements, but contrary to the situation in Denmark and the Netherlands, it is not limited to open air sites, but it includes both surface and underground sites and it refers to '*not specially engineered*' landfills.

Croatia and Latvia did not provide a clear answer.

Table 3: Key words and concepts used by MS to define D1 operation

Key words defining D1 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Deposit into or on to land	✓				✓		✓	✓				
Landfill	✓	✓	✓		✓		✓	✓		✓	✓	
Landfill not meeting the LfD requirements		✓	✓							✓		
Open		✓								✓		
Surface			✓									
Underground			✓									
Heap				✓								✓
Not specially engineered			✓									
Non-hazardous waste	✓				✓		✓	✓				
Solid waste				✓								✓
Extractive waste				✓								✓
Illegal dumping site		✓										

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.1.2 Legal regimes

Table 4 provides an overview of the MS' answers to the questions on legal regimes. The number of D1 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

- 1 Finland reported the highest number of D1 facilities: 145, and Latvia the lowest: 12.
- 2 Three MS reported D1 waste facilities accepting municipal waste: on the one hand Lithuania and Latvia, where all or almost all
3 D1 facilities accept municipal waste, and on the other hand Estonia, where only few D1 accept municipal waste.
- 4 No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other
5 legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste
6 disposal per year. No specific condition was reported by Estonia for hazardous wastes.
- 7 The reported waste amounts sent to D1 waste facilities ranged from ~1 Mt/year of waste in Latvia, to ~10 Mt/year in Estonia
8 (from 0.1 to 1% of the total EU-27 waste sent to disposal). In Spain no disaggregated data are available for this single D
9 code.
- 10 When it comes to complementary requirements to the permit, Spain, Croatia, Latvia and Romania reported to always include
11 either an environmental impact assessment (EIA) and/or a screening in the permit; whereas Estonia, Finland and Portugal
12 reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning
13 financial security or other equivalent provisions, Spain, Lithuania and Latvia reported D1 permits always contain adequate
14 financial security. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the
15 permit. Portugal reported to always include other equivalent provisions but did not provide further information. Finally, Estonia
16 reported that adequate financial security is sometimes included in the permit.
- 17 With regards to the permit conditions, Estonia, Spain, Finland, Latvia and Romania indicated that D1 sites are always inspected
18 prior to commencement of disposal operations, whereas this is not always required in Lithuania. For the costs of disposal
19 operations, Estonia, Finland and Latvia indicated that the price charged always covers the costs, whereas Lithuania indicated it
20 never does. Finally, waste acceptance procedures are always in place in Spain, Lithuania and Latvia, but sometimes in Estonia.
21 No other conditions of the permit prior to issuing were reported by MS.
- 22 Austria, Denmark, Hungary and the Netherlands did not provide details.

23

24 **Table 4:** Legal data and information provided by MS on the permitting of D1 operations

Permitting of D1 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit			13		145	60		13	12		29	
Waste facilities with a permit accepting municipal waste			2					12	12			
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
Permit exemptions, general rules:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Permit exemptions, specific conditions for Hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)			12						1			
Processed amounts in 2012 (Mt)			8			2			1			
Processed amounts in 2014 (Mt)			13			2			1			

Permitting of D1 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Processed amounts in 2016 (Mt)			11			2			1			
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒	☒	☒	☒		☒	☒		☒	☒
Permit contains adequate financial security by the applicant?			☒	☒				☒	☒		☒	
Or other equivalent provision?											☒	
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒	☒			☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒	☒			
Waste acceptance procedures are in place?			☒	☒				☒	☒			
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 5 provides an overview of the reported EIA/Environmental Screening category for D1 projects. Based on the answers provided, D1 projects may fall under two main EIA project categories (9 and 10) and two main Environmental Screening project categories (11(b) and 11(d)). In Estonia D1 projects fall only in one EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Spain, D1 projects fall under one Screening category: '11. (b) Installations for the disposal of waste (projects not included in Annex I)'. In Denmark and Latvia, they may fall in an EIA or an Environmental Screening category. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 5: Information provided by MS on the EIA classification of D1 operations when falling under the EIA Directive

EIA and Screening of D1 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive		✓	✓						✓			
EIA - Other: 9.8. Hazardous waste disposal at hazardous waste landfill								✓				

EIA and Screening of D1 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 10. Waste disposal installations for the incineration or chemical treatment as defined in Annex I to the WFD under heading D9 of non-hazardous waste with a capacity >100 t/d		✓										
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)		✓		✓					✓			
Screening - 11. (d) Sludge-deposition sites		✓							✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 6 provides an overview of the reported IED waste management categories under which D1 may fall. This table shows that D1 disposal operations may fall under a wide range of IED waste management activities. No specific IED waste management activity can be linked to the D1 waste disposal operations. The information reported by MS seems to indicate that D1 can be associated with almost all the possible IED waste management categories.

Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 6: Information provided by MS on the IED activity classification of D1 operations when falling under the IED

IED category of certain D1 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (a) biological treatment		✓										
5.1 (b) physico-chemical treatment		✓										
5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2	✓		✓	✓	✓				✓			✓
5.1 (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2	✓		✓	✓	✓				✓	✓		✓
5.1 (k) surface impoundment										✓		
5.2 Disposal of waste in waste incineration plants or in waste co-incineration plants:									✓			

IED category of certain D1 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.2 (a) for non-hazardous waste with a capacity >3 t/h	✓		✓	✓					✓	✓		✓
5.2 (b) for hazardous waste with a capacity >10 t/day	✓		✓	✓	✓			✓	✓	✓		✓
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:									✓			
5.3 (a) (i) biological treatment									✓	✓		
5.3 (a) (ii) physico-chemical treatment								✓				
5.3 (a) (iii) pre-treatment of waste for incineration or co-incineration;	✓		✓	✓					✓			
5.3 (a) (iv) treatment of slags and ashes	✓									✓		
5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3. (b) (i) biological treatment		✓										
5.3. (b) (ii) pre-treatment of waste for incineration or co-incineration		✓	✓						✓	✓		
5.3. (b) (iii) treatment of slags and ashes		✓								✓		
5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste					✓				✓	✓		
5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity >50 t excluding temporary storage, pending collection, on the site where the waste is generated	✓		✓	✓	✓				✓			✓
5.6 Underground storage of hazardous waste with a total capacity >50 t	✓			✓						✓		

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 7 indicates the reported bans or restrictions for specific waste streams sent to D1 disposal operations. Some MS reported to have both a ban and a restriction for the same waste stream ('BR'). This seems to indicate that both questions on 'bans' and 'restrictions' were not well understood.

In Denmark, the disposal of almost all the waste streams in D1 is banned, apart from waste meeting D_{HAZ} landfill category criteria. This is not in line with the previous answers where it was indicated that D1 should be used for illegal dumping. In Austria, non-hazardous waste can be disposed of in D1. This covers mainly the following waste streams: construction and demolition, extractive and sludge, which generally corresponds to the Eurostat mineral and solidified waste category. In Spain, it is mainly used for disposal of extractive wastes, other streams being either banned or restricted. In addition, Spain reported that only waste subject to prior treatment can be disposed of in D1. Finland reported specific requirements on waste properties for landfill. Croatia reported only a restriction for disposal of Other waste streams not listed, without additional comments. Lithuania reported to ban the disposal of both hazardous and non-hazardous wastes in D1. However, the disposal of a number of specific waste streams is not banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D1 (as Spain) and that specific requirements on waste properties for landfill are in place. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels. In Latvia, the disposal of bio-wastes, sludge, waste batteries and accumulators and PCBs in D1 is banned. In the Netherlands, only the disposal of extractive waste in D1 is not banned.

Table 7: Bans and restrictions on waste streams for D1 operations as reported by MS

Waste categories banned or restricted in D1	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste	B	B						BR				
Non-hazardous waste		B						BR				
Waste meeting A landfill category criteria		B										
Waste meeting B1 landfill category criteria		B										
Waste meeting B2+B3 landfill category criteria		B										
Waste meeting C landfill category criteria		B										
Waste meeting D_{HAZ} landfill category criteria								BR				
Municipal	B	B		R						B		
Construction & Demolition		B		R						B		
Extractive		B										
Bio-waste	B	B		R				BR	B	B		
Sludge		B		R				BR	B	B		
Waste oils	B	B		B				BR		B		
WEEE	B	B		BR				BR	B	B		
Batteries & Accumulators	B	B		BR				B	B	B		
ELVs	B	B		BR				B		B		

Waste categories banned or restricted in D1	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Packaging	B	B		R				B		B		
PCBs	B	BR		B					B	B		
Other waste streams not listed	B	B			B	R						
Waste subject to separate collection for preparation for re-use & recycling		B		B				B		B		
Waste suitable for recycling & recovery		B						B		B		
Specific requirements on waste related to different landfill categories					✓			✓				
Disposal limited to treated waste only				✓				✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.1.3 Waste flows

Figure 1 presents the Sankey diagram of the different waste flows sent to D1. The contribution of each MS to the total amount of waste sent to D1 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

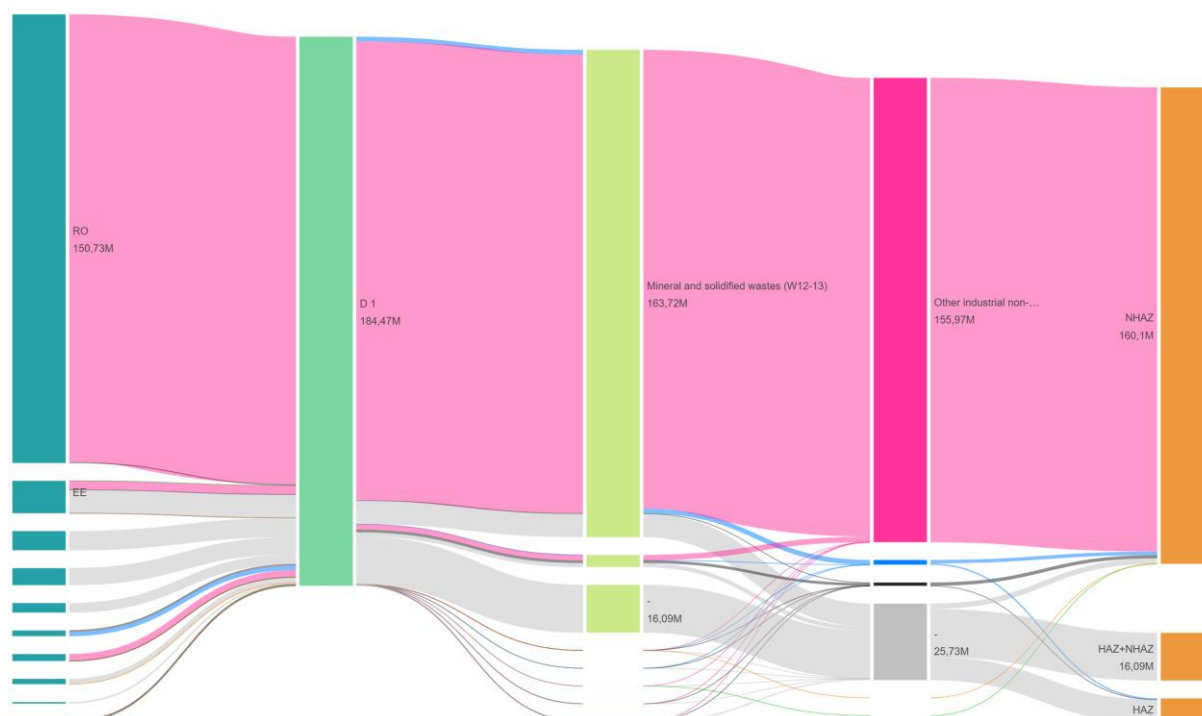
Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D1 was mostly used in Romania;
- most of the waste disposed of in D1 (85%) was classified as other industrial non-hazardous wastes, mostly the mineral and solidified wastes;
- in Lithuania and Romania, D1 was mostly used for the disposal of other industrial non-hazardous wastes;
- in Denmark, D1 was mostly used for the disposal of construction and demolition wastes;
- in Latvia, D1 was mostly used for the disposal of municipal waste;

- the other countries did not provided disaggregated data;
- construction and demolition waste (0.9%), municipal bio-waste wastes (<0.1%), other municipal wastes (0.6%) and textile wastes (<0.1%) represented minor fractions (<5%) of the wastes disposed of in D1;
- 4% of the waste disposed of in D1 was classified as hazardous; and
- the hazardous fraction was divided into 94% other wastes, 6% construction and demolition waste and <0.1% other municipal wastes.

Figure 1: Yearly average waste tonnages disposed of in waste disposal operation D1 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D1, the calculated disposal rate ranges for the major streams are:

- from 6% to 93% disposal rate for the mineral and solidified (W12-13) fraction of other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX);
- from 2% to 91% disposal rate for the mineral and solidified (W12-13) fraction of other waste streams; and
- from 2% to 11% disposal rate for the mineral and solidified (W12-13) fraction of construction and demolition waste (17_XX_XX).

11.7.1.4 Protection measures

Figure 2 depicts the different types of measures for the protection of the environment and human health reported by MS.

Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

Answers referring to national legislation without further details on the measures were the most provided.

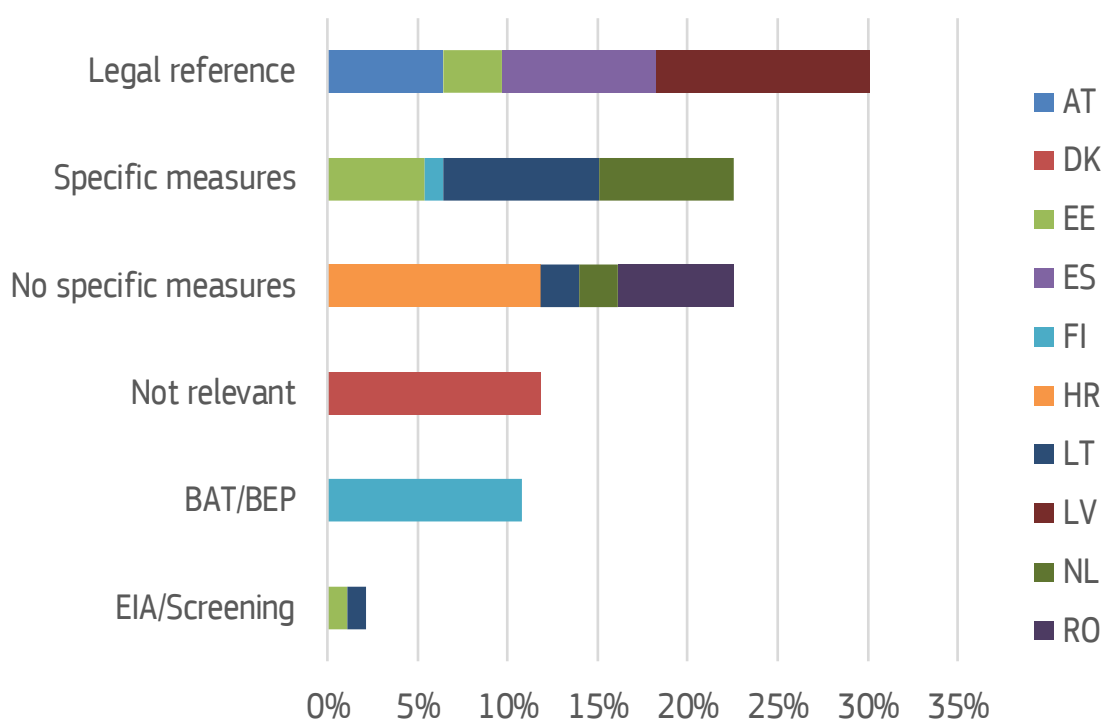
However, specific measures were the second most reported (Estonia, Finland, Lithuania and the Netherlands provided more detailed answers).

Not relevant was answered when the disposal operation was not in use.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Estonia and Romania referred to the measures provided by the EIA/Screening.

Figure 2: Protection measures type distribution for D1 operations

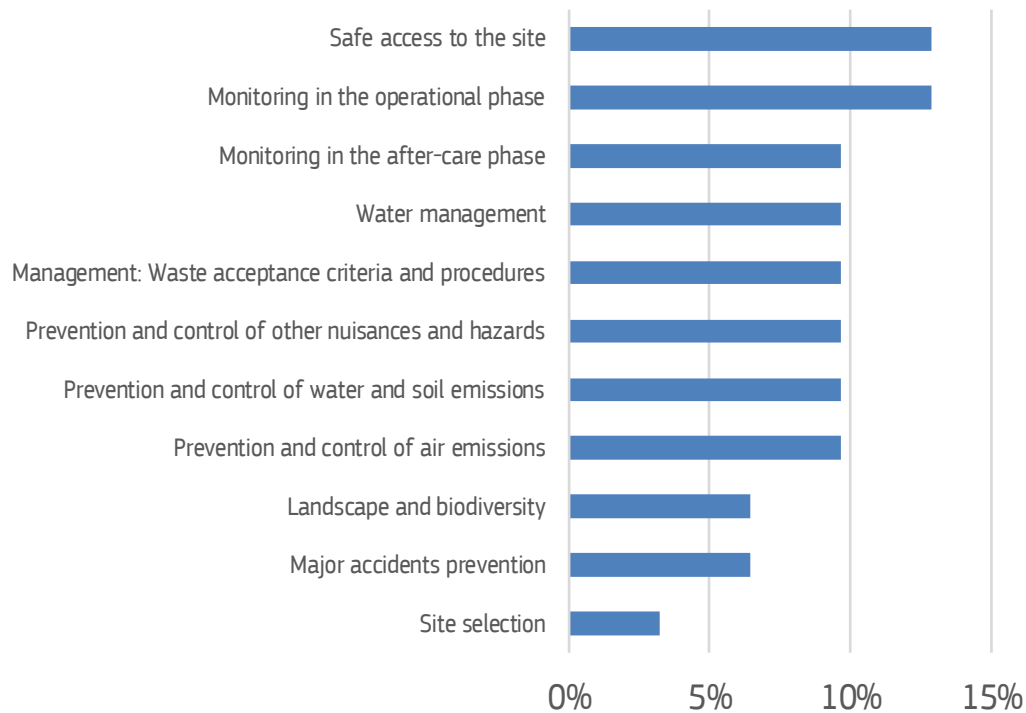


Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 3 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly include measures for soil and groundwater protection, including specific requirements for leachate collection and treatment, a basal structure with minimum layers and thicknesses, and a minimum distance from groundwater. Gas control including collection and treatment or use was reported for air emissions. At closure, capping and compaction were mostly reported. An emergency plan was reported as part of the major accidents prevention policy. Fences were mostly reported for the safe access to the site.

Figure 4: Specific protection measures category distribution for D1 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

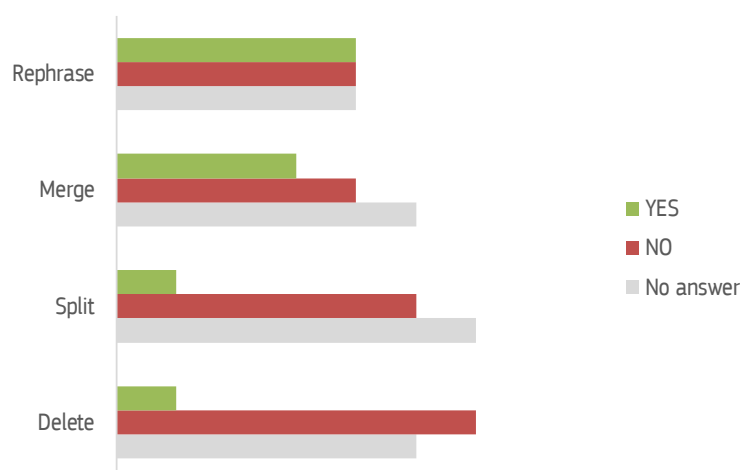
11.7.1.5 Suggestions for the revision

Figure 5 provides information on general suggestions for the revision of D1.

Most of the MS were not in favour of either deleting D1 code or splitting it into different codes.

When it comes to rephrasing the description of D1 or merging it, the situation was more balanced. Some MS being in favour, some against (and a significant number without expressed opinion - no answer provided).

Figure 5: General suggestions for the revision of D1 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 8**.

The main requests referred to clarification of certain terms, to avoid possible overlapping with other D codes and help improving the interpretation and adequate selection of D1 code.

The main clarification requests concerned the concept of 'into' and 'on to'. In addition, the difference between 'placement' and 'deposition' was also mentioned. Different suggestions were provided to solve possible overlapping with D2, D4, D5 and D12 codes.

A suggestion was made to differentiate between D1 and D5 based on the LfD requirements.

Three final suggestions were made for the revised list of D codes. Two suggestions excluded the possibility to dispose of waste 'into' the land by limiting the description to 'on to' the land and including clarifications to avoid overlapping with other D codes. One suggestion is to keep the description as it is (the difference in spelling 'on to' or 'onto' was not considered here).

Table 8: Specific and final suggestions for the revision of D1 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Deposit onto land other than covered by D5 (e.g. placement of solids or sludges into pits; permanent aboveground storage)	1
Rephrase	Deposit onto land other than covered by D2, D4 (if not deleted) and D5	1
Rephrase	to clarify "landfill not meeting LfD requirements"	1
Merge	with D5	1
Merge	with D4 and split into: (i) placing on to land and (ii) placing below (but close to) surface	1
Merge	merge D1 "into land" with D12 and rephrase as "permanent underground storage (e.g. emplacement of containers in a mine)"	1
Split	merge with D4 and split into: (i) placing on to land and (ii) placing below (but close to) surface	1

Delete	overlapping with D4 and D5	1
Final 1	Deposit onto land other than covered by D5 (e.g. placement of solids or sludges into pits; permanent aboveground storage)	1
Final 2	Deposit onto land other than covered by D2, D4 (if not deleted) and D5	1
Final 3	Deposit into or onto land (e.g. landfill, etc.)	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.2 Answers provided on D2

11.7.2.1 Definitions and current practices

Table 9 summarises the current situation in Member States (MS), providing an overview of the definition applied to D2 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D2 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D2 is defined in Austria, Spain, Finland and Lithuania as a land treatment (e.g. biodegradation of liquid or sludgy discards in soils, etc.), as in Annex I to the WFD. In Denmark and Spain, it is similarly defined as spreading of waste on land without agricultural benefits or soil improvement. In Denmark, the spreading is followed by soil incorporation for in-situ treatment. In Estonia, D2 is also defined as in-situ biodegradation of waste without agronomic or agricultural benefits.

In Latvia, D2 was used to dispose of manure and agricultural waste disposal but more recently, R10 is used instead.

Other MS reported to use D2 for the disposal of non-hazardous waste, liquid waste or sludge (including silt and dredging sludge).

In Finland, D2 is used for the treatment of waste contaminated with oil.

In Austria, D2 is banned.

In Portugal and Romania, D2 is not used.

Croatia, Hungary and the Netherlands did not provide a clear answer.

Table 9: Key words and concepts used by MS to define D2 operations

Key words defining D2 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Land treatments	✓				✓			✓				
Biodegradation	✓		✓		✓			✓				
Decontamination			✓									
Microbial degradation					✓							
Spread or left on land		✓		✓								
In-situ / Soil incorporation		✓	✓									
No agricultural benefits		✓		✓				✓				

Key words defining D2 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
No soil improvement		✓	✓	✓				✓				
Non-hazardous waste		✓										
Liquid waste	✓	✓		✓	✓			✓				
Silt / Sludge	✓	✓		✓	✓			✓				
Dredging sludge		✓										
Waste containing oil					✓							
Not used											✓	✓
Prohibited	✓											

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.2.2 Legal regimes

Table 10 provides an overview of the MS' answers to the questions on legal regimes. The number of D2 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Denmark reported the highest number of D2 facilities: 12, and Latvia the lowest: 3.

No MS reported D2 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D2 waste facilities were less than 1 Mt/year of waste in Denmark (less than 0.1% of the total EU-27 waste sent to disposal). In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Croatia reported to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia and Finland reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D2 permits always contain adequate financial security, whereas this is not always the case in Estonia. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain, and Romania indicated that D2 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Finland indicated that the price charged always covers the costs, whereas Lithuania indicated it never does, and in Denmark it is not always the case. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

1 Austria, Hungary, Latvia, the Netherlands and Portugal did not provide details.

2

3 **Table 10:** Legal data and information provided by MS on the permitting of D2 operations

Permitting of D2 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		12			8			3				
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)		<1										
Processed amounts in 2012 (Mt)		<1										
Processed amounts in 2014 (Mt)		<1										
Processed amounts in 2016 (Mt)		<1										
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒				
Permit contains adequate financial security by the applicant?			☒					☒				
Or other equivalent provision?												
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				

Permitting of D2 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 11 provides an overview of the reported EIA/Environmental Screening category for D2 projects. Based on the answers provided, D2 projects may fall under one main EIA project category (9) and one main Environmental Screening project category (11(b)). In Estonia D2 projects fall only in the EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Latvia, they may fall in an EIA and/or an Environmental Screening category. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 11: Information provided by MS on the EIA classification of D2 operations when falling under the EIA Directive

EIA and Screening of D2 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive									✓			
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 12 provides an overview of the reported IED waste management categories under which D2 may fall. This table shows that only Austria answered this question and that in Austria, D2 disposal operations may fall under '5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste'.

Table 12: Information provided by MS on the IED activity classification of D2 operations when falling under the IED

IED category of certain D2 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste	✓											

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 13 indicates the reported bans or restrictions for specific waste streams sent to D2 disposal operations.

In Austria, the disposal of all wastes, hazardous and non-hazardous, in D2 is banned. In Denmark, the disposal of bio-waste, waste oils, WEEE, waste batteries and accumulators, ELVs, packaging wastes, wastes separately collected re-use and recycling and wastes suitable for recycling and recovery in D2 is banned; whereas the disposal of PCBs is restricted. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D2 is banned. Finland reported specific requirements on waste properties for landfill. Lithuania reported that only waste subject to prior treatment can be disposed of in D2 and that specific requirements on waste properties for landfill are in place. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels. In the Netherlands, the disposal of any waste stream in D2 is banned and the disposal operation is not used.

Table 13: Bans and restrictions on waste streams for D2 operations as reported by MS

Waste categories banned or restricted in D1	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste	B									B		
Non-hazardous waste	B									B		
Waste meeting A landfill category criteria										B		
Waste meeting B1 landfill category criteria										B		
Waste meeting B2+B3 landfill category criteria										B		
Waste meeting C landfill category criteria										B		
Waste meeting D_{Haz} landfill category criteria										B		
Municipal										B		
Construction & Demolition										B		
Extractive										B		
Bio-waste		B								B		

Waste categories banned or restricted in D1	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Sludge										B		
Waste oils		B								B		
WEEE		B		B						B		
Batteries & Accumulators		B		B						B		
ELVs		B		B						B		
Packaging		B								B		
PCBs		R		B						B		
Other waste streams not listed										B		
Waste subject to separate collection for preparation for re-use & recycling		B								B		
Waste suitable for recycling & recovery		B								B		
Specific requirements on waste related to different landfill categories					✓			✓				
Disposal limited to treated waste only								✓				
Imported mix municipal waste and recovered solid fuels								✓				
Not used										✓		

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.2.3 Waste flows

Figure 6 presents the Sankey diagram of the different waste flows sent to D2. The contribution of each MS to the total amount of waste sent to D2 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

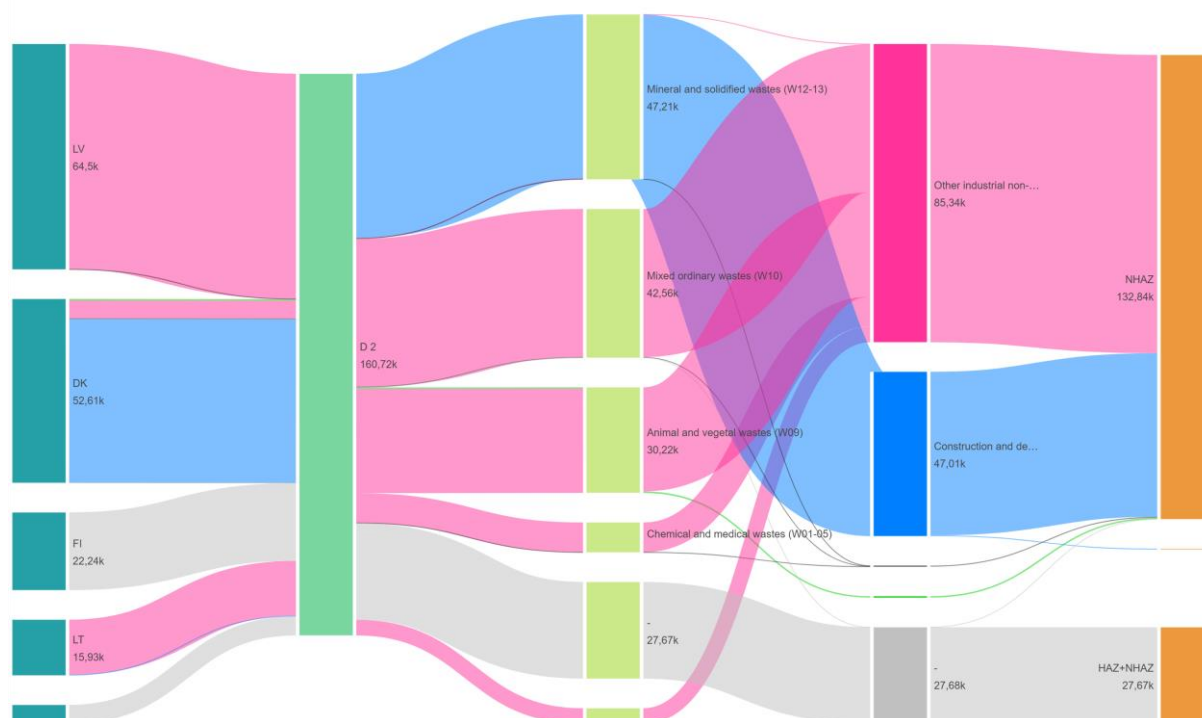
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- 5 countries reported to dispose of (smaller amounts of) waste in D2: Latvia, Denmark, Finland, Lithuania and Hungary;
- in Latvia and Lithuania mostly non-hazardous other industrial wastes are disposed of in D2. For Latvia these are mostly mixed ordinary wastes and animal and vegetal wastes, whereas for Lithuania, these are mostly chemical and medical wastes and common sludge;
- in Denmark, on the other hand, mostly construction and demolition wastes are sent to D2;
- Finland and Hungary did not provide disaggregated data;
- municipal bio-waste (0.3%) and other municipal wastes (<0.1%) represented minor fractions (<5%) of the wastes sent to D2;
- no textile waste was sent to D2;
- 0.1% of the waste sent to D2 was classified as hazardous; and
- the hazardous fraction was divided into 100% construction and demolition waste.

Figure 6: Yearly average waste tonnages disposed of in waste disposal operation D2 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D2, the calculated disposal rate ranges for the major streams are:

- <0.5% (based on only one MS) disposal rate for the mineral and solidified (W12-13) fraction of the construction and demolition waste (17_XX_XX);
- from <0.5% to 5% disposal rate for the mixed ordinary wastes (W10) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX); and
- from 1% to 6% disposal rate for the animal and vegetal wastes (W09) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX).

11.7.2.4 Protection measures

Figure 7 depicts the different types of measures for the protection of the environment and human health reported by MS.

Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

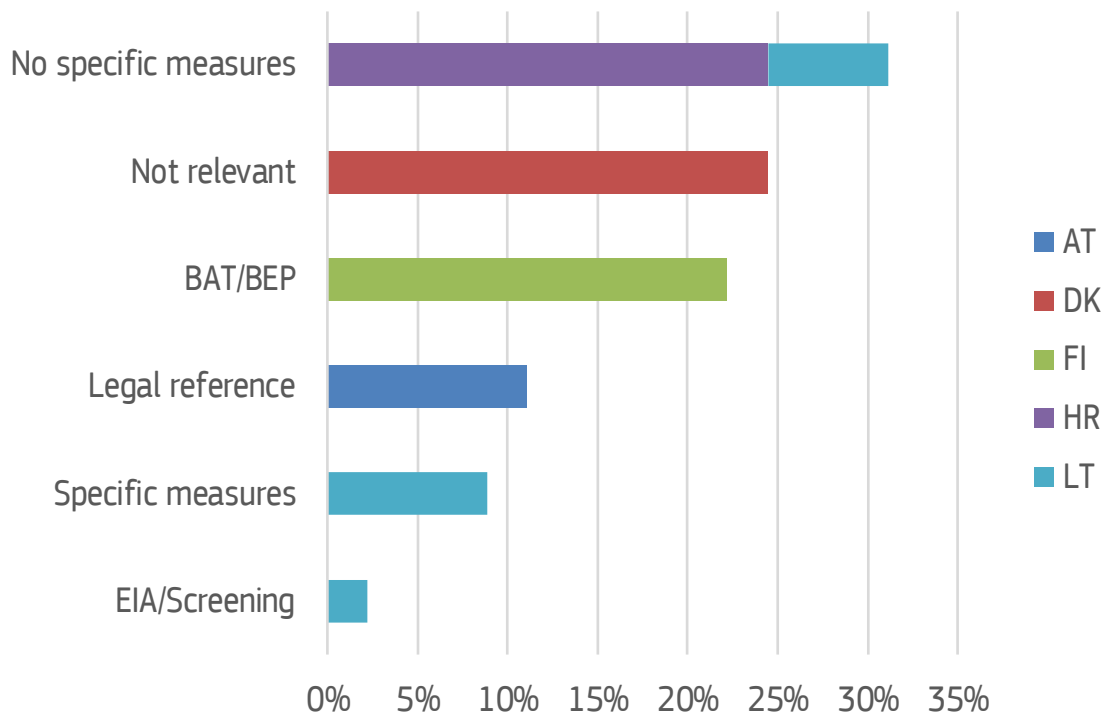
Answers providing unspecific measures were the most provided.

Not relevant was the second most provided answer.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Specific measures were only reported by Lithuania.

Figure 7: Protection measures type distribution for D2 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 8 provides an illustrative overview of the key words used to describe the specific measures reported by Lithuania.

Where reported, the specific measures mostly include measures for the water management, and measures for the protection of soil and groundwater that include specific requirements for a basal structure. At closure, revegetation and capping were reported. Finally, for the safe access at the site, fences were mostly reported.

Nonetheless, compared to D1 or D5 waste disposal operations, significantly less measures were provided for D2.

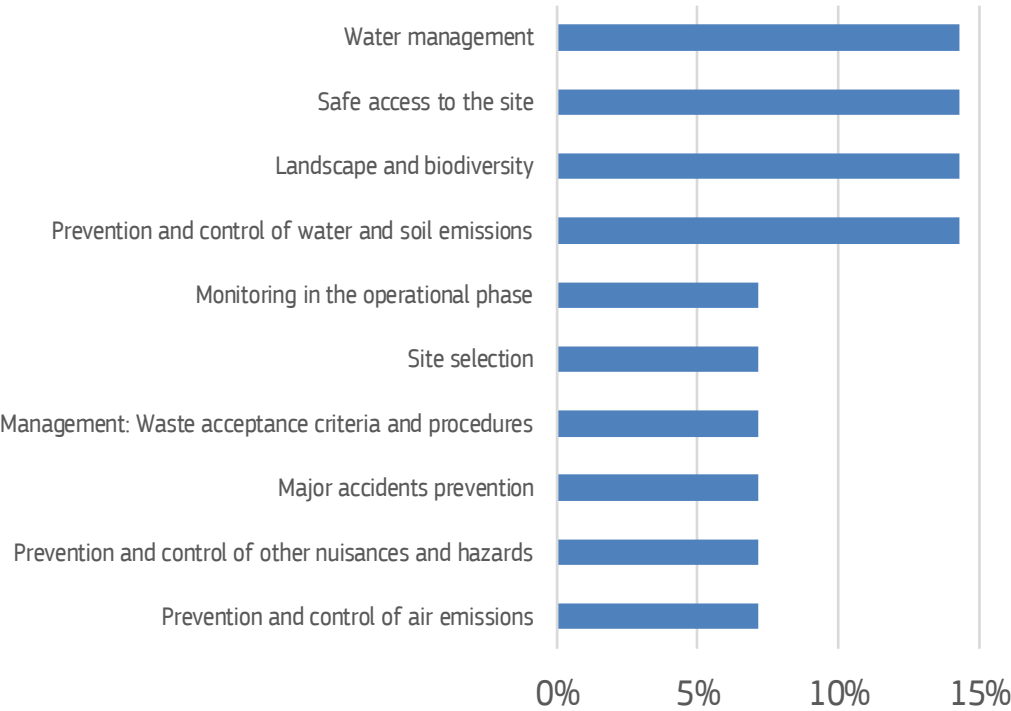
Figure 8: Protection measures key words cloud for D2 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Finally, **Figure 9** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references). Specific measures for the water management, safe access to the site, landscape and biodiversity and prevention and control of water and soil emissions were more provided than the others.

Figure 9: Protection measures category distribution for D2 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

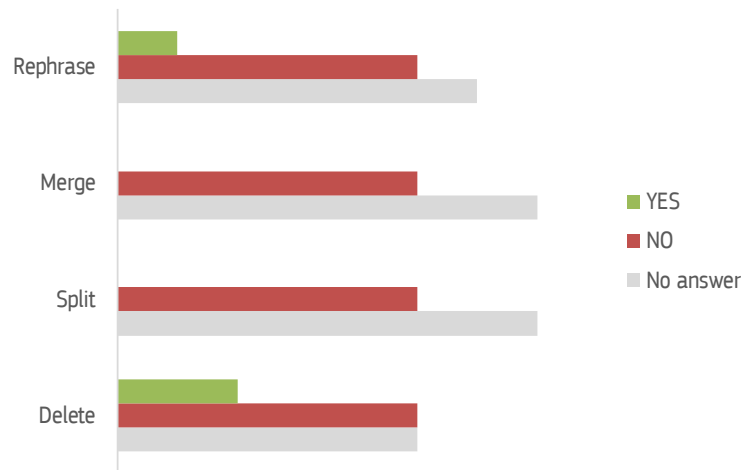
11.7.2.5 Member States suggestions for the revision

Figure 10 provides information on general suggestions for the revision of D2.

In general, MS were not in favour of any of the suggested options. They mostly opposed to rephrasing, merging, splitting and/or deletion of D2.

Nevertheless, rephrasing or deletion were suggested by some MS, contrary to merging or splitting that were never suggested.

Figure 10: General suggestions for the revision of D2 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 14**.

The rephrasing request mainly referred to the addition of '*in-situ*' in the description of D2 and to add in the list of examples '*chemical treatment in soils*'. Whereas, the first suggestion would indeed add clarification to the current definition, the second suggestion may broaden the scope of D2 as initially (see Section 11.7.2.1) for most of the MS D2 is limited to the biodegradation which does not include any chemical treatment.

The deletion was suggested in by a MS that does not use anymore D2.

Finally, a suggestion was made to merge D2 and D7.

Two final suggestions were made for the revised list of D codes. One suggestion is the rephrasing suggestion whereas the other suggestion, supported by three MS, is to keep the description as it is.

Table 14: Specific and final suggestions for the revision of D2 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Land treatment in-situ (e.g. biodegradation or chemical treatment in soils)	1
Split	to merge with D7	1
Delete	This entry should be deleted as waste is mainly used as fertilizer in arable lands or in forestry or landscaping.	1
Final 1	Land treatment in-situ (e.g. biodegradation or chemical treatment in soils)	1
Final 2	Land treatment (e.g. biodegradation of liquid or sludgy discards in soils, etc.)	3

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the workshop.

11.7.3 Answers provided on D3

11.7.3.1 Definitions and current practices

Table 15 summarises the current situation in Member States (MS), providing an overview of the definition applied to D3 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D3 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D3 is defined in Austria, Denmark, Spain, Finland and Lithuania as a deep injection (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.), as in Annex I to the WFD.

In addition, in Denmark, Spain and Finland, the formation into which the waste is injected may be porous.

MS reported to use D3 for injection of liquid waste and sludge.

In Austria, Latvia and Romania, D3 is not used.

In Estonia, Portugal and Romania, D3 is banned.

Croatia, Hungary and the Netherlands did not provide a clear answer.

Table 15: Key words and concepts used by MS to define D3 operations

Key words defining D3 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Deep injection	✓	✓	✓	✓	✓			✓				
Pumpable discards	✓	✓	✓		✓			✓				
Salt domes or naturally occurring repositories	✓	✓	✓	✓	✓			✓				
Artificial cavities / Wells or mines	✓	✓	✓	✓	✓			✓				
Porous formations		✓		✓								
Liquid waste		✓										
Silt / sludge		✓										
Not used	✓								✓			✓
Prohibited			✓								✓	✓

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.3.2 Legal regimes

Table 16 provides an overview of the MS' answers to the questions on legal regimes. The number of D3 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit

conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

No MS reported to have D3 waste facilities.

No MS reported D3 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

Nevertheless, Croatia reported to dispose of less than 1 Mt/year of waste in D3 (less than 0.1% of the total EU-27 waste sent to disposal) and In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, same answers were provided as for D2. Croatia reported to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia and Finland reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D3 permits always contain adequate financial security, whereas this is not always the case in Estonia. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain, and Romania indicated that D3 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Finland indicated that the price charged always covers the costs, whereas Lithuania indicated it never does, and in Denmark it is not always the case. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Denmark, Hungary, Latvia, the Netherlands and Portugal did not provide details.

Table 16: Legal data and information provided by MS on the permitting of D3 operations

Permitting of D3 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit												
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)												
Processed amounts in 2012 (Mt)						<1						

Permitting of D3 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Processed amounts in 2014 (Mt)						<1						
Processed amounts in 2016 (Mt)						<1						
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒				
Permit contains adequate financial security by the applicant?			☒					☒				
Or other equivalent provision?												
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 17 provides an overview of the reported EIA/Environmental Screening category for D3 projects. As previously, MS provided same or very similar answers. Based on the answers provided, D3 projects may fall under one main EIA project category (9) and one main Environmental Screening project category (11(b)). In Estonia D3 projects fall only in the EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Latvia, they may fall in an EIA and/or an Environmental Screening category. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 17: Information provided by MS on the EIA classification of D3 operations when falling under the EIA Directive

EIA and Screening of D2 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive									✓			

EIA and Screening of D2 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 18 provides an overview of the reported IED waste management categories under which D3 may fall. This table shows that only Latvia answered this question and that in Latvia, D3 disposal operations may fall under '5.6 Underground storage of hazardous waste with a total capacity >50 t'.

Table 18: Information provided by MS on the IED activity classification of D3 operations when falling under the IED

IED category of certain D3 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.6 Underground storage of hazardous waste with a total capacity >50 t									✓			

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 19 indicates the reported bans or restrictions for specific waste streams sent to D3 disposal operations.

In Austria, the disposal of all wastes, hazardous and non-hazardous in D3 is banned. In Denmark, the disposal of all wastes and waste streams in D3 is banned, apart from wastes meeting D_{HAZ} landfill category criteria. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D3 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D3 and that specific requirements on waste properties for landfill are in place. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels. In the Netherlands, the disposal of almost all waste streams in D3 is banned, apart from wastes meeting D_{HAZ} landfill category criteria and sludge. In Portugal, the disposal of both hazardous and non-hazardous wastes in D3 is banned.

Table 19: Bans and restrictions on waste streams for D3 operations as reported by MS

Waste categories banned or restricted in D3	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste	B	B									B	

Waste categories banned or restricted in D3	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Non-hazardous waste	B	B									B	
Waste meeting A landfill category criteria		B								B		
Waste meeting B1 landfill category criteria		B								B		
Waste meeting B2+B3 landfill category criteria		B								B		
Waste meeting C landfill category criteria		B								B		
Waste meeting D _{Haz} landfill category criteria												
Municipal		B								B		
Construction & Demolition		B								B		
Extractive		B								B		
Bio-waste		B								B		
Sludge		B										
Waste oils		B								B		
WEEE		B		B						B		
Batteries & Accumulators		B		B						B		
ELVs		B		B						B		
Packaging		B								B		
PCBs		BR		B						B		
Other waste streams not listed		B										
Waste subject to separate collection for preparation for re-use & recycling		B								B		
Waste suitable for recycling & recovery		B								B		
Specific requirements on waste related to different landfill categories								✓				
Treated waste only								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.3.3 Waste flows

Figure 11 presents the Sankey diagram of the different waste flows sent to D3. The contribution of each MS to the total amount of waste sent to D3 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

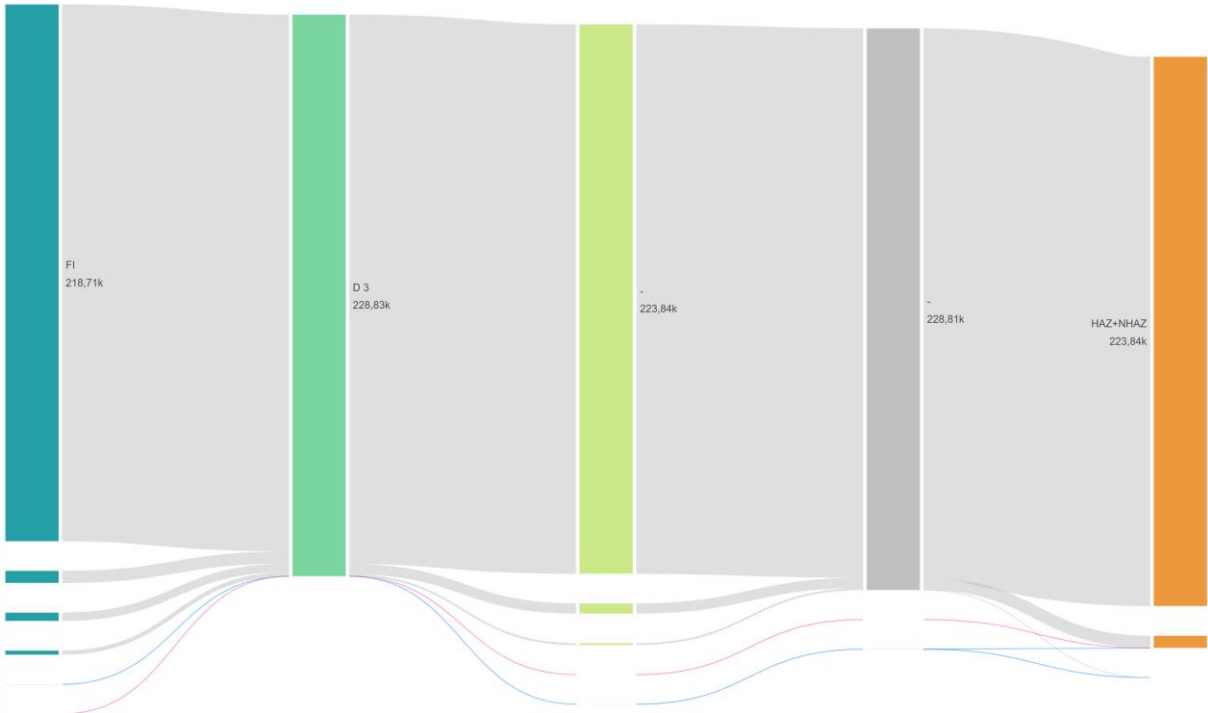
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D3 was mostly used in Finland, but no disaggregated data provided;
- construction and demolition wastes (<0.1%) and other industrial non-hazardous wastes (<0.1%) represented minor fractions (<5%) of the wastes disposed of in D3, but 98% of the waste disposed of in D3 was not classified, i.e. unspecified;
- no municipal bio-waste and other municipal wastes or textile waste was disposed of in D3;
- <0.1% of the waste disposed of in D3 was classified as hazardous; and
- the hazardous fraction was divided into 64% construction and demolition waste and 36% other wastes.

Figure 11: Yearly average waste tonnages disposed of in waste disposal operation D3 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D3, it was not possible to calculate disposal rates for the major streams.

11.7.3.4 Protection measures

Figure 12 depicts the different types of measures for the protection of the environment and human health reported by MS.

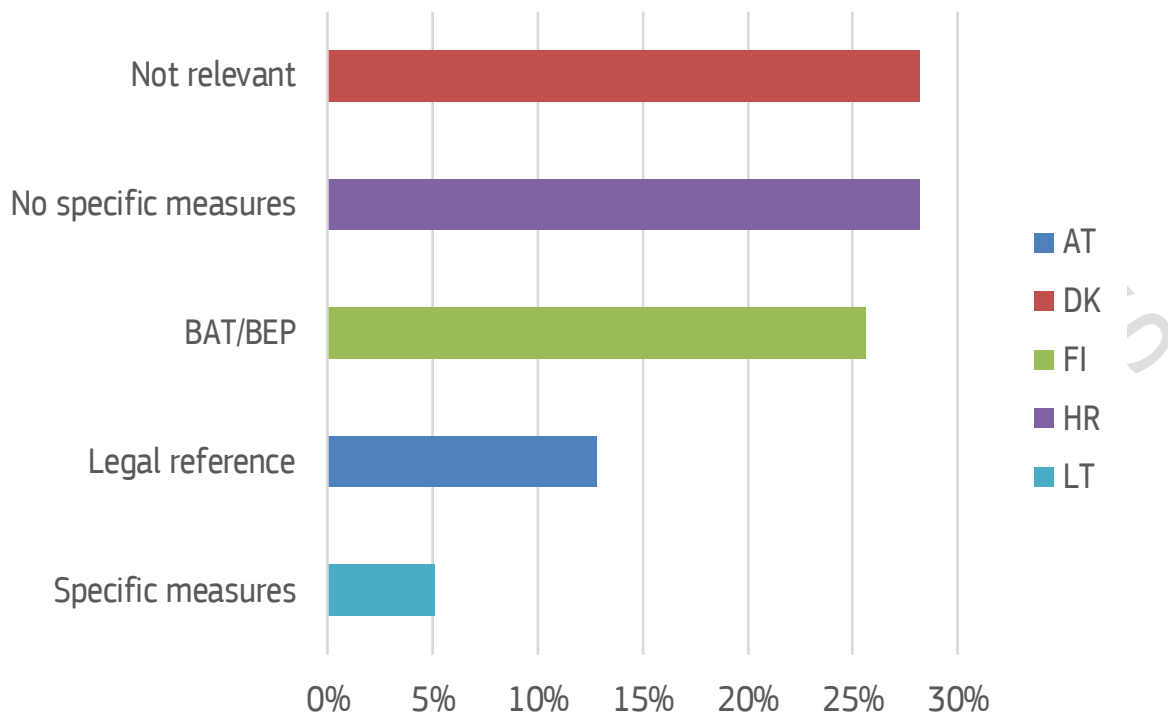
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

Not relevant and unspecific measures were the most answers provided.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Specific measures were only reported by Lithuania.

1 **Figure 12:** Protection measures type distribution for D3 operations



2
3
4 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

5
6 **Figure 13** provides an illustrative overview of the key words used to describe the specific measures reported by Lithuania.

7 Where reported, the specific measures mostly require the implementation of the measures provided by the EIA. At closure,
8 measures on revegetation and capping were reported. Finally, for the safe access to the site, fences were mostly reported.

9 Nonetheless, compared to D1 or D5 waste disposal operations, significantly less measures were provided for D3.

10

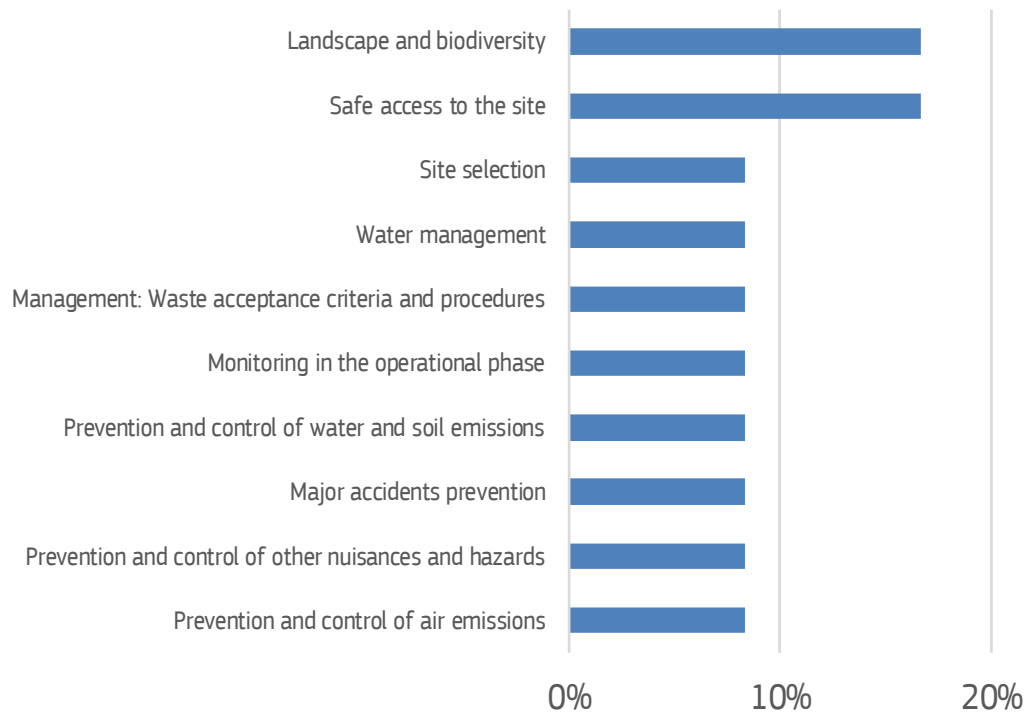
1 **Figure 13:** Protection measures key words cloud for D3 operations

EIA
Capping
Fences
Revegetation

2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 9** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).
7 Specific measures mostly targeted measures for landscape and biodiversity, and safe access to the site.
8

Figure 14: Protection measures category distribution for D3 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

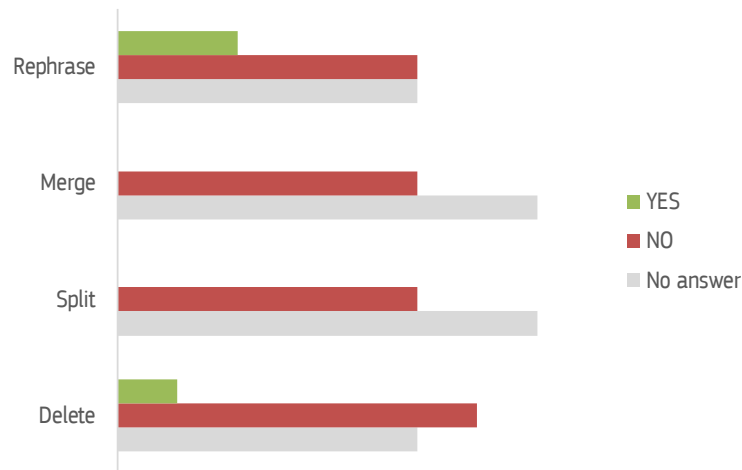
11.7.3.5 Member States suggestions for the revision

Figure 15 provides information on general suggestions for the revision of D3.

In general, as for D2, MS were not in favour of any of the suggested options. They mostly opposed to rephrasing, merging, splitting and/or deletion of D3.

Nevertheless, rephrasing or deletion were suggested by some MS, contrary to merging or splitting that were never suggested.

Figure 15: General suggestions for the revision of D3 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 20**.

The rephrasing request mainly referred to the clarification of the difference between D3 and D12 and the definition of 'pumpable'.

Two final suggestions were made for the revised list of D codes. One suggestion is the first rephrasing suggestion whereas the other suggestion, supported by three MS, is to keep the description as it is. Nevertheless, a remark without final suggestion was made to clarify the difference between D3 and D12.

Table 20: Specific and final suggestions for the revision of D3 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Deposit into land other than that covered by D12 (e.g. injection into wells, salt domes of naturally occurring repositories)	1
Rephrase	to clarify if by pumpable refers to waste water only or sludge that are wet enough to remain pumpable.	1
Final 1	Deposit into land other than that covered by D12 (e.g. injection into wells, salt domes of naturally occurring repositories)	1
Final 2	Deep injection (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.)	3

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.4 Answers provided on D4

11.7.4.1 Definitions and current practices

Table 21 summarises the current situation in Member States (MS), providing an overview of the definition applied to D4 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D4 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D4 is defined in Austria, Denmark, Spain, Finland and Lithuania as a surface impoundment (e.g. placement of liquid or sludgy discards into pits, ponds or lagoons, etc.), as in Annex I to the WFD. In Romania, D4 is also used for disposal of liquid or sludgy wastes into pits, ponds or lagoons.

In addition, in Austria D4 would be considered as landfilling operation.

In Denmark, Spain and Finland, both natural and engineered impoundments are included in D4.

Nevertheless, in Denmark, the term '*surface*' may induce confusion as a land based pit or pond could be below land surface and include for example disposal of waste into surface water bodies such as small lakes.

Most of the MS reported to use D4 for the disposal of extractive waste in a liquid or slurry form (this includes sludge, silt).

In Latvia, D4 is used for disposal of liquid wastes only.

In Austria, Denmark, Estonia, Hungary, the Netherlands, and Portugal, D4 is not used.

Croatia did not provide a clear answer.

Table 21: Key words and concepts used by MS to define D4 operations

Key words defining D4 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Surface impoundment	✓	✓		✓	✓			✓				
Pits	✓	✓		✓	✓			✓				✓
Ponds / Lagoons	✓	✓		✓	✓			✓				✓
Surface water body		✓										
Landfilling	✓											
Engineered		✓		✓	✓							
Natural		✓		✓	✓							
Liquid waste		✓	✓	✓	✓			✓	✓			✓
Silt / Sludge		✓	✓	✓	✓			✓				✓
Extractive waste / tailings		✓	✓	✓	✓							
Not used	✓	✓	✓				✓			✓	✓	
Prohibited												

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.4.2 Legal regimes

Table 22 provides an overview of the MS' answers to the questions on legal regimes. The number of D4 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Finland reported the highest number of D4 facilities: 15, and Croatia the lowest: 1.

No MS reported D4 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

Croatia reported to dispose of less than 1 Mt/year of waste in D4 (less than 0.1% of the total EU-27 waste sent to disposal). However, this amount of waste seems small considering that D4 is used for the disposal of extractive wastes such as tailings, which are with construction and demolition wastes, the most important wastes in the EU-27 in terms of tonnages. In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, almost the same answers were provided as for D2 and D3. The only difference being the answer of Romania that indicated this time to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit, as Croatia; whereas Estonia and Finland reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D4 permits always contain adequate financial security, whereas this is not always the case in Estonia. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain, and Romania indicated that D4 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Finland indicated that the price charged always covers the costs, whereas Lithuania indicated it never does, and in Denmark it is not always the case. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Denmark, Hungary, Latvia, the Netherlands and Portugal did not provide details.

Table 22: Legal data and information provided by MS on the permitting of D4 operations

Permitting of D4 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit					15	1		4				
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						

Permitting of D4 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)												
Processed amounts in 2012 (Mt)						<1						
Processed amounts in 2014 (Mt)						<1						
Processed amounts in 2016 (Mt)						<1						
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒				☒
Permit contains adequate financial security by the applicant?			☒					☒				
Or other equivalent provision?												
Other complementary requirements:												
Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 23 provides an overview of the reported EIA/Environmental Screening category D4 projects may fall under. Based on the answers provided, D4 projects may fall under one main EIA project category (9) and two main Environmental Screening project categories (11(b) and 11(d)). In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 23: Information provided by MS on the EIA classification of D4 operations when falling under the EIA Directive

EIA and Screening of D4 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
----------------------------------	----	----	----	----	----	----	----	----	----	----	----	----

EIA and Screening of D4 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive				✓					✓			
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - 11. (d) Sludge-deposition sites				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 24 provides an overview of the reported IED waste management categories under which D4 may fall. This table shows that in most of the countries, D4 disposal operations may fall under '5.1 Disposal of hazardous waste with a capacity >10 t/day involving (k) surface impoundment'. In addition, in Spain, D4 may also fall under '5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving 5.3 (a) (iv) treatment of slags and ashes, and excluding activities covered by the urban waste-water treatment Directive'.

Denmark, Estonia, Croatia, Hungary, Lithuania, the Netherlands and Portugal did not report any link to an IED waste management activity.

Table 24: Information provided by MS on the IED activity classification of D4 operations when falling under the IED

IED category of certain D4 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (k) surface impoundment	✓			✓	✓				✓			✓

IED category of certain D4 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (iv) treatment of slags and ashes				✓								

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 25 indicates the reported bans or restrictions for specific waste streams sent to D4 disposal operations.

In Austria, the disposal of all wastes in D4 is banned, both hazardous and non-hazardous. In Denmark, the disposal of all wastes and waste streams in D4 is banned, apart from wastes meeting D_{Haz} landfill category criteria. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D4 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D4 and that specific requirements on waste properties for landfill are in place. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels. In the Netherlands, the disposal of all waste streams in D4 is banned and the disposal operation is not used.

Table 25: Bans and restrictions on waste streams for D4 operations as reported by MS

Waste categories banned or restricted in D4	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste	B	B								B		
Non-hazardous waste	B	B								B		
Waste meeting A landfill category criteria		B								B		
Waste meeting B1 landfill category criteria		B								B		
Waste meeting B2+B3 landfill category criteria		B								B		
Waste meeting C landfill category criteria		B								B		
Waste meeting D_{Haz} landfill category criteria										B		
Municipal		B								B		
Construction & Demolition		B								B		
Extractive		B								B		
Bio-waste		B								B		
Sludge		B								B		
Waste oils		B								B		

Waste categories banned or restricted in D4	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
WEEE		B		B						B		
Batteries & Accumulators		B		B						B		
ELVs		B		B						B		
Packaging		B								B		
PCBs		BR		B						B		
Other waste streams not listed		B								B		
Waste subject to separate collection for preparation for re-use & recycling		B								B		
Waste suitable for recycling & recovery		B								B		
Specific requirements on waste related to different landfill categories								✓				
Treated waste only								✓				
Imported mix municipal waste and recovered solid fuels								✓				
Not used										✓		

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.

B means bans, R means restrictions

11.7.4.3 Waste flows

Figure 16 presents the Sankey diagram of the different waste flows sent to D4. The contribution of each MS to the total amount of waste sent to D4 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

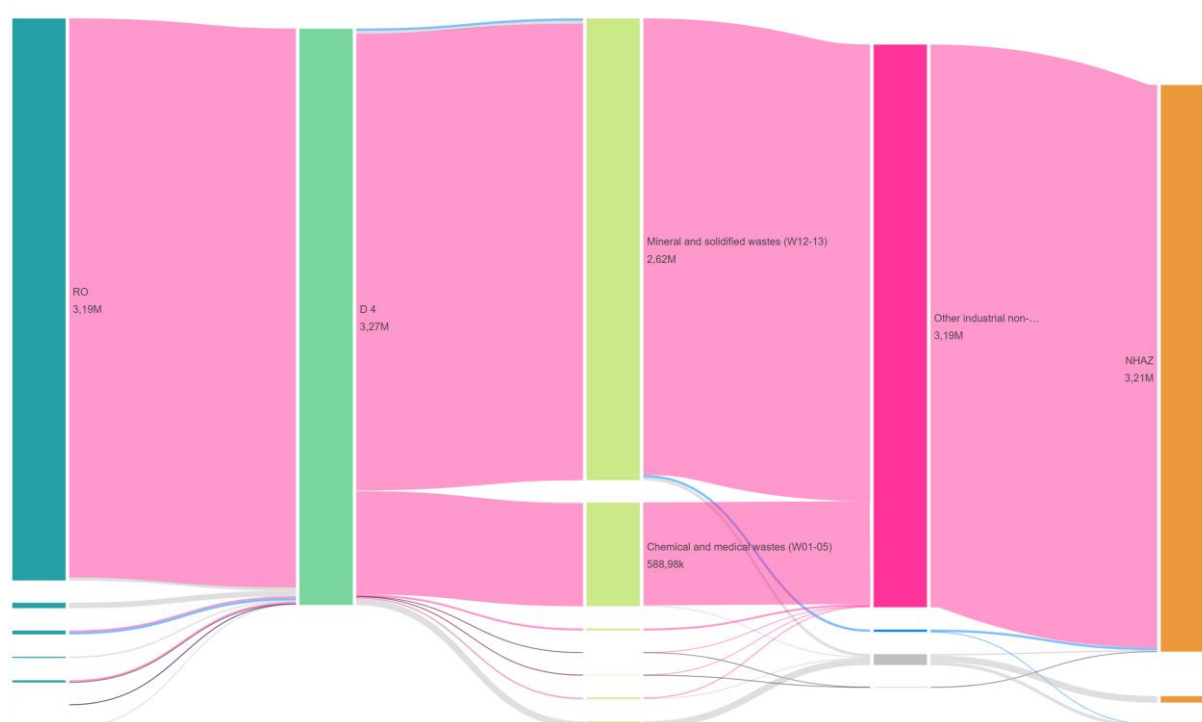
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D4 was mostly used in Romania to dispose of other industrial non-hazardous wastes (mostly mineral and solidified wastes but also chemical and medical wastes);
- in Lithuania and Denmark, D4 is used for the disposal of construction and demolition wastes (mineral and solidified);
- construction and demolition wastes (0.4%) and other municipal wastes (<0.1%) represented minor fractions (<5%) of the wastes disposed of in D4;
- no municipal bio-waste or textile waste was disposed of in D4;
- 0.5% of the waste disposed of in D4 was classified as hazardous; and
- the hazardous fraction was divided into 99% other wastes and 1% construction and demolition waste.

Figure 16: Yearly average waste tonnages disposed of in waste disposal operations in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D4, the calculated disposal rate ranges for the major streams are:

- 2% (based on only one MS) disposal rate for the mineral and solidified wastes (W12-13) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX); and
- from <0.5% to 83% disposal rate for the mixed ordinary wastes (W10) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX).

11.7.4.4 Protection measures

Figure 17 depicts the different types of measures for the protection of the environment and human health reported by MS.

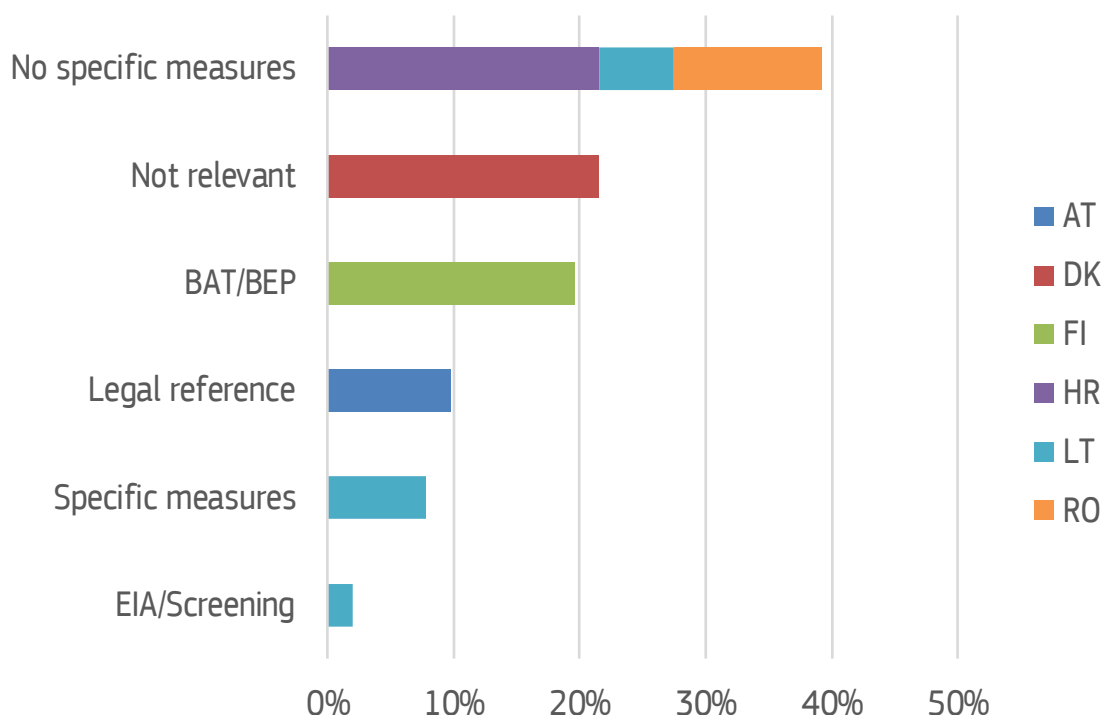
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

Most of the measures provided were not specific.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Specific measures were only reported by Lithuania.

Figure 17: Protection measures type distribution for D4 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 18 provides an illustrative overview of the key words used to describe the specific measures reported by Lithuania.

As for D2, where reported, the specific measures mostly include measures for the water management, and measures for the protection of soil and groundwater that include specific requirements for a basal structure. At closure, revegetation and capping were reported. Finally, for the safe access at the site, fences were mostly required.

Nonetheless, compared to D1 or D5 waste disposal operations, significantly less measures were provided for D4.

1 **Figure 18:** Protection measures key words cloud for D4 operations

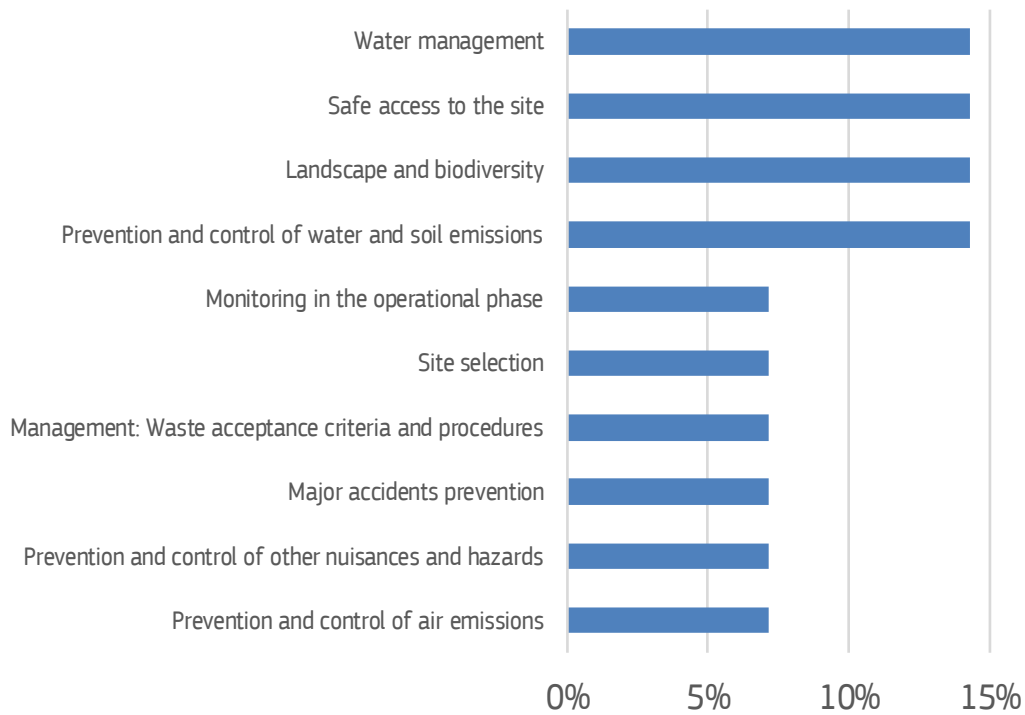


2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 19** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

7 As for D2, specific measures for the water management, safe access to the site, landscape and biodiversity, and prevention
8 and control of water and soil emissions were more provided than the others.

Figure 19: Protection measures category distribution for D4 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

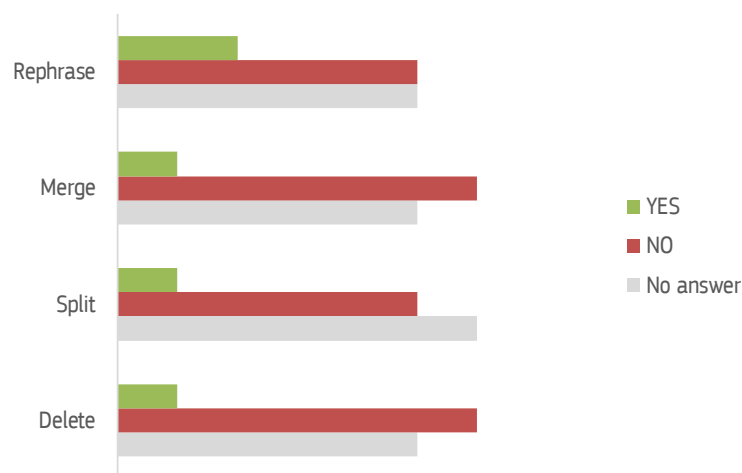
11.7.4.5 Member States suggestions for the revision

Figure 20 provides information on general suggestions for the revision of D4.

In general, as for D2 and D3, MS were not in favour of any of the suggested options. They mostly opposed to rephrasing, merging, splitting and/or deletion of D4.

Nevertheless, some suggestions were provided in each category.

Figure 20: General suggestions for the revision of D4 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 26**.

The rephrasing requests mainly referred to the introduction of subcategories and/or clarifications on the type of waste facility and wastes covered by D4, e.g. if water bodies or placement of sealed containers of inert waste would fall under D4.

One final suggestion was made for the revised list of D codes, and supported by three MS: to keep the description as it is.

Table 26: Specific and final suggestions for the revision of D4 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	to clarify whether the reference to ponds/lagoons means release of waste (possibly waste water) into those, or placement of inert waste (possibly waste water in sealed containers) in ponds/lagoons, to clarify the waste covered by D4 and the definition of 'surface', considering, for example, that pits are usually below surface.	1
Merge	with D1 and split into: (i) placing on to land and (ii) placing below (but close to) surface	1
Split	into (i) placing into (dry) pits and (ii) placing into water bodies	1
Final 1	Surface impoundment (e.g. placement of liquid or sludgy discards into pits, ponds or lagoons, etc.)	3

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.5 Answers provided on D5

11.7.5.1 Definitions and current practices

Table 27 summarises the current situation in Member States (MS), providing an overview of the definition applied to D5 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D5 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D5 is defined in Austria, Denmark, Estonia, Spain, Finland and Lithuania as a specially engineered landfill (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.), as in Annex I to the WFD.

In Denmark, Estonia, Spain, the Netherlands and Romania D5 specially engineered landfills explicitly meet the requirements of the LfD, whereas in Austria, Finland and Lithuania there is no explicit reference to the LfD requirements.

In addition, in Austria and Denmark, D5 is described as aboveground or surface facility.

In Austria, Finland and Lithuania, D5 is used for the disposal of hazardous waste, whereas D1 is a landfill for disposal of non-hazardous waste. In the Netherlands also, D5 is used for specific waste streams such as dredging spoils (no further details provided).

In Austria and Portugal, D5 is not used.

Croatia, Hungary and Latvia did not provide a clear answer.

Table 27: Key words and concepts used by MS to define D5 operations

Key words defining D5 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Specially engineered landfill	✓	✓	✓	✓	✓			✓		✓		
Discrete cells	✓	✓	✓		✓			✓				
Isolated from the environment	✓	✓	✓		✓			✓				
Capped	✓	✓	✓		✓			✓				
Meeting the LfD requirements		✓	✓	✓								✓
Surface / Aboveground	✓	✓										
Underground												
Hazardous waste	✓	✓		✓	✓			✓				
Non-hazardous waste		✓		✓								
Inert waste		✓		✓								
Particular waste streams										✓		
Not used	✓										✓	

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.5.2 Legal regimes

Table 28 provides an overview of the MS' answers to the questions on legal regimes. The number of D5 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Romania reported the highest number of D5 facilities: 53, and Croatia and Latvia the lowest: 1.

In Estonia, Lithuania and Romania, most of the D5 facilities were reported to accept municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

Most of the MS reported to dispose of 1-2 Mt/year of waste in D5 (0.1-0.2% of the total EU-27 waste sent to disposal). In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Spain, Croatia, Latvia and Romania indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Denmark, Estonia and Finland reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, all MS reported D5 permits always contain adequate financial security, apart from Denmark and Estonia where this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Denmark, Estonia, Spain, Latvia and Romania indicated that D5 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Denmark, Estonia, Finland and Latvia indicated that the price charged always covers the costs, whereas Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Denmark, Spain, Lithuania, Latvia and Romania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, the Netherlands and Portugal did not provide details.

Table 28: Legal data and information provided by MS on the permitting of D5 operations

Permitting of D5 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		35	6		32	1		12	1			53
Waste facilities with a permit accepting municipal waste			3					12				42
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									

Permitting of D5 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)		<1	<1									
Processed amounts in 2012 (Mt)		<1	<1			<1			<1			
Processed amounts in 2014 (Mt)		1	1			<1			<1			
Processed amounts in 2016 (Mt)		1	2			<1			<1			
Permit contains EIA, including screening, for those activities falling under the EIA Directive?		☒	☒	☒	☒	☒		☒	☒			☒
Permit contains adequate financial security by the applicant?		☒	☒	☒				☒	☒			☒
Or other equivalent provision?												
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?		☒	☒	☒	☒			☒	☒			☒
The costs of disposal operations are covered by the price charged?		☒	☒		☒			☒	☒			
Waste acceptance procedures are in place?		☒	☒	☒				☒	☒			☒
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 29 provides an overview of the reported EIA/Environmental Screening category D5 projects may fall under. Based on the answers provided, D5 projects, exactly as D1 projects, may fall under two main EIA project categories (9 and 10) and two main Environmental Screening project categories (11(b) and 11(d)). In Estonia and Romania, D5 projects fall only in one EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Spain, D5 projects fall under one Screening category: '11. (b) Installations for the disposal of waste (projects not included in Annex I)'. In Denmark and Latvia, they may fall in an EIA or an Environmental Screening category. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Finland, Croatia, Hungary, the Netherlands and Portugal did not provide any details on the EIA/Screening categories.

1 **Table 29:** Information provided by MS on the EIA classification of D5 operations when falling under the EIA Directive

EIA and Screening of D5 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive		✓	✓						✓			✓
EIA - Other: 9.8. Hazardous waste disposal at hazardous waste landfill								✓				
EIA - 10. Waste disposal installations for the incineration or chemical treatment as defined in Annex I to the WFD under heading D9 of non-hazardous waste with a capacity >100 t/d		✓										
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)		✓		✓					✓			
Screening - 11. (d) Sludge-deposition sites		✓										
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

2 Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the
3 workshop.

4
5 **Table 30** provides an overview of the reported IED waste management categories under which D5 may fall. Contrary to D1
6 disposal operations, D5 were reported to fall under a more limited number of IED activities. This table shows that in most of
7 the countries, D5 disposal operations may fall under '5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or
8 with a total capacity exceeding 25 000 t excluding landfills of inert waste'.

9 Austria, Finland, Croatia, Hungary, the Netherland and Portugal did not report any link to an IED waste management activity.

10
11 **Table 30:** Information provided by MS on the IED activity classification of D5 operations when falling under the IED

IED category of certain D5 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:									✓			
5.1 (b) physico-chemical treatment								✓				

IED category of certain D5 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:									✓			
5.3 (a) (i) biological treatment									✓			
5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3. (b) (i) biological treatment									✓			
5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste		✓	✓	✓				✓	✓			✓
5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity >50 t excluding temporary storage, pending collection, on the site where the waste is generated								✓				

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 31 indicates the reported bans or restrictions for specific waste streams sent to D5 disposal operations.

In Denmark, the disposal of bio-wastes, waste oils, WEEE, waste batteries and accumulators, ELVs, packaging wastes and other not listed wastes in D5 is banned, as well as the disposal of wastes separately collected and wastes suitable for recycling or recovery. Other waste streams not listed are restricted, apart from wastes meeting D_{Haz} landfill category criteria. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D5 is banned, and as in Austria some Other waste streams not listed are restricted. Lithuania, Latvia and Romania, also reported specific waste streams bans and/or restrictions. Lithuania and Spain reported that only waste subject to prior treatment can be disposed of in D5. Specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels. In the Netherlands, the disposal of almost all waste streams in D5 is banned, and D5 is used for specific waste streams but no further details were provided.

Table 31: Bans and restrictions on waste streams for D5 operations as reported by MS

Waste categories banned or restricted in D5	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste		R						R				

Waste categories banned or restricted in D5	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Non-hazardous waste		R						R				
Waste meeting A landfill category criteria		R								B		BR
Waste meeting B1 landfill category criteria		R								B		BR
Waste meeting B2+B3 landfill category criteria		R								B		BR
Waste meeting C landfill category criteria		R								B		BR
Waste meeting D _{Haz} landfill category criteria								BR		B		
Municipal		R		R						B		
Construction & Demolition		R		R						B		
Extractive		R								B		
Bio-waste		B		R				BR	B	B		
Sludge		R		R				BR	B	B		
Waste oils		B		B				BR		B		
WEEE		B		BR				BR	B	B		B
Batteries & Accumulators		B		BR				B	B	B		B
ELVs		B		BR				B		B		B
Packaging		B		R				B		B		
PCBs		R		B					B	B		B
Other waste streams not listed		B										B
Waste subject to separate collection for preparation for re-use & recycling		B		B				B		B		
Waste suitable for recycling & recovery		B						B		B		
Treated waste only				✓				✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.5.3 Waste flows

Figure 21 presents the Sankey diagram of the different waste flows sent to D5. The contribution of each MS to the total amount of waste sent to D5 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

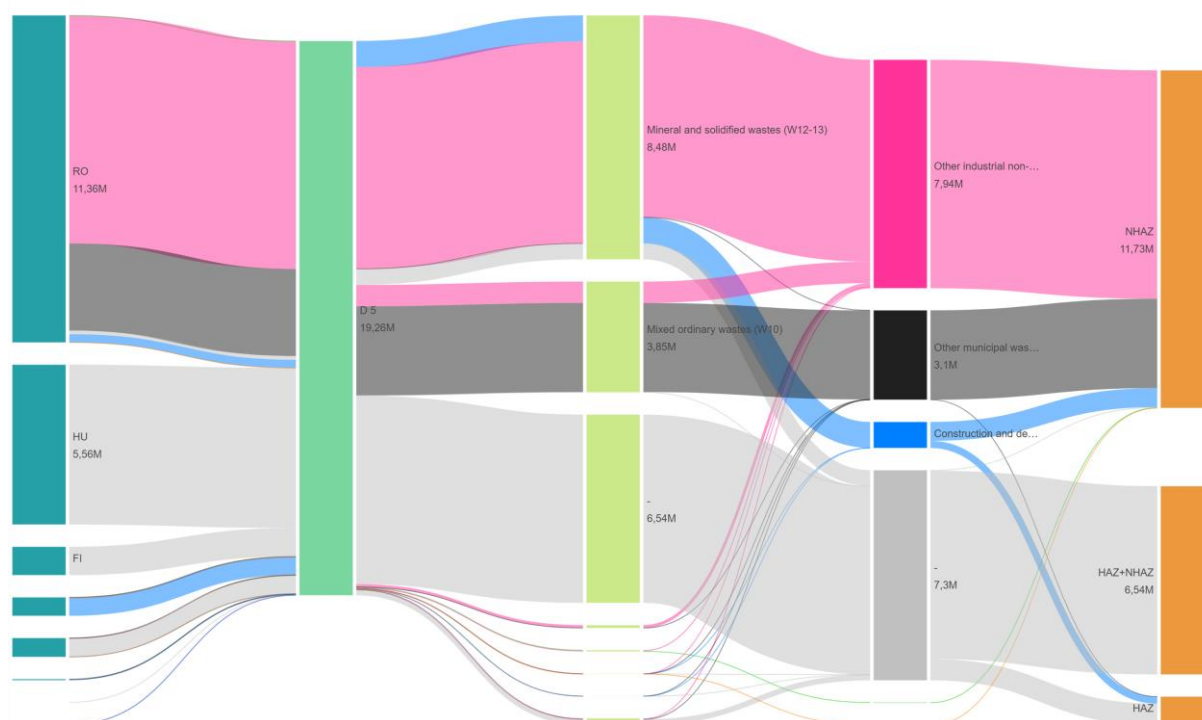
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D5 was mostly used in Romania and Hungary to dispose of various types of wastes: mostly other industrial non-hazardous wastes (mostly mineral and solidified wastes) but also other municipal wastes (mostly mixed ordinary wastes);
- in Denmark, D5 was mostly used for the disposal of construction and demolition wastes (mineral and solidified);
- textile wastes (<0.1%) and municipal bio-wastes (<0.1%) represented minor fractions (<5%) of the wastes disposed of in D5;
- 5% of the waste disposed of in D5 was classified as hazardous; and
- the hazardous fraction was divided into 75% other wastes, 25% construction and demolition waste and 0.1% other municipal wastes.

Figure 21: Yearly average waste tonnages disposed of in waste disposal operation D5 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D5, the calculated disposal rate ranges for the major streams are:

- from <0.5 to 4% disposal rate for the mineral and solidified wastes (W12-13) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX);
- from <0.5% to 58% disposal rate for the mixed ordinary wastes (W10) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX);
- from <0.5% to 19% disposal rate for the mineral and solidified wastes (W12-13) fraction of the construction and demolition waste (17_XX_XX); and
- from 2% to 20% disposal rate for the mineral and solidified wastes (W12-13) fraction of other waste streams.

11.7.5.4 Protection measures

Figure 22 depicts the different types of measures for the protection of the environment and human health reported by MS.

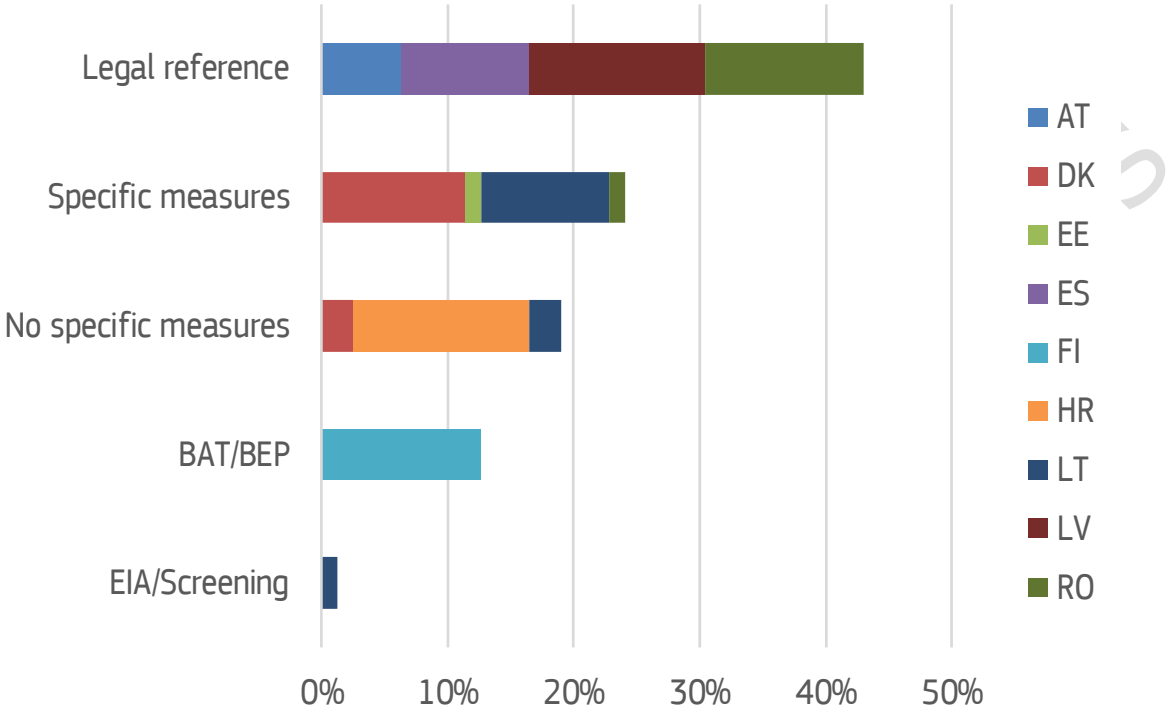
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

Most of the measures provided referred to national or EU legislation (legal references).

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Nevertheless, specific measures were second most reported category of measures (Denmark, Estonia, Latvia and Romania provided more detailed answers).

Figure 22: Protection measures type distribution for D5 operations

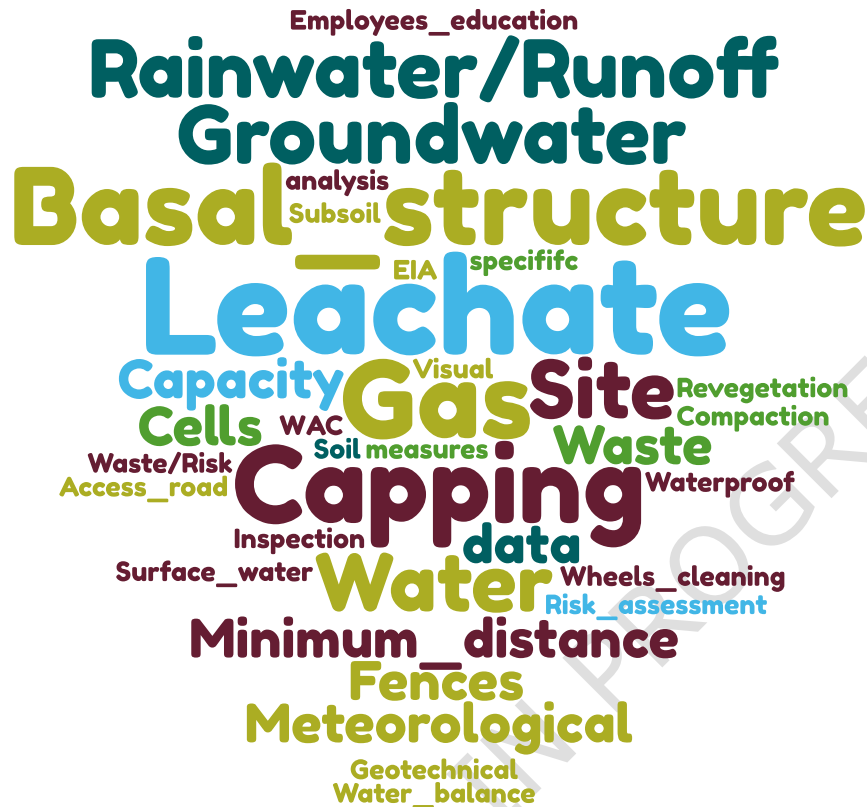


Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 23 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly include measures to protect soil and groundwater and air emissions. Leachate collection, capping, gas control, water management including rainwater/run-off management, basal structure were required; including minimum layers and thicknesses, waterproof lining and a minimum distance from groundwater. In addition, the division of the landfill into cells, the monitoring of meteorological data and the control of the access to the site using fences were reported. Finally, specific measures for the education of the personnel employed were also reported

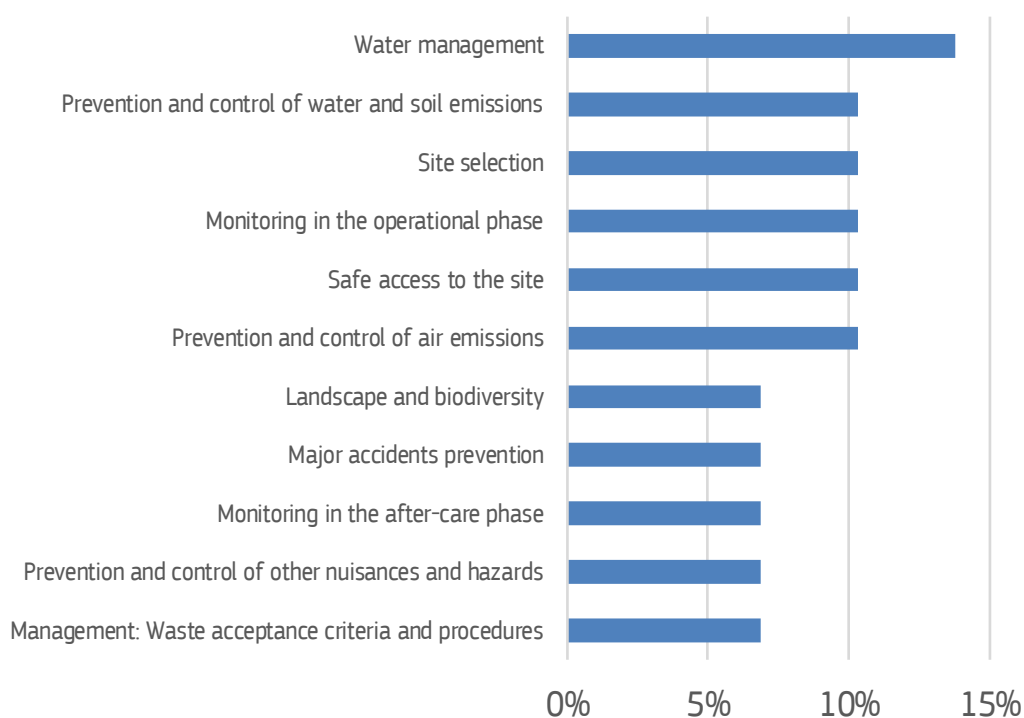
1 **Figure 23:** Protection measures key words cloud for D5 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 24** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).
7 Specific measures for the water management were the most provided.
8

1 **Figure 24:** Protection measures category distribution for D5 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.
5

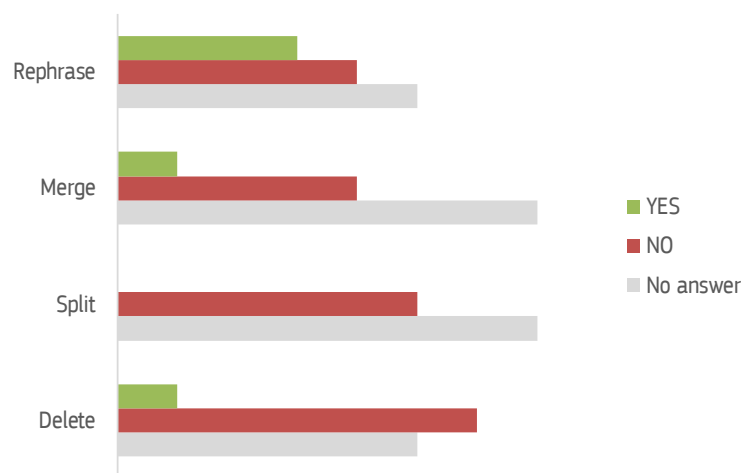
6 **11.7.5.5 Member States suggestions for the revision**

7 **Figure 25** provides information on general suggestions for the revision of D5.

8 In general, MS were not in favour of merging, splitting and/or deleting D5. Nevertheless, some MS suggested to merge or
9 delete D5.

10 The rephrasing option was the most balanced one.
11

Figure 25: General suggestions for the revision of D5 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 32**.

The rephrasing requests mainly referred to clarifications on the type of waste facility (e.g. isolated from the environment) or legal frame (e.g. covered by the LfD). On the other hand, the suggestions to merge with D1 or delete D5 were also supporting the idea of avoiding possible overlapping and/or confusion with D1, D4 or D12.

Two final suggestions were made for the revised list of D codes. Two suggestions are the two rephrasing suggestions whereas the third suggestion, supported by two MS, is to keep the description as it is.

Table 32: Specific and final suggestions for the revision of D5 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Deposit in an aboveground landfill isolated from the environment	1
Rephrase	Specially engineered landfill (e.g. landfills covered by Directive 1999/31/CE on the landfill of waste)	1
Merge	with D1	1
Delete	merged with D1	1
Final 1	Deposit in an aboveground landfill isolated from the environment	1
Final 2	Specially engineered landfill (e.g. landfills covered by Directive 1999/31/CE on the landfill of waste)	1
Final 3	Specially engineered landfill (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the workshop.

11.7.6 Answers provided on D6

11.7.6.1 Definitions and current practices

Table 33 summarises the current situation in Member States (MS), providing an overview of the definition applied to D6 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D6 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D6 is defined in Austria, Denmark, Estonia, Finland and Lithuania as a release into a water body except seas/oceans, as in Annex I to the WFD.

In addition, in Denmark, D6 operations include deposition of waste on to the water body bed and insertion in the subsoil, i.e. deposition on to the surface below water or insertion into the subsoil of non-hazardous wastes such as drilling muds or sludge.

In Estonia, Spain, Hungary, Lithuania, Latvia, the Netherlands, Portugal and Romania, D6 is not used.

In Austria and Finland, D6 is prohibited.

Croatia did not provide a clear answer.

Table 33: Key words and concepts used by MS to define D6 operations

Key words defining D6 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Release into a water body except seas/oceans	✓	✓	✓		✓			✓				
Water body bed deposition		✓										
Water body subsoil insertion		✓										
Non-hazardous waste		✓										
Silt / Sludge		✓										
Drilling muds		✓										
Not used			✓	✓			✓	✓	✓	✓	✓	✓
Prohibited	✓				✓							

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.6.2 Legal regimes

Table 34 provides an overview of the MS' answers to the questions on legal regimes. The number of D6 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit

conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Only Denmark reported to have three D6 waste disposal facilities.

No MS reported D6 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

Denmark reported to dispose of less than 1 Mt/year of waste in D6 (less than 0.1% of the total EU-27 waste sent to disposal). In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Croatia indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D6 permits always contain adequate financial security, whereas Estonia reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D6 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Finland, Hungary, Latvia, the Netherlands and Portugal did not provide details.

Table 34: Legal data and information provided by MS on the permitting of D6 operations

Permitting of D6 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		3										
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)		<1										
Processed amounts in 2012 (Mt)		<1										
Processed amounts in 2014 (Mt)		<1										

Permitting of D6 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Processed amounts in 2016 (Mt)		<1										
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☑			☑		☑				
Permit contains adequate financial security by the applicant?			☑					☑				
Or other equivalent provision?												
Other complementary requirements: Bank security or insurance surety agreement								☑				
Prior to commencement of disposal operations, the site is inspected?			☑	☑				☑				☑
The costs of disposal operations are covered by the price charged?			☑					☑				
Waste acceptance procedures are in place?			☑					☑				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 35 provides an overview of the reported EIA/Environmental Screening category D6 projects may fall under. Based on the answers provided, D6 projects may fall under two main EIA project categories (9 and 10) and two main Environmental Screening project categories (11(b) and 11(d)). In Estonia and Romania, D6 projects fall only in one EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Spain, D6 projects fall under one Screening category: '11. (b) Installations for the disposal of waste (projects not included in Annex I)'. In Denmark and Latvia, they may fall in an EIA or an Environmental Screening category. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 35: Information provided by MS on the EIA classification of D6 operations when falling under the EIA Directive

EIA and Screening of D6 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive									✓			

EIA and Screening of D6 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

D6 waste disposal operations were not reported to fall under any of the IED waste management categories.

Table 36 indicates the reported bans or restrictions for specific waste streams sent to D6 disposal operations.

In Austria the disposal of both hazardous and non-hazardous wastes in D6 is banned. In Denmark, the disposal of almost all waste streams in D6 is banned, apart from non-hazardous wastes and wastes meeting B2+B3 landfill category criteria. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D6 is banned. In Finland and the Netherlands, the disposal of all waste streams in D6 is banned. In the Netherlands, D6 is not used. Lithuania reported that only waste subject to prior treatment can be disposed of in D6 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 36: Bans and restrictions on waste streams for D6 operations as reported by MS

Waste categories banned or restricted in D6	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste	B	B			B					B		
Non-hazardous waste	B				B					B		
Waste meeting A landfill category criteria		B			B					B		
Waste meeting B1 landfill category criteria		B			B					B		
Waste meeting B2+B3 landfill category criteria					B					B		
Waste meeting C landfill category criteria		B			B					B		

Waste categories banned or restricted in D6	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Waste meeting D_{Haz} landfill category criteria		B			B					B		
Municipal		B			B					B		
Construction & Demolition		B			B					B		
Extractive		B			B					B		
Bio-waste		B			B					B		
Sludge		B			B					B		
Waste oils		B			B					B		
WEEE		B		B	B					B		
Batteries & Accumulators		B		B	B					B		
ELVs		B		B	B					B		
Packaging		B			B					B		
PCBs		BR		B	B					B		
Other waste streams not listed					B					B		
Waste subject to separate collection for preparation for re-use & recycling		B			B					B		
Waste suitable for recycling & recovery		B			B					B		
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				
Not used										✓		

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

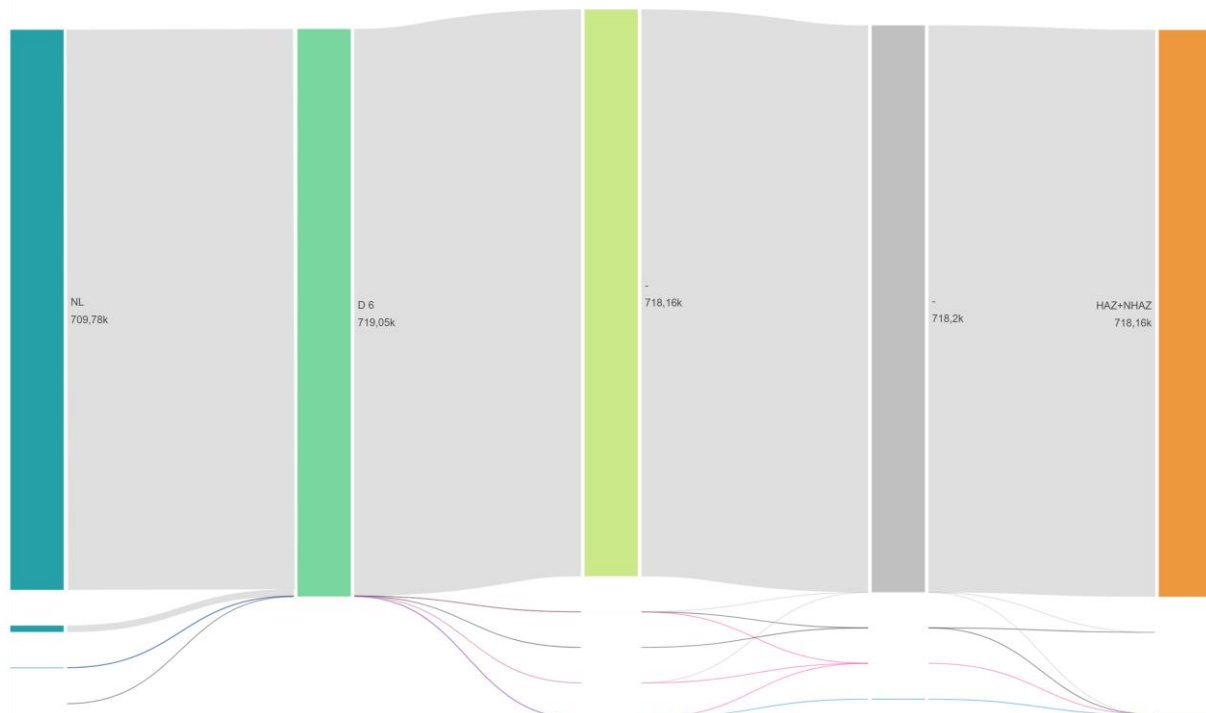
11.7.6.3 Waste flows

Figure 26 presents the Sankey diagram of the different waste flows sent to D6. The contribution of each MS to the total amount of waste sent to D6 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;

- 1 — municipal bio-waste coloured in green;
- 2 — other municipal wastes coloured in dark grey; and
- 3 — other industrial non-hazardous wastes coloured in pink.
- 4 The total amount of these specific waste streams is presented on the right hand of the diagram.
- 5 In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).
- 6
- 7 Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For
- 8 unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between
- 9 hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).
- 10
- 11 The main finding from the data provided by the MS are the following:
- 12 — D6 was mostly used in the Netherlands (actually D6 is not carried out in the Netherlands, nevertheless it
- 13 is counted in the statistics) to release (smaller amounts of) waste, but no disaggregated data provided;
- 14 — construction and demolition waste accounted for 0.1% of the total, but 99.9% of the waste was not
- 15 classified, i.e. unspecified.
- 16 — other industrial non-hazardous wastes (<0.1%) and other municipal wastes (<0.1%) represented minor
- 17 fractions (<5%) of the wastes released in D6;
- 18 — no municipal bio-waste or textile waste was released in D6;
- 19 — <0.1% of the waste disposed of in D6 was classified as hazardous (however most of the waste released
- 20 in D6 was not classified, i.e. unspecified); and
- 21 — the hazardous fraction was divided into 75% other wastes and 25% other municipal wastes.
- 22

Figure 26: Yearly average waste tonnages disposed of in waste disposal operation D6 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D6, it was not possible to calculate disposal rates for the major streams.

11.7.6.4 Protection measures

Figure 27 depicts the different types of measures for the protection of the environment and human health reported by MS.

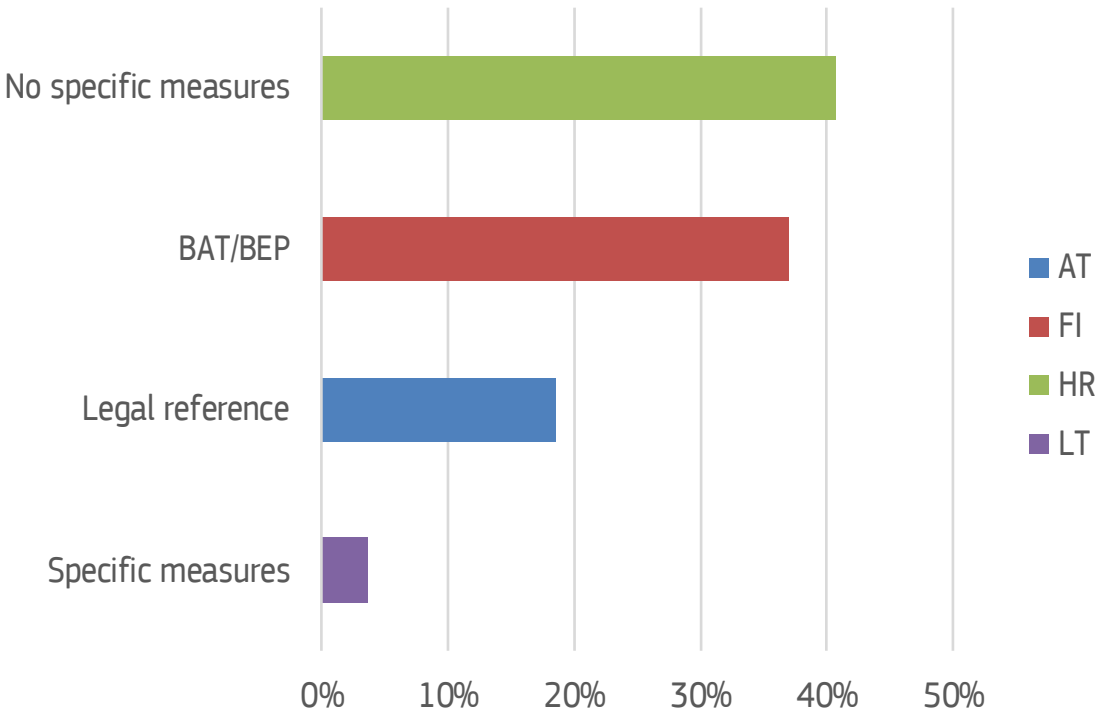
Some MS did not report any details on the measures, in which case these were reported as ‘no specific measures’, whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

Most of the measures provided referred to general and not specific measures.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Only Lithuania reported a number of specific measures.

Figure 27: Protection measures type distribution for D6 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 28 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly require the implementation of the measures provided by the EIA. At closure, measures on revegetation and capping were reported, even though D6 facilities are probably under the water body level.

1

2 **Figure 28:** Protection measures key words cloud for D6 operations

EIA
Revegetation
Capping

3

4

5

Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

6

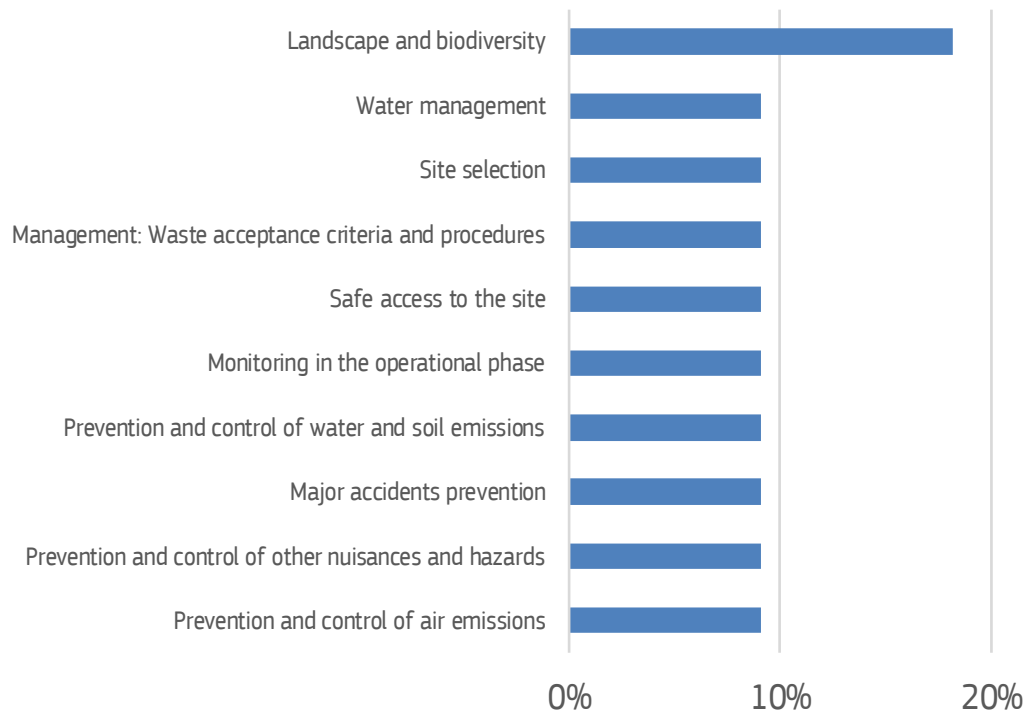
7 Finally, **Figure 29** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

8

Specific measures for the management of landscape and biodiversity were the most provided.

9

Figure 29: Protection measures category distribution for D6 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

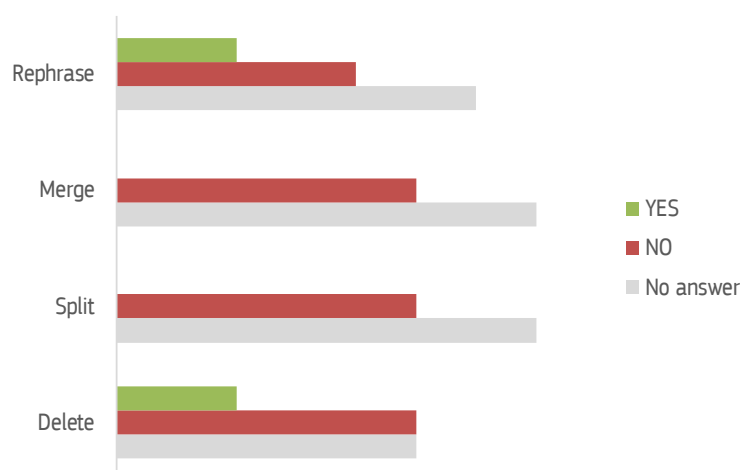
11.7.6.5 Member States suggestions for the revision

Figure 30 provides information on general suggestions for the revision of D6.

No MS was in favour of merging or splitting D6.

Some MS suggested to rephrase or delete D6, nevertheless the majority was not in favour of any change.

Figure 30: General suggestions for the revision of D6 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 37**.

The requests mainly referred to the inclusion of the type of waste in the scope of D6 (e.g. waste, water vapour) and clarifications on the type of water body included in the scope of D6 (e.g. lakes, rivers, water).

One final suggestion was made for the revised list of D codes, and supported by two MS: to keep the description as it is.

Table 37: Specific and final suggestions for the revision of D6 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	to clarify the type of water bodies, e.g.: inland lakes and rivers	1
Split	into (i) water discharge in open water or sewer systems and (ii) release of water vapour in the atmosphere in processes when moisture evaporates during waste treatment (not for incineration processes, but for example digestion and composting processes)	1
Delete	the release of waste into a water body different than seas/oceans should not be allowed.	1
Final 1	Release into a water body except seas/oceans	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.7 Answers provided on D7

11.7.7.1 Definitions and current practices

Table 38 summarises the current situation in Member States (MS), providing an overview of the definition applied to D7 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D7 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D7 is defined in Austria, Finland and Lithuania as a release to seas/oceans including seabed insertion, as in Annex I to the WFD.

In Spain, D7 operations include discharge of fish processing waste and inert materials of natural origin (in line with the OSPAR Convention, see Section 11.3.3).

In Finland, D7 is used for the release in the sea and placement on the seabed of sewage sludge and filter waste.

In Portugal and Romania, D7 is not used.

No MS reported prohibition of D7.

Croatia did not provide a clear answer.

Table 38: Key words and concepts used by MS to define D7 operations

Key words defining D7 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Release to seas/oceans including seabed insertion	✓				✓			✓				
Discharge of fish processing waste and inert materials of natural origin at sea in accordance with the OSPAR Convention				✓								
Release in the sea and placement on the seabed of sewage sludge / filter waste					✓							
Not used											✓	✓
Prohibited												

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.7.2 Legal regimes

Table 39 provides an overview of the MS' answers to the questions on legal regimes. The number of D7 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

No MS reported to have D7 waste disposal facilities.

No MS reported D7 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

No MS reported data on waste amounts disposed of in D7. In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Croatia indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia reported to include it sometimes. Lithuania reported to

never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D7 permits always contain adequate financial security, whereas Estonia reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D7 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Denmark, Finland, Hungary, Latvia, the Netherlands and Portugal did not provide details.

Table 39: Legal data and information provided by MS on the permitting of D7 operations

Permitting of D7 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit												
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)												
Processed amounts in 2012 (Mt)												
Processed amounts in 2014 (Mt)												
Processed amounts in 2016 (Mt)												
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒			☒		☒				
Permit contains adequate financial security by the applicant?			☒					☒				
Or other equivalent provision?												
Other complementary requirements:								☒				
Bank security or insurance surety agreement												

Permitting of D7 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Prior to commencement of disposal operations, the site is inspected?			☒	☒				☒				☒
The costs of disposal operations are covered by the price charged?			☒					☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 40 provides an overview of the reported EIA/Environmental Screening category D7 projects may fall under. Based on the answers provided, D7 projects may fall under two main EIA project categories (9 and 10) and two main Environmental Screening project categories (11(b) and 11(d)). In Estonia and Romania, D6 projects fall only in one EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Spain, D7 projects fall under one Screening category: '11. (b) Installations for the disposal of waste (projects not included in Annex I)'. In Denmark and Latvia, they may fall in an EIA or an Environmental Screening category. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 40: Information provided by MS on the EIA classification of D7 operations when falling under the EIA Directive

EIA and Screening of D7 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive									✓			
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				

EIA and Screening of D7 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

D7 waste disposal operations were not reported to fall under any of the IED waste management categories.

Table 41 indicates the reported bans or restrictions for specific waste streams sent to D7 disposal operations.

In Austria the disposal of both hazardous and non-hazardous wastes in D7 is banned. In Denmark, the disposal of almost all waste streams in D7 is banned, apart from non-hazardous wastes, bio-waste, sludge, and waste oils, which have restrictions. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D7 is banned. In the Netherlands, the disposal of all waste streams in D7 is banned and D7 is not used. Lithuania reported that only waste subject to prior treatment can be disposed of in D7 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 41: Bans and restrictions on waste streams for D7 operations as reported by MS

Waste categories banned or restricted in D7	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste	B	B								B		
Non-hazardous waste	B	R								B		
Waste meeting A landfill category criteria		B								B		
Waste meeting B1 landfill category criteria		B								B		
Waste meeting B2+B3 landfill category criteria		B								B		
Waste meeting C landfill category criteria		B								B		
Waste meeting D_{Haz} landfill category criteria		B								B		
Municipal		B								B		
Construction & Demolition		B								B		
Extractive		B								B		

Waste categories banned or restricted in D7	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Bio-waste		R								B		
Sludge		R								B		
Waste oils		R								B		
WEEE		B		B						B		
Batteries & Accumulators		B		B						B		
ELVs		B		B						B		
Packaging		B								B		
PCBs		BR		B						B		
Other wastes streams		B								B		
Waste subject to separate collection for preparation for re-use & recycling		B								B		
Waste suitable for recycling & recovery		B								B		
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				
Not used										✓		

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.7.3 Waste flows

Figure 31 presents the Sankey diagram of the different waste flows sent to D7. The contribution of each MS to the total amount of waste sent to D7 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

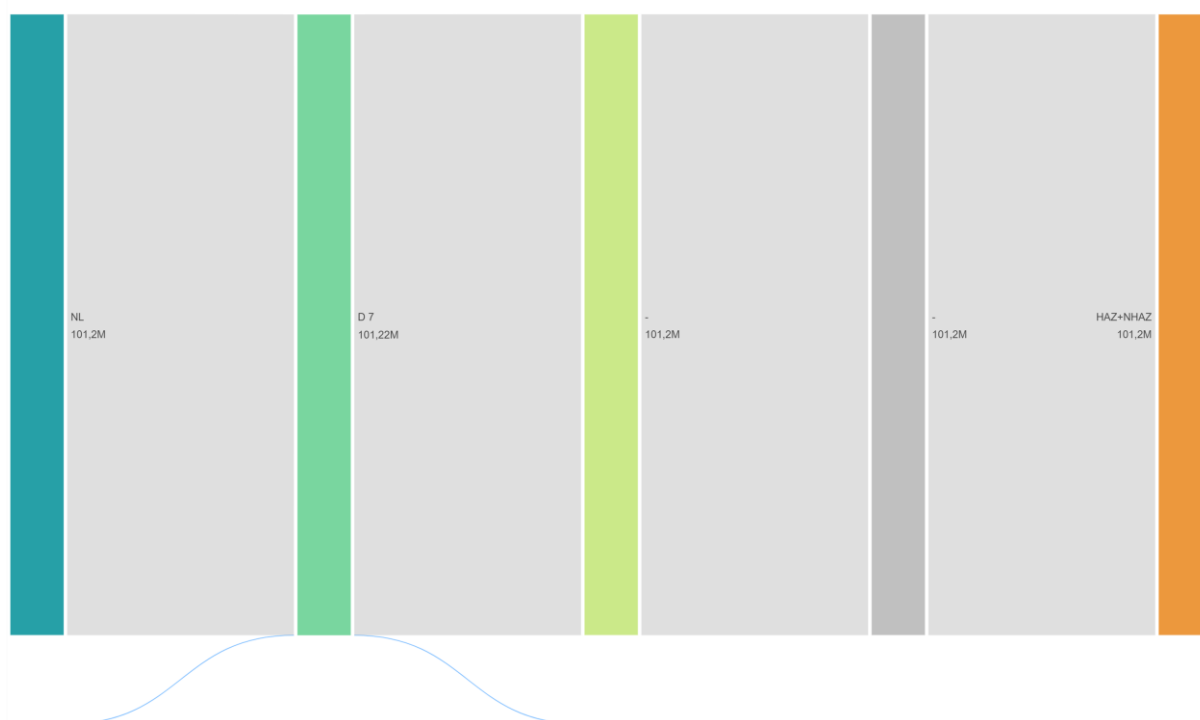
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main finding from the data provided by the MS are the following:

- D7 was mostly used in the Netherlands (actually D7 is not carried out in the Netherlands, nevertheless it is counted in the statistics) to release (smaller amounts of) waste, but no disaggregated data provided;
- construction and demolition waste accounted for <0.1%, but 99.99% of the waste was not classified, i.e. unspecified;
- no municipal bio-waste, other municipal wastes, textile waste or other industrial non-hazardous wastes was released in D7;
- <0.1% of the waste disposed of in D7 was classified as hazardous (however most of the waste released in D7 was not classified, i.e. unspecified); and
- the hazardous fraction was 100% construction and demolition waste.

Figure 31: Yearly average waste tonnages disposed of in waste disposal operation D7 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D7, it was not possible to calculate disposal rates for the major streams.

11.7.7.4 Protection measures

Figure 32 depicts the different types of measures for the protection of the environment and human health reported by MS.

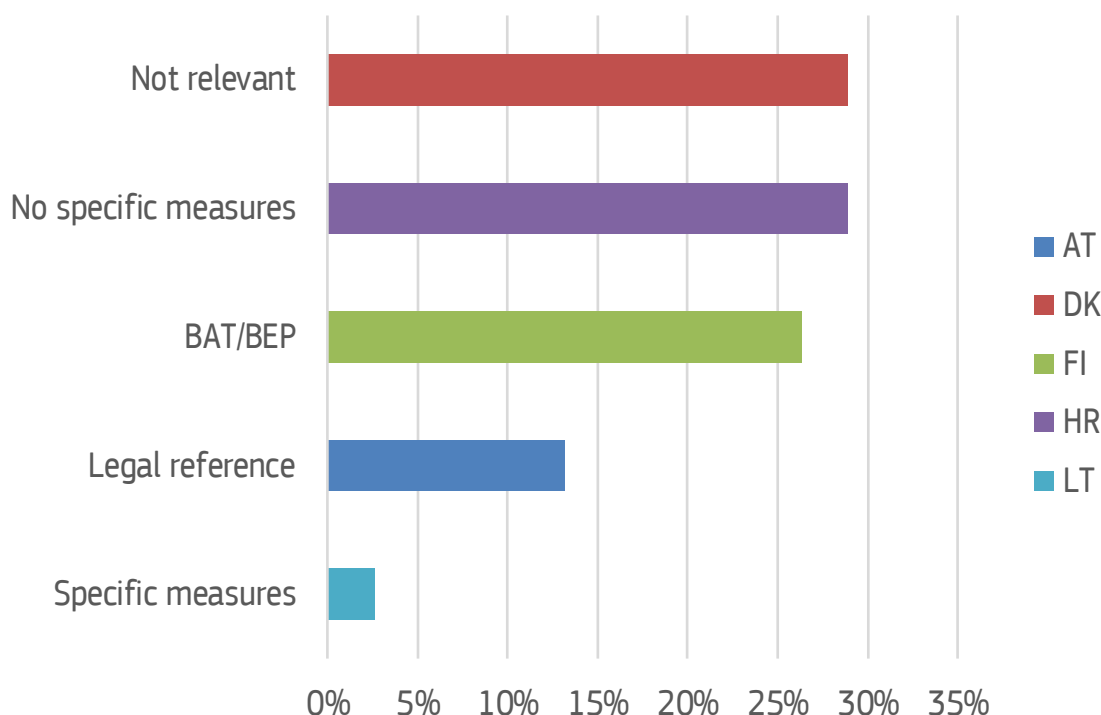
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

General and not specific measures or not relevant were the most answers provided.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Only Lithuania reported a number of specific measures.

Figure 32: Protection measures type distribution for D7 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 33 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly require the implementation of the measures provided by the EIA. At closure, measures on revegetation and capping were reported, even though D7 facilities are probably under sea level, same as for D6.

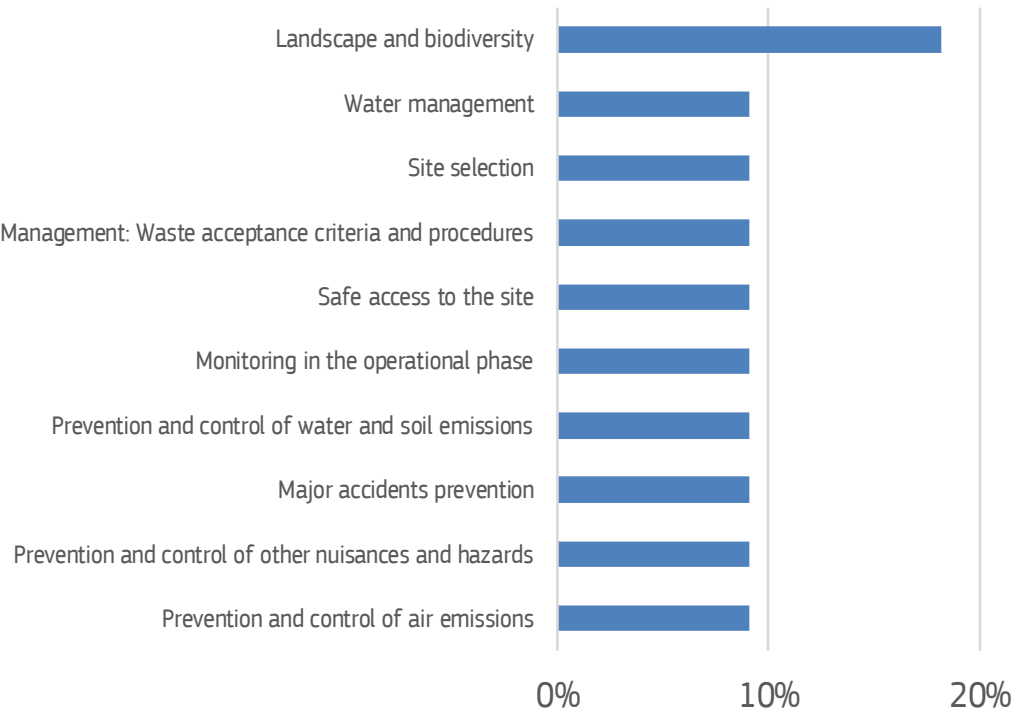
1 **Figure 33:** Protection measures key words cloud for D7 operations

EIA
Revegetation
Capping

2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 34** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).
7 Specific measures for the management of landscape and biodiversity were the most provided, as for D6.
8

Figure 34: Protection measures category distribution for D7 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

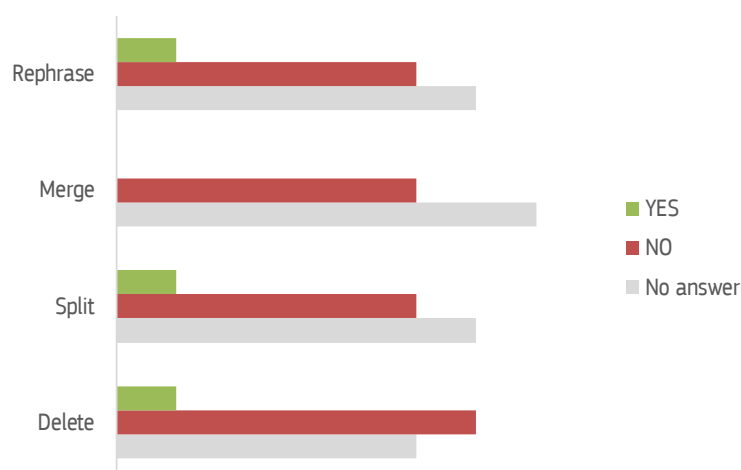
11.7.7.5 Member States suggestions for the revision

Figure 35 provides information on general suggestions for the revision of D7.

No MS was in favour of merging D7.

Some MS suggested to rephrase, split or delete D7, nevertheless the majority was not in favour of any change.

Figure 35: General suggestions for the revision of D7 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 42**.

The request referred to the inclusion of subcategories corresponding to the different waste disposal methods, i.e. release and deposition on seabed. In addition a clarification on the inclusion of placement of waste in closed containers or injection of pumpable waste into the seabed was made.

One final suggestion was made for the revised list of D codes, and supported by two MS: to keep the description as it is.

Table 42: Specific and final suggestions for the revision of D7 code

General suggestion	Specific suggestion	Number of suggestions
Split	into (i) releasing into the ocean and (ii) inserting into sea bed, also there is a need to clarify whether seabed insertion means the placement of closed containers or injection of (possibly pumpable) wastes into seabed. Possibly the D-codes may better differentiate between legal and illegal actions.	1
Final 1	Release to seas/oceans including seabed insertion	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.8 Answers provided on D8

11.7.8.1 Definitions and current practices

Table 43 summarises the current situation in Member States (MS), providing an overview of the definition applied to D8 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D8 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, D8 is defined in Austria, Denmark, Estonia, Spain, Finland, Lithuania, Portugal and Romania as a biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D 1 to D 12, as in Annex I to the WFD.

In Denmark, Spain and Romania, D8 encompasses aerobic or anaerobic biological/mechanical treatment. No definition or description was provided for biological/mechanical treatment.

In Denmark, companies rather use D8 instead of D13 because D8 is a non-interim operation contrary to D13.

In Spain, the biological/mechanical treatment is used for municipal waste only if at least 50% w./w. of input waste is sent to disposal after treatment.

In Latvia, D8 was reported as a biological pre-treatment prior to discarding in a landfill, and not any of the D1 to D12 codes.

In Austria, D8 corresponds to plants carrying-out biodegradation of hazardous organic waste such as contaminated soils.

In Portugal, D8 refers to treatment using micro-organisms.

In the Netherlands, D8 is defined as treatment without addition of any additives (e.g. chemical reagents) or any other waste stream (e.g. mixing of wastes).

In most of the MS, D8 is used for the treatment prior to disposal of liquid waste, sludge and contaminated soil.

Croatia and Hungary did not provide a clear answer.

Table 43: Key words and concepts used by MS to define D8 operations

Key words defining D8 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Biological treatment prior to D1-D12	✓	✓	✓	✓	✓			✓	✓***		✓	✓
Degradation of organic pollutants	✓	✓										✓
Reduction of biodegradable components		✓		✓								✓
Aerobic or anaerobic		✓		✓								✓
Bio/mechanical treatment*		✓		✓								
Use of microorganisms											✓	
No mixing with other streams										✓		
Hazardous waste	✓											
Liquid waste		✓		✓								
Sludge		✓		✓								✓
Contaminated soil	✓	✓		✓								✓
Municipal waste		✓		✓**								✓

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

* No definition provided for biological/mechanical treatment

** Only if more than 50 % w./w. of the input is sent to a disposal operation D1 to D12 after treatment

*** Biological pre-treatment prior to landfilling

11.7.8.2 Legal regimes

Table 44 provides an overview of the MS' answers to the questions on legal regimes. The number of D8 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted

pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Finland reported the highest number of D8 facilities: 20, and Estonia the lowest: 2.

No MS reported D8 waste facilities accepting municipal waste, however Spain reported to use it for the treatment of municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D8 waste facilities were less than 1 Mt/year of waste in Denmark, Estonia and Croatia (<0.1% of the total EU-27 waste sent to disposal). Other MS did not report data.

When it comes to complementary requirements to the permit, Croatia and Romania indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia, Finland and the Netherlands reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D8 permits always contain adequate financial security, whereas Estonia and Portugal reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D8 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, Latvia and the Netherlands did not provide details.

Table 44: Legal data and information provided by MS on the permitting of D8 operations

Permitting of D8 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		12	2		20	9		4				5
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						

Permitting of D8 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)		<1										
Processed amounts in 2012 (Mt)		<1	<1			<1						
Processed amounts in 2014 (Mt)		1				<1						
Processed amounts in 2016 (Mt)		<1				<1						
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒			☒	☒
Permit contains adequate financial security by the applicant?			☒					☒			☒	
Or other equivalent provision?											☒	
Other complementary requirements:												
Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 45 provides an overview of the reported EIA/Environmental Screening category D8 projects may fall under. Based on the answers provided, In Spain and Latvia, D8 projects may fall under either one main EIA project categories (9) or one main Environmental Screening project categories (11(b)). In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 45: Information provided by MS on the EIA classification of D8 operations when falling under the EIA Directive

EIA and Screening of D8 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
----------------------------------	----	----	----	----	----	----	----	----	----	----	----	----

EIA and Screening of D8 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive				✓					✓			
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 46 provides an overview of the reported IED waste management categories under which D8 may fall. This table shows that most of the MS reported to include D8 disposal operations may fall under the IED waste management activities '5.1 Disposal of hazardous waste with a capacity >10 t/day involving 5.1 (a) biological treatment' or '5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving 5.3 (a)(i) biological treatment, and excluding activities covered by the urban waste-water treatment Directive'. Only Spain and Romania reported to also include D8 in '5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving 5.3 (b)(i) biological treatment, and excluding activities covered by the urban waste-water treatment Directive'. Finally, Lithuania included D8 in 5.1 waste management activities and '5.6 Underground storage of hazardous waste with a total capacity >50 t'.

Denmark, Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 46: Information provided by MS on the IED activity classification of D8 operations when falling under the IED

IED category of certain D8 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (a) biological treatment	✓		✓	✓	✓			✓	✓	✓		✓

IED category of certain D8 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 (b) physico-chemical treatment								✓				
5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2								✓				
5.1 (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2								✓				
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (i) biological treatment	✓		✓	✓	✓				✓	✓		✓
5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:										✓		
5.3. (b) (i) biological treatment			✓									✓
5.6 Underground storage of hazardous waste with a total capacity >50 t								✓				

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 47 indicates the reported bans or restrictions for specific waste streams sent to D8 disposal operations.

Contrary to some other disposal operations, for D8, MS reported a limited number of bans or restrictions. In Austria the disposal of the waste streams regulated by specific EU legislation (see Section 11.1.2) in D8 is banned. In Denmark, same as in Austria, apart from PCB wastes for which a restriction was reported. In Spain, the disposal of WEEE, waste batteries and accumulators and ELVs in D8 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D8 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 47: Bans and restrictions on waste streams for D8 operations as reported by MS

Waste categories banned or restricted in D8	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Waste oils	B	B										
WEEE	B	B		B								
Batteries & Accumulators	B	B		B								

Waste categories banned or restricted in D8	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
ELVs	B	B		B								
Packaging	B	B										
PCBs	B	R										
Other waste streams not listed	B											
Waste subject to separate collection for preparation for re-use & recycling		B										
Waste suitable for recycling & recovery		B										
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.8.3 Waste flows

Figure 36 presents the Sankey diagram of the different waste flows sent to D8. The contribution of each MS to the total amount of waste sent to D8 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

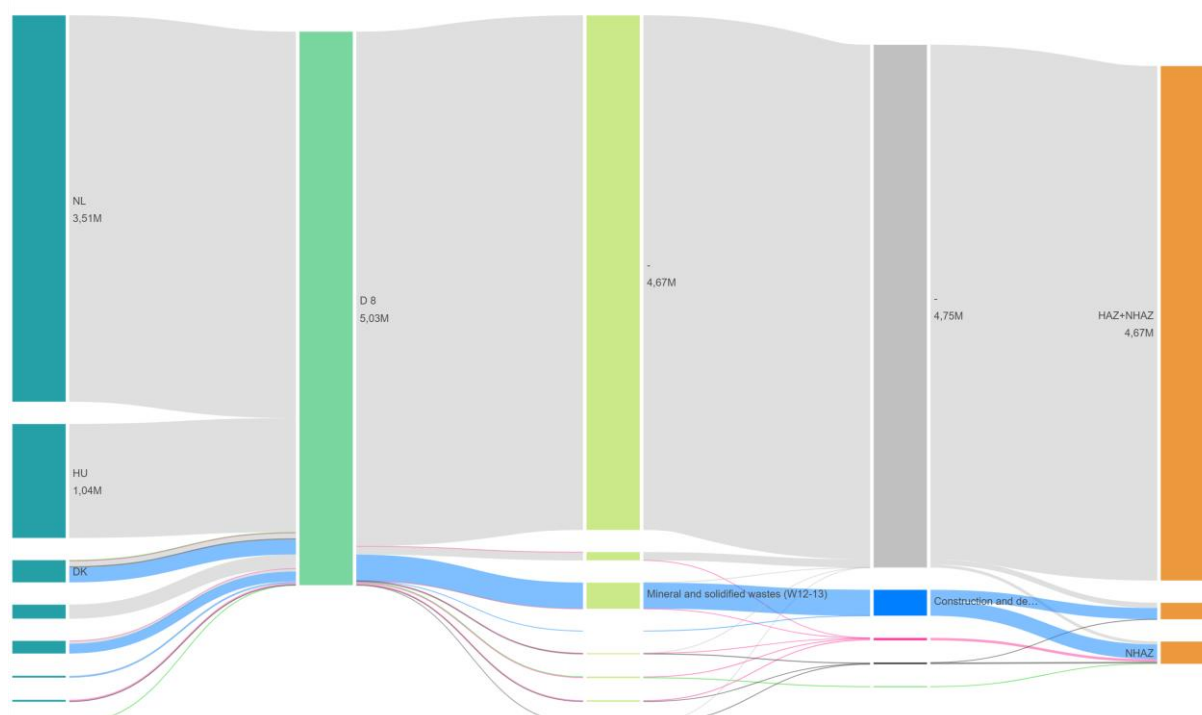
Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D8 was mostly used in the Netherlands and Hungary, but no disaggregated data provided;
- in Denmark and Romania, D8 was mostly used for the treatment prior to disposal of construction and demolition waste (the mineral and solidified fraction);
- in Latvia, D8 was mostly used for animal and vegetal wastes and common sludge;

- construction and demolition waste (5%), municipal bio-waste (0.1%), other municipal wastes (0.2%) and other industrial non-hazardous wastes (0.3%) represented minor fractions (<5%) of the wastes treated in D8, but 93% of the waste was not classified, i.e. unspecified;
- no textile waste was treated in D8;
- 3% of the waste disposed of in D8 was classified as hazardous (however 93% of the waste treated in D8 was not classified, i.e. unspecified); and
- the hazardous fraction was divided into 68% construction and demolition waste, 32% other wastes and 0.2% other municipal wastes.

Figure 36: Yearly average waste tonnages disposed of in waste disposal operation D8 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D8, the calculated disposal rate ranges for the major streams are:

- from 2% to 6% disposal rate for the mineral and solidified wastes (W12-13) fraction of the construction and demolition waste (17_XX_XX); and
- from <0.5% to 10% disposal rate for the chemical and medical wastes (W01-05) fraction of other waste streams.

11.7.8.4 Protection measures

Figure 37 depicts the different types of measures for the protection of the environment and human health reported by MS.

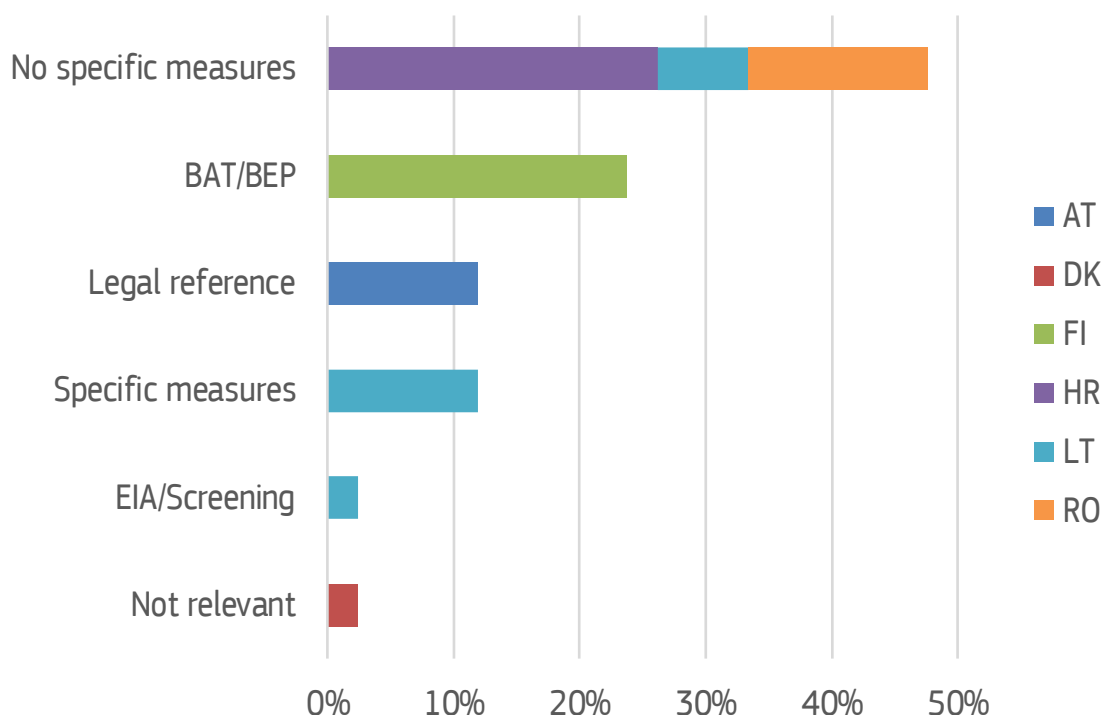
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

General and not specific measures were the most answers provided.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Only Lithuania reported a number of specific measures.

Figure 37: Protection measures type distribution for D8 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 38 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly include measures for the management of water and requirements on the basal structure, mainly technical requirements on the type and the thickness of the layers of materials composing the basal structure. Additional measures for air pollution such as the use of filters, and measures for the safe access to the site such as fences were also reported. Finally, at closure, revegetation and capping were reported.

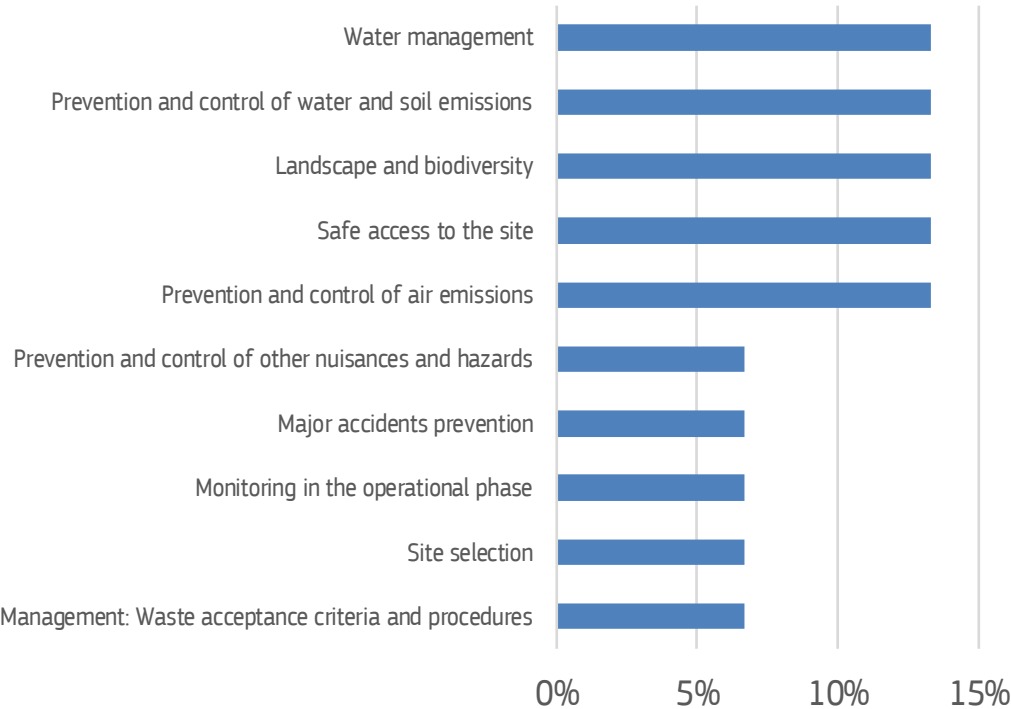
1 **Figure 38:** Protection measures key words cloud for D8 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 39** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).
7 Specific measures for the management of water, the prevention and control of water, air and soil emissions, the landscape
8 and biodiversity, and the safe access to the site were the most provided.
9

Figure 39: Protection measures category distribution for D8 operations

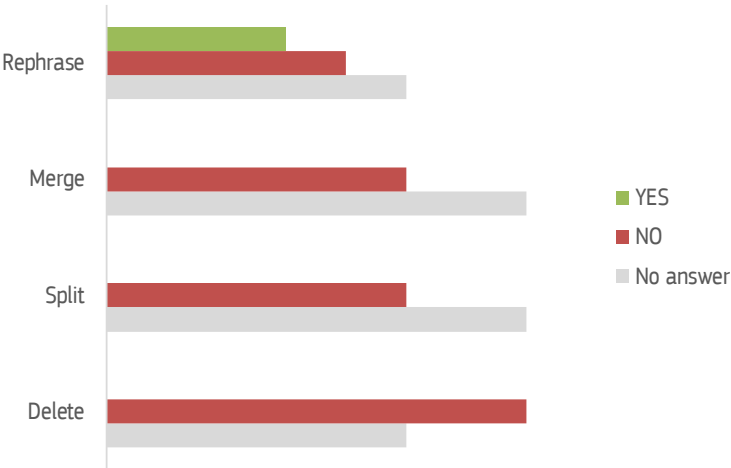


Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

11.7.8.5 Member States suggestions for the revision

Figure 40 provides information on general suggestions for the revision of D8.
No MS was in favour of merging, splitting or deleting D8.
Some MS suggested to rephrase D8, nevertheless the majority was not in favour of any change.

Figure 40: General suggestions for the revision of D8 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 48**.

The requests mainly asked for the inclusion of clarifications on the type of operations included in D8 (e.g. aerobic/anaerobic, without reclamation of useful substances or transformation of waste). It was also stressed that D8 are defined non-interim operations in the Waste Shipments Regulation (see Section 11.1.1.2), which may be considered for the rephrasing.

Two final suggestions were made for the revised list of D codes. The first was one of the rephrasing suggestion to shorten the description. The second was to keep the description as it is, and it was supported by two MS.

1 **Table 48:** Specific and final suggestions for the revision of D8 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Biological treatment prior to submission without reclamation of useful substances	1
Rephrase	Biological treatment prior to submission to any of the operations numbered D1 to D12	1
Rephrase	The code usually depicts a situation where the waste is wholly transformed into something no longer recognizable as the original waste, such as waste water treatment by means of turning carbon-rich waste water into mostly dry sludge by means of bacteriological (aerobic or anaerobic) treatment. This ties into the Waste Shipment Regulation considering D8 a non-interim treatment. Therefore the codes D8 and D9 are materially different from the D13-D14-D15 which are considered interim and D8-D9 should consequentially not be phrased in a manner likewise to D13-D14-D15. The code may be made more precise by referring to this transformation of the waste from one form to another (contrary to D13-D14-D15 which merely repackages the waste, essentially remaining the same kind).	1
Final 1	Biological treatment prior to submission to any of the operations numbered D1 to D12	1
Final 2	Biological treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D 1 to D 12	2

2 Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and
3 the consultation and the workshop.

5 11.7.9 Answers provided on D9

6 11.7.9.1 Definitions and current practices

7 **Table 49** summarises the current situation in Member States (MS), providing an overview of the definition applied to D9
8 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D9
9 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

11 Based on the answers provided, D9 is defined in Austria, Denmark, Estonia, Spain, Finland, Lithuania, Portugal and Romania as
12 a physico-chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are
13 discarded by means of any of the operations numbered D 1 to D 12, as in Annex I to the WFD. Furthermore, Austria, Denmark,
14 Estonia and Lithuania provided the same example as in Annex I to the WFD: evaporation, drying and calcination.

16 In Denmark, Finland and Portugal, D9 includes also other thermal treatments, high and low temperature treatments, such as
17 desorption, autoclaving, curing or roasting.

18 In Spain, the biological/mechanical treatment is used for municipal waste only if at least 50% w/w. of input waste is sent to
19 disposal after treatment.

20 In Austria, D9 is divided in 5 subcategories: (1) Separation or mixing (2) Physico-chemical treatment of inorganic materials (3)
21 Physico-chemical treatment of inorganic substances (4) Solidification or stabilisation (5) Other than (1), (2), (3) or (4), except
22 preliminary operations such as dismantling. One of these is separation and mixing and may overlap with D13.

23 In Finland, sorting and mixing is also included in D9, but in addition it includes other mechanical treatments and packaging
24 operation such as shredding, crushing, pelleting and baling.

25 In Austria, Denmark, Estonia, Spain and Finland, D9 includes stabilisation of waste by means of solidification, immobilisation
26 or vitrification.

27 Finally, in Denmark, companies rather use D9 instead of D13 because D9 is a non-interim operation contrary to D13.

In Austria, D9 was mostly used for the treatment prior to disposal of inorganic waste, whereas in Denmark it was reported to be used for all types of waste. Finland, provided the example of contaminated soils, whereas Romania the example of liquid waste and sludge treatment.

Croatia, Hungary and the Netherlands did not provide a clear answer.

Table 49: Key words and concepts used by MS to define D9 operations

Key words defining D9 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Physico-chemical treatment prior to D1-D12	✓	✓	✓	✓	✓			✓	✓ ^{5*}		✓	✓
Evaporation, drying, calcination	✓	✓	✓					✓				
Other thermal treatment*		✓			✓						✓	
Sorting or mixing	✓											
Other mechanical treatment**					✓							
Solidification / Immobilisation / Vitrification	✓	✓	✓	✓	✓							
Chemical treatment***	✓	✓	✓	✓								
Hazardous waste		✓										✓
Organic waste		✓										
Inorganic waste	✓ ^{4*}	✓										
Liquid waste / Sludge		✓										✓
Contaminated soil					✓							

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

* This includes low and high temperature thermal treatments such as: desorption, autoclaving, curing, roasting, etc.

** This includes mechanical treatments such as: shredding, crushing, baling, pelleting, etc.

*** This includes chemical treatments such as: oxidation, reduction, neutralisation, precipitation, emulsification breaking, electrolysis, media or membrane filtration, reverse osmosis, etc.

^{4*} D9 divided into 5 subcategories among which (2) Physico-chemical treatment of inorganic materials (3) Physico-chemical treatment of inorganic substances

^{5*} D9 refers to physical and chemical treatment of waste but not explicitly as a pre-treatment operation prior to disposal operation D1 to D12

11.7.9.2 Legal regimes

Table 50 provides an overview of the MS' answers to the questions on legal regimes. The number of D9 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit

conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Finland reported the highest number of D9 facilities: 38, and Denmark the lowest: 1.

No MS reported D9 waste facilities accepting municipal waste, however Spain reported to use it for the treatment of municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D9 waste facilities were less than 1 Mt/year of waste in Denmark, Estonia and Croatia (<0.1% of the total EU-27 waste sent to disposal). Other MS did not report data.

When it comes to complementary requirements to the permit, same answers were provided as for D8. Croatia and Romania indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia, Finland and the Netherlands reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D9 permits always contain adequate financial security, whereas Estonia and Portugal reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D9 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, Latvia and the Netherlands did not provide details.

Table 50: Legal data and information provided by MS on the permitting of D9 operations

Permitting of D9 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		1	6		38	24		5			32	5
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)		<1	<1									
Processed amounts in 2012 (Mt)		<1	<1			<1						

Permitting of D9 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Processed amounts in 2014 (Mt)		<1	<1			<1						
Processed amounts in 2016 (Mt)		<1	<1			<1						
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒			☒	☒
Permit contains adequate financial security by the applicant?			☒					☒			☒	
Or other equivalent provision?											☒	
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 51 provides an overview of the reported EIA/Environmental Screening category D9 projects may fall under. Based on the answers provided, D9 projects may fall under two main EIA project categories (9 and 10) and two main Environmental Screening project categories (11(b) and 11(d)). In the Netherlands, D9 projects fall only in one EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste' when EIA required (not always). In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Finland, Croatia, Hungary and Portugal did not provide any details on the EIA/Screening categories.

Table 51: Information provided by MS on the EIA classification of D9 operations when falling under the EIA Directive

EIA and Screening of D9 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive		✓	✓	✓					✓	✓		✓
EIA - Other: 9.7. The disposal or recovery of hazardous waste by chemical treatment								✓				

EIA and Screening of D9 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - Other: 9.9. Disposal or recovery of non-hazardous waste by thermal treatment such as incineration, pyrolysis, gasification, degassing, plasma process or any combination of these in installations with a capacity of ≥ 100 t/d								✓				
EIA - 10. Waste disposal installations for the incineration or chemical treatment as defined in Annex I to the WFD under heading D9 of non-hazardous waste with a capacity >100 t/d		✓	✓	✓					✓			✓
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)		✓		✓					✓			
Screening - 11. (d) Sludge-deposition sites		✓										
Screening - Other: 11.2. The use or disposal of non-hazardous waste by thermal treatment such as incineration, pyrolysis, gasification, degassing, plasma process or any combination of these in installations of <100 t/d								✓				
Screening - Other: 11.3. Recovery or chemical treatment of non-hazardous waste in installations with a capacity <100 t/d								✓				
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 52 provides an overview of the reported IED waste management categories under which D9 may fall. This table shows that as for D1, D9 disposal operations may fall under a wide range of IED waste management activities, including biological treatment that would be more specific to D8 disposal operations or blending/mixing of waste that would be more specific to D13 disposal operations, and repackaging of waste that would be rather for D14. No specific IED waste management activity

1 can be linked to the D9 waste disposal operations. The information reported by MS seems to indicate that D9 can be
2 associated with almost all the possible IED waste management categories.
3 Denmark, Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

4

5 **Table 52:** Information provided by MS on the IED activity classification of D9 operations when falling under the IED

IED category of certain D9 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (a) biological treatment								✓		✓		
5.1 (b) physico-chemical treatment	✓		✓	✓	✓			✓	✓	✓		✓
5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2								✓		✓		
5.1 (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2								✓				
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (i) biological treatment										✓		
5.3 (a) (ii) physico-chemical treatment	✓		✓	✓	✓				✓	✓		✓
5.3 (a) (iii) pre-treatment of waste for incineration or co-incineration;										✓		
5.3 (a) (iv) treatment of slags and ashes								✓	✓	✓		
5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:										✓		
5.3. (b) (i) biological treatment										✓		
5.3. (b) (iii) treatment of slags and ashes									✓	✓		

IED category of certain D9 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste								✓				
5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity >50 t excluding temporary storage, pending collection, on the site where the waste is generated								✓				
5.6 Underground storage of hazardous waste with a total capacity >50 t								✓				

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 53 indicates the reported bans or restrictions for specific waste streams sent to D9 disposal operations.

Contrary to some other disposal operations, for D9 as for D8, MS reported a limited number of bans or restrictions. In Austria the disposal of certain waste streams regulated by specific EU legislation (see Section 11.1.2) in D9 is banned, namely, WEEE, waste batteries and accumulators, ELVs, packaging wastes and any other not listed. In Denmark, same as Austria, apart from PCB wastes for which a restriction was reported and bio-waste and waste oils for which a ban was reported. In Spain, the disposal of WEEE, waste batteries and accumulators and ELVs in D9 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D9 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 53: Bans and restrictions on waste streams for D9 operations as reported by MS

Waste categories banned or restricted in D9	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Bio-waste		B										
Waste oils		B										
WEEE	B	B		B								
Batteries & Accumulators	B	B		B								
ELVs	B	B		B								
Packaging	B	B										
PCBs		R										
Other waste streams not listed	B	B										
Waste subject to separate collection for preparation for re-use & recycling		B										
Waste suitable for recycling & recovery		B										

Waste categories banned or restricted in D9	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.9.3 Waste flows

Figure 41 presents the Sankey diagram of the different waste flows sent to D9. The contribution of each MS to the total amount of waste sent to D9 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

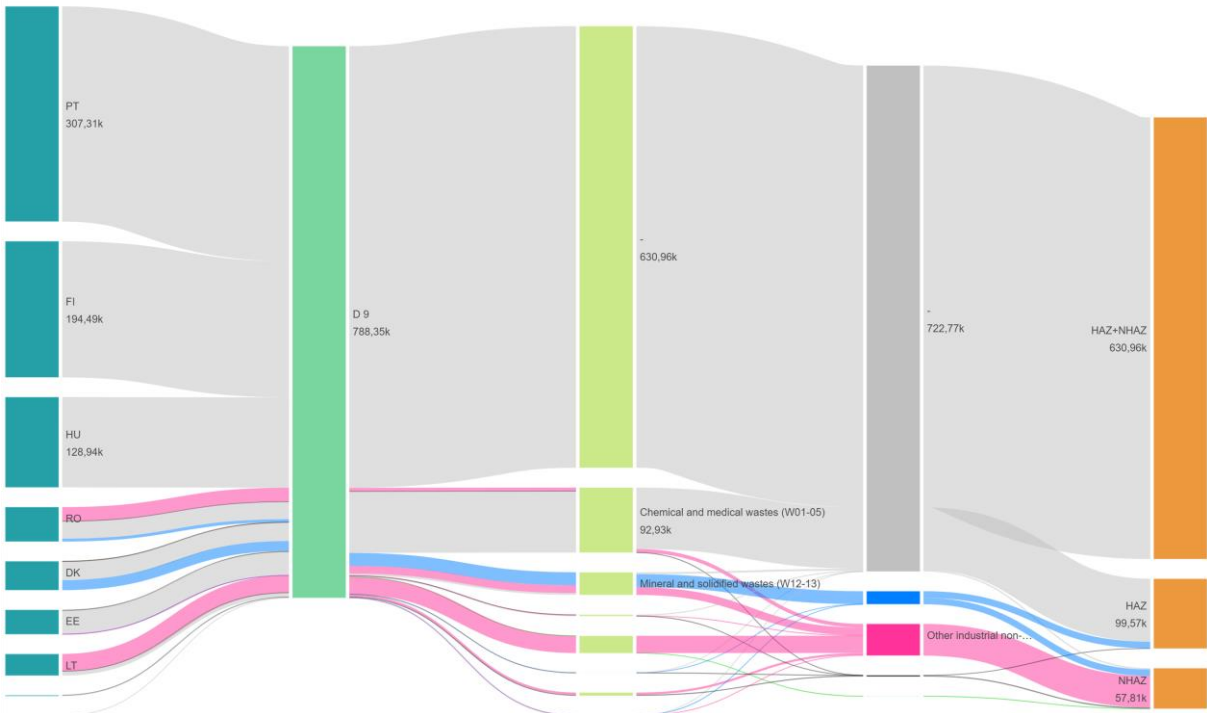
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- the use share of D9 is more equally distributed among MS than for other codes;
- Portugal reported to treat the highest amounts of waste in D9, but no disaggregated data provided;
- other industrial non-hazardous waste (5%), construction and demolition waste (2%), municipal bio-waste (<0.1%) and other municipal wastes (0.2%) represented minor fractions (<5%) of the wastes treated in D9, but 81% of the waste was not classified, i.e. unspecified;
- no textile waste was treated in D9;
- 13% of the waste treated in D9 was classified as hazardous (however 81% of the waste disposed of in D9 was not classified, i.e. unspecified); and
- the hazardous fraction was divided into 90% other wastes, 10% construction and demolition waste and 0.1% other municipal wastes.

Figure 41: Yearly average waste tonnages disposed of in waste disposal operation D9 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D9, the calculated disposal rate ranges for the major streams are:

- from 3% to 11% disposal rate for the chemical and medical wastes (W01-05) fraction of other waste streams;
- from <0.5% to 10% disposal rate for the animal and vegetal wastes (W09) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX); and
- <0.5% disposal rate for the mineral and solidified wastes (W12-13) fraction of the construction and demolition waste (17_XX_XX).

11.7.9.4 Protection measures

Figure 42 depicts the different types of measures for the protection of the environment and human health reported by MS.

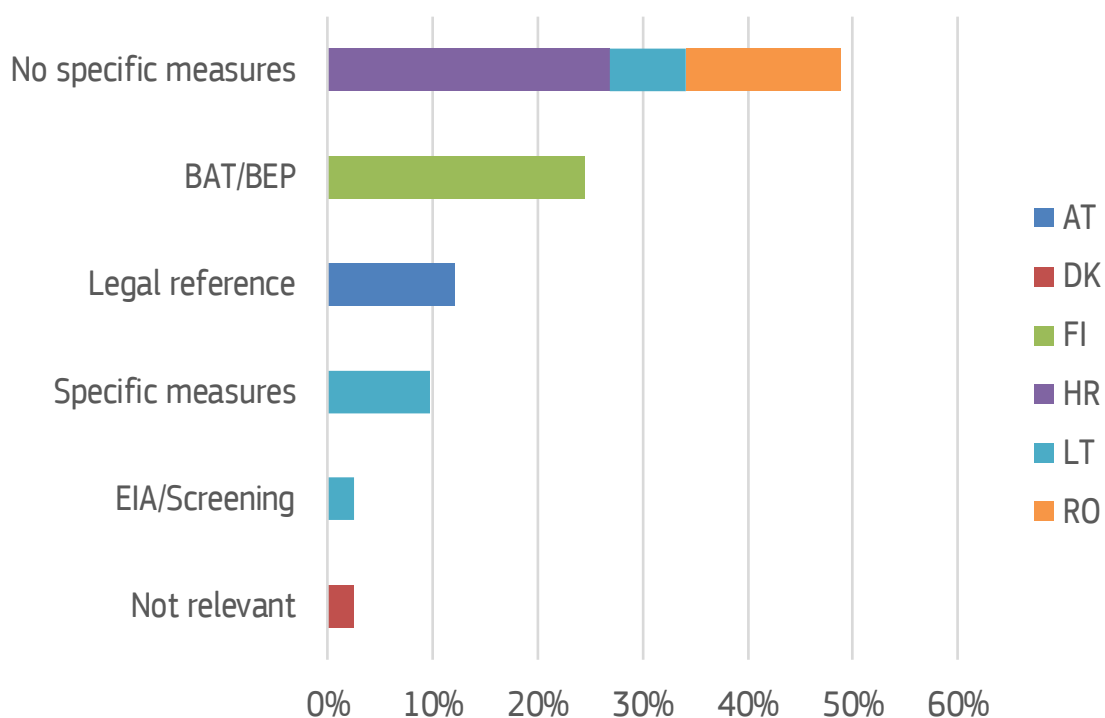
Some MS did not report any details on the measures, in which case these were reported as 'no specific measures', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

General and not specific measures were the most answers provided.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Only Lithuania reported a number of specific measures.

1 **Figure 42:** Protection measures type distribution for D9 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 **Figure 43** provides an illustrative overview of the key words used to describe the specific measures reported by MS.

7
8 As for D2 and D4, where reported, the specific measures mostly include measures for the water management, and measures
9 for the protection of soil and groundwater that include specific requirements for a basal structure. At closure, revegetation and
10 capping are required. Finally, for the safe access at the site, fences are required.

11 Nonetheless, compared to D1 or D5 waste disposal operations, significantly less measures were provided for D4.

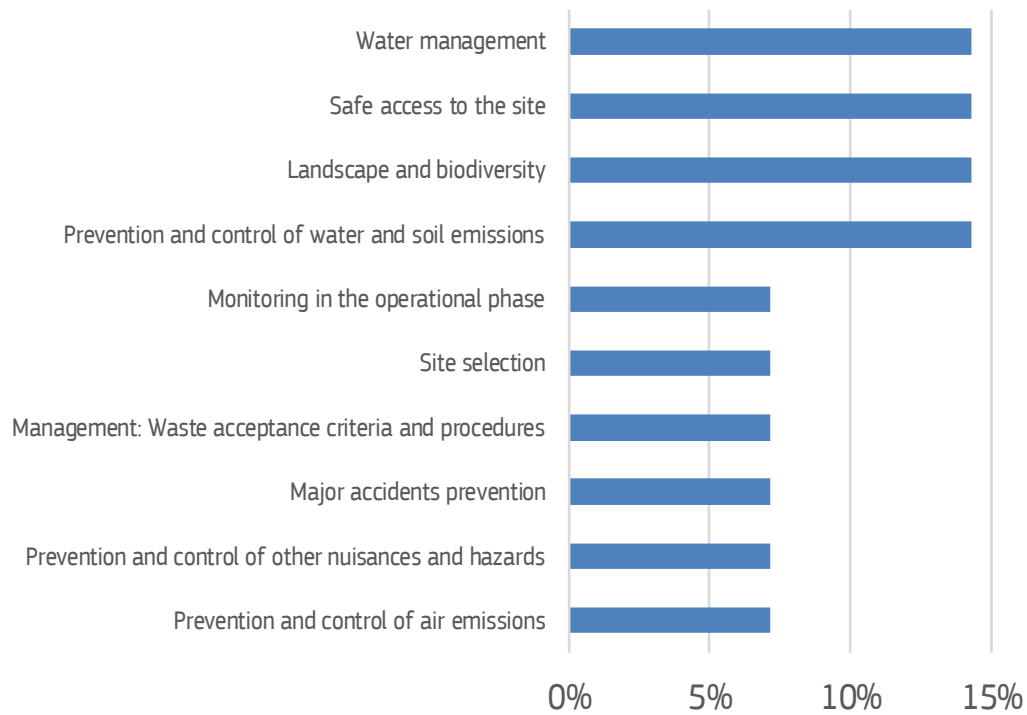
1 **Figure 43:** Protection measures key words cloud for D9 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 44** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).
7 Specific measures for the management of water, the prevention and control of water and soil emissions, the landscape and
8 biodiversity, and the safe access to the site were the most provided.
9

Figure 44: Protection measures category distribution for D9 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

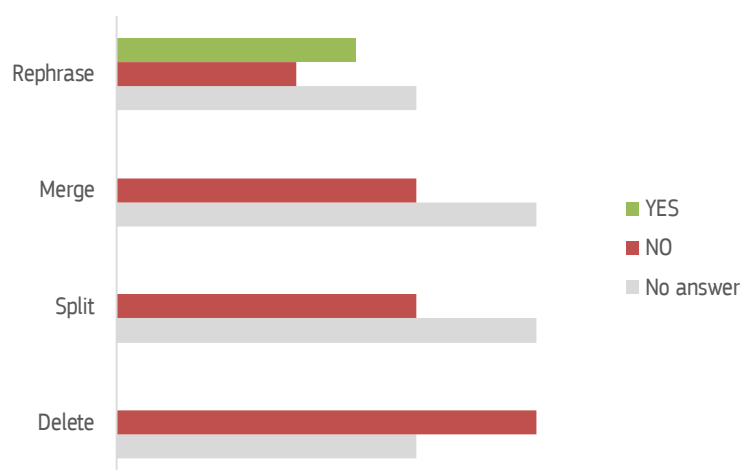
11.7.9.5 Member States suggestions for the revision

Figure 45 provides information on general suggestions for the revision of D9.

As for D8, no MS was in favour of merging, splitting or deleting D9.

However, contrary to D8, a majority of MS suggested to rephrase D9.

Figure 45: General suggestions for the revision of D9 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 54**.

The requests mainly asked for the inclusion of clarifications on the type of operations included in D9 (e.g. evaporation, drying, solvent extraction, neutralisation, precipitation, stabilisation, solidification or without reclamation of useful substances). It was also stressed that D9 are defined non-interim operations in the Waste Shipments Regulation (see Section 11.1.1.2), which may be considered for the rephrasing. One suggestion was to split D9 into two subcategories (i) physical transformation of waste (ii) thermal elimination of hazardous substances.

Four final suggestions were made for the revised list of D codes. The first three were the ones of the rephrasing suggestion, whereas the fourth was to keep the description as it is, and it was supported by two MS.

Table 54: Specific and final suggestions for the revision of D9 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Physical/mechanical treatment (e.g. evaporation, drying), physical/chemical treatment (e.g. solvent extraction) and chemical treatment (e.g. neutralization, precipitation), immobilization (e.g. stabilization, solidification) prior to submission to any of the operations numbered D1 to D12.	1
Rephrase	Physico-chemical treatment (e.g. evaporation, drying, neutralization, precipitation, etc.) or immobilization (e.g. stabilization, solidification) prior to submission to any of the operations numbered D1 to D12	1
Rephrase	Physical/mechanical treatment (e.g. evaporation, drying), physical/chemical treatment (e.g. solvent extraction) and chemical treatment (e.g. neutralization, precipitation), immobilization (e.g. stabilization, solidification) without reclamation of useful substances	1
Rephrase	See suggestion for D8, similar may be done with D9; referencing the transformation of the waste, such as the drying of waste water or sludge, or other treatment that essentially changes the waste characteristics in question even if it physically seems to remain the same e.g. calcination / heating concrete or soil in order to eliminate PCB's or other hazardous characteristics	1
Split	into (i) the physical transformation of waste by e.g. drying, titration, or other treatments and (ii) the elimination of hazardous characteristics, such as by calcination. Possible	1

	option of merging with D13.	
Final 1	Physical/mechanical treatment (e.g. evaporation, drying), physical/chemical treatment (e.g. solvent extraction) and chemical treatment (e.g. neutralization, precipitation), immobilization (e.g. stabilization, solidification) prior to submission to any of the operations numbered D1 to D12.	1
Final 2	Physical/mechanical treatment (e.g. evaporation, drying), physical/chemical treatment (e.g. solvent extraction) and chemical treatment (e.g. neutralization, precipitation), immobilization (e.g. stabilization, solidification) without reclamation of useful substances	1
Final 3	Physico-chemical treatment (e.g. evaporation, drying, neutralization, precipitation, etc.) or immobilization (e.g. stabilization, solidification) prior to submission to any of the operations numbered D1 to D12	1
Final 4	Physico-chemical treatment not specified elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 (e.g. evaporation, drying, calcination, etc.)	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.10 Answers provided on D10

11.7.10.1 Definitions and current practices

Table 55 summarises the current situation in Member States (MS), providing an overview of the definition applied to D10 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D10 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, Austria, Denmark, Estonia, Spain, Finland, Lithuania, the Netherlands, Portugal and Romania use the same definition of D10 as provided in Annex I to the WFD and define D10 as a land-based incineration of waste (in an incineration plant) to reduce the volume or hazardousness of the waste, to stabilise waste or to produce inert waste, with the objective of producing a waste that can be disposed of. In addition, in Spain, co-incineration is also included in D10.

In Denmark, Finland and Portugal, D9 includes also other thermal treatments, high and low temperature treatments, such as desorption, autoclaving, curing or roasting.

In Austria, Denmark, Spain, Finland, the Netherlands and Portugal, the difference between D10 and R1 is done based on the energy efficiency requirements laid down in Annex II to the WFD, footnote of recovery code R1.

In Austria, Denmark and Portugal, it is furthermore specified that D10 is used for disposal of wastes with little or no calorific value (no threshold provided however the Austrian answer makes reference to the EUCJ case-law C-228/00 and C-458/00 on waste shipments. C-228/00 includes a reference to German Legislation setting down a calorific value threshold of 11 000 kJ/kg).

Croatia, Hungary and Latvia did not provide a clear answer.

Table 55: Key words and concepts used by MS to define D10 operations

Key words defining D10 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Incineration on land	✓	✓	✓	✓	✓			✓		✓	✓	✓
Co-incineration				✓								

Key words defining D10 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Not meeting energy efficiency requirements*	✓	✓		✓	✓					✓	✓	
Little, no or negative calorific value**	✓ ^{5*}	✓									✓	
No energy recovery		✓	✓					✓				
Disposable waste***		✓	✓	✓	✓						✓	✓
Hazardous waste		✓		✓	✓							✓
Healthcare and biological waste		✓		✓								✓
Municipal waste		✓		✓						✓		
Sludge		✓										
Solid waste										✓		
Animal by-products and carcasses^{4*}				✓								

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

* Energy efficiency requirements laid down in Annex II to the WFD, footnote of recovery code R1

** No specific value provided

*** This includes reduction of volume or hazardousness, waste stabilisation and transformation to inert waste

^{4*} As defined in Article 3(1) and 3(4) of the ABPR respectively

^{5*} The answer makes specific reference to the EUCJ case-law C-228/00 and C-458/00 on waste shipments. C-228/00 includes a reference to German Legislation setting down a calorific value threshold of 11 000 kJ/kg

11.7.10.2 Legal regimes

Table 56 provides an overview of the MS' answers to the questions on legal regimes. The number of D10 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Finland reported the highest number of D10 facilities: 44, and Lithuania the lowest: 1.

No MS reported D10 waste facilities accepting municipal waste, however Spain reported to use it for the treatment of municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D10 waste facilities were about or less than 1 Mt/year of waste in Denmark, Estonia, Spain and Croatia (0.1% of the total EU-27 waste sent to disposal). Other MS did not report data.

When it comes to complementary requirements to the permit, Spain, Croatia and Romania indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia, Finland and the Netherlands reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Spain, Lithuania and Portugal reported D10 permits always contain adequate financial security, whereas Estonia reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D10 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Spain and Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, Latvia and the Netherlands did not provide details.

Table 56: Legal data and information provided by MS on the permitting of D10 operations

Permitting of D10 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		26	2		44			1			5	19
Waste facilities with a permit accepting municipal waste								1				
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste												
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)		1	<1	<1								
Processed amounts in 2012 (Mt)		<1	<1	<1		<1						
Processed amounts in 2014 (Mt)		<1	<1	<1		<1						
Processed amounts in 2016 (Mt)		<1	<1	<1		<1						
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒	☒	☒	☒		☒			☒	☒
Permit contains adequate financial security by the applicant?			☒	☒				☒			☒	
Or other equivalent provision?											☒	

Permitting of D10 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Other complementary requirements:												
Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒	☒				☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 57 provides an overview of the reported EIA/Environmental Screening category D10 projects may fall under. Based on the answers provided, D10 projects may fall under two main EIA project categories (9 and 10) and two main Environmental Screening project categories (11(b) and 11(d)). In Estonia, D10 projects fall under only one EIA category: '9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive'. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Finland, Croatia, Hungary and Portugal did not provide any details on the EIA/Screening categories.

Table 57: Information provided by MS on the EIA classification of D10 operations when falling under the EIA Directive

EIA and Screening of D10 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to the WFD under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive		✓	✓						✓	✓		✓
EIA - Other: 9.6. Disposal or recovery of hazardous waste by thermal treatment such as incineration, pyrolysis, gasification, degassing, plasma process or any combination								✓				
EIA - Other: 9.9. Disposal or recovery of non-hazardous waste by thermal treatment such as incineration, pyrolysis, gasification, degassing, plasma process or any combination of these in installations with a capacity of ≥100 t/d								✓				

EIA and Screening of D10 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - 10. Waste disposal installations for the incineration or chemical treatment as defined in Annex I to the WFD under heading D9 of non-hazardous waste with a capacity >100 t/d		✓		✓					✓	✓		✓
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)		✓		✓					✓			
Screening - 11. (d) Sludge-deposition sites		✓										
Screening - Other: 11.2. The use or disposal of non-hazardous waste by thermal treatment such as incineration, pyrolysis, gasification, degassing, plasma process or any combination of these in installations of <100 t/d								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 58 provides an overview of the reported IED waste management categories under which D10 may fall. This table shows that D10 disposal operations may mostly fall under '5.2 Disposal of waste in waste incineration plants or in waste co-incineration plants'. Depending on the capacity and type of waste incinerated, i.e. hazardous > 3 t/day or non-hazardous, it may fall either under 5.2 (b) or 5.2 (a), respectively. In the Netherlands, D10 may be part of an installation for biological and/or physico-chemical treatment of waste.

Denmark, Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 58: Information provided by MS on the IED activity classification of D10 operations when falling under the IED

IED category of certain D10 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:									✓			
5.2 Disposal of waste in waste incineration plants or in waste co-incineration plants:									✓			
5.2 (a) for non-hazardous waste with a capacity >3 t/h	✓		✓	✓					✓	✓		✓
5.2 (b) for hazardous waste with a capacity >10 t/day	✓		✓	✓	✓			✓	✓	✓		✓

IED category of certain D10 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (i) biological treatment										✓		
5.3 (a) (ii) physico-chemical treatment										✓		

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 59 indicates the reported bans or restrictions for specific waste streams sent to D10 disposal operations.

Contrary to some other disposal operations, for D10 MS reported a limited number of bans or restrictions. In Denmark, WEEE, waste batteries and accumulators, ELVs, packaging wastes and any other not listed are banned along with wastes separately collected and wastes suitable for recycling and recovery. PCB wastes are restricted. In Spain, the disposal of WEEE, waste batteries and accumulators and ELVs in D10 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D10 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 59: Bans and restrictions on waste streams for D10 operations as reported by MS

Waste categories banned or restricted in D10	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
WEEE		B		B								
Batteries & Accumulators		B		B								
ELVs		B		B								
Packaging		B										
PCBs		R							B			
Other waste streams not listed		B										
Waste subject to separate collection for preparation for re-use & recycling		B										
Waste suitable for recycling & recovery		B										
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.10.3 Waste flows

Figure 46 presents the Sankey diagram of the different waste flows sent to D10. The contribution of each MS to the total amount of waste sent to D10 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

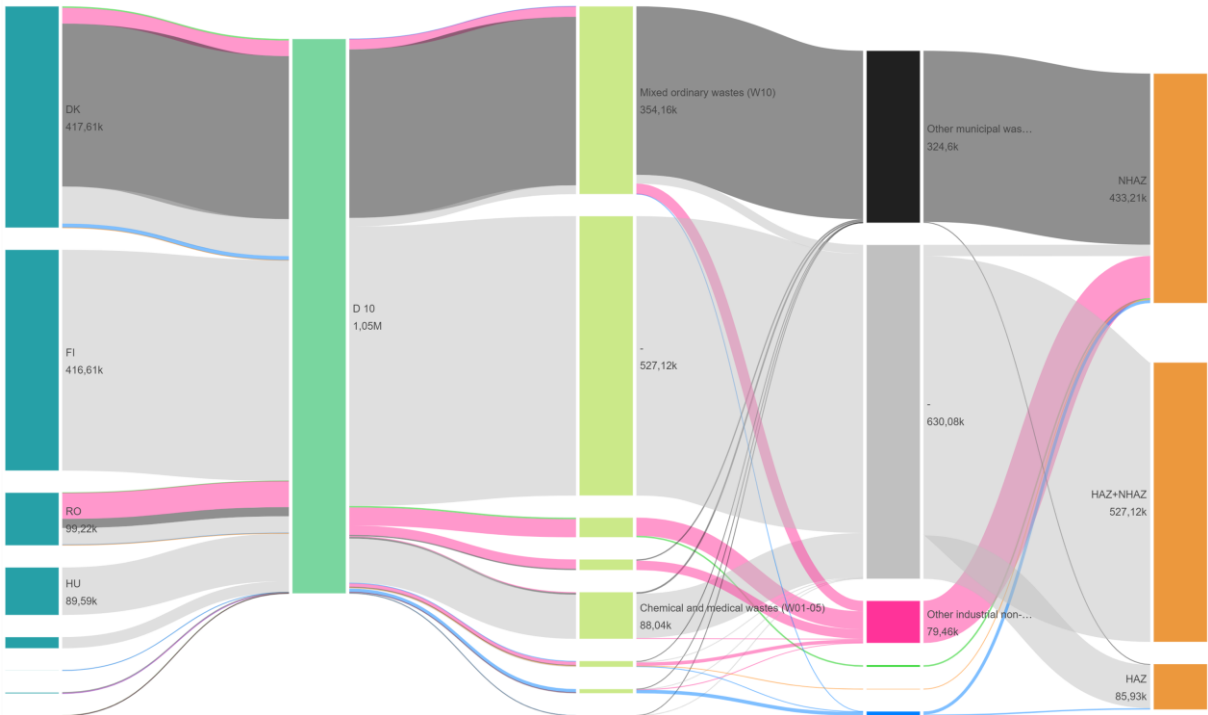
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- excluding the unspecified wastes, D10 was mostly used in Denmark for the incineration/disposal of other municipal wastes (mostly mixed ordinary waste);
- in Romania, D10 was mostly used for the incineration/disposal of other industrial non-hazardous wastes;
- textile wastes (0.1%) and municipal bio-waste (0.3%) represented minor fractions (<5%) of the wastes incinerated in D10;
- 8% of the waste disposed of in D10 was classified as hazardous (however 50% of the waste disposed of in D10 was not classified, i.e. unspecified); and
- the hazardous fraction was divided into 95% other wastes, 3% construction and demolition waste and 2% other municipal wastes.

Figure 46: Yearly average waste tonnages disposed of in waste disposal operation D10 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Contrary to other disposal operations, the incineration of waste to dispose of it is reported in Eurostat as a disaggregated (stand-alone) disposal operation. It is therefore possible to have a better overview and more comprehensive data on the wastes disposed of in D10 using the Eurostat database. Nevertheless, it is not possible to highlight the 6 specific waste streams as plotted in **Figure 46** because in the Eurostat database, the waste categories are not disaggregated in 6-digit waste codes (following the List of Waste classification).

Figure 47 presents the Sankey diagram of the different waste flows sent to D10. The contribution of each MS to the total amount of waste sent to D10 is plotted on the left hand of the diagram. The flows are coloured based on the hazardousness of the waste presented on the very right hand of the diagram, last nodes:

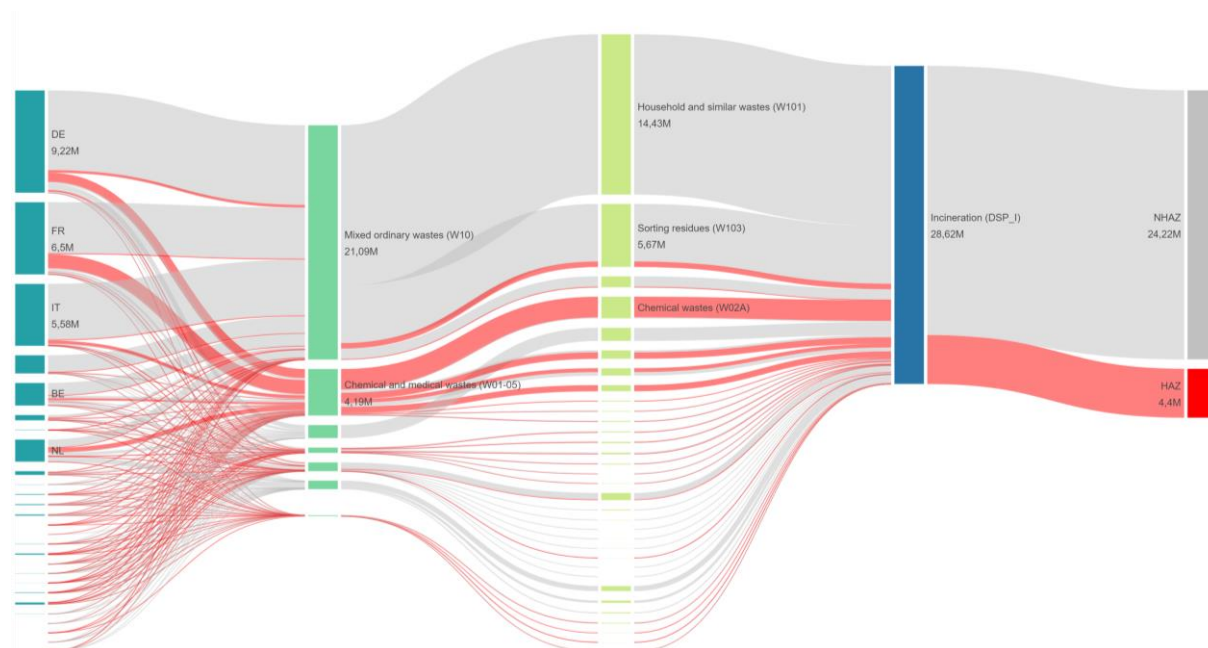
- non-hazardous wastes coloured in light grey; and
- hazardous wastes coloured in red.

As visible in **Figure 46**, the mixed ordinary waste fraction of household and similar wastes (i.e. a fraction included in other municipal wastes) is mostly disposed of in D10.

Secondary wastes, sorting residues, are the second most disposed of waste stream.

Finally, for the other streams (mainly the chemical and medical wastes but not only), it is mostly the hazardous fraction that is sent to D10 incineration.

Figure 47: Yearly average waste tonnages disposed of in waste disposal operation D10 in the EU-27 in 2010-2016



Based on Eurostat waste treatment database

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D10, the calculated disposal rate ranges for the major streams are:

- <0.5% disposal rate for the mixed ordinary wastes (W10) fraction of the other municipal wastes (20_XX_XX - W09 - W076); and
- from <0.5% to 12% disposal rate for the chemical and medical wastes (W01-05) fraction of the other waste streams.

11.7.10.4 Protection measures

Figure 48 depicts the different types of measures for the protection of the environment and human health reported by MS.

Some MS did not report any details on the measures, in which case these were reported as 'no specific measures', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

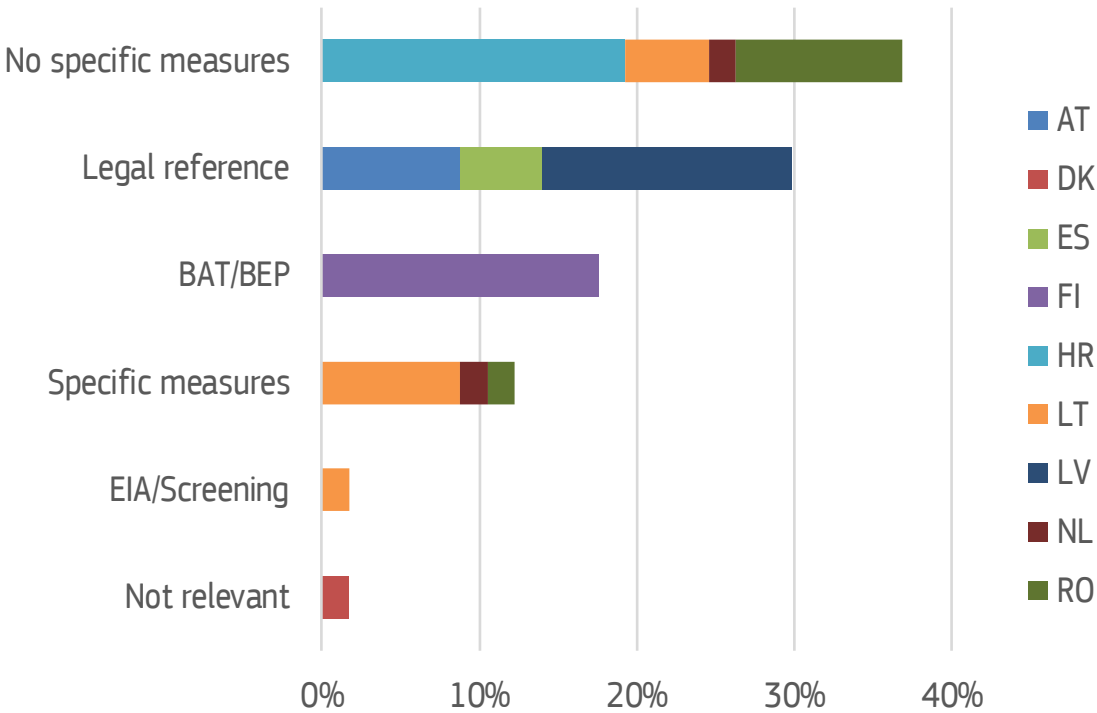
General and not specific measures were the most answers provided.

References to national or EU legislation were the second most provided answer.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Lithuania, the Netherlands and Romania reported a number of specific measures.

Figure 48: Protection measures type distribution for D10 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 49 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly include measures for the water management, and measures for the protection of soil and groundwater that include specific requirements for a basal structure. At closure, revegetation and capping are required. Finally, for the safe access at the site, fences are required. In addition, the implementation of the measures provided by the EIA may be required.

Nonetheless, compared to D1 or D5 waste disposal operations, significantly less measures were provided for D10.

1 **Figure 49:** Protection measures key words cloud for D10 operations

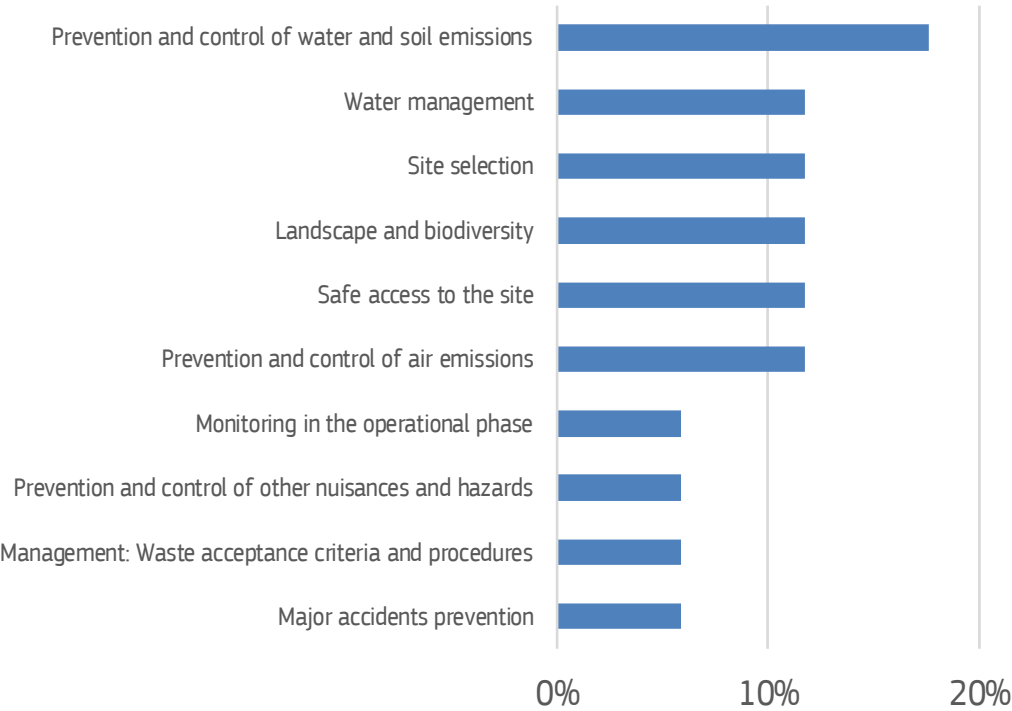


2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 50** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

7 Specific measures for the prevention and control of water and soil emissions were the most provided. Specific measures for
8 the monitoring in operational phase, the prevention and control of other nuisances and hazards, the waste acceptance criteria
9 and procedures, and the prevention of major accident prevention were less provided.

Figure 50: Protection measures category distribution for D10 operations

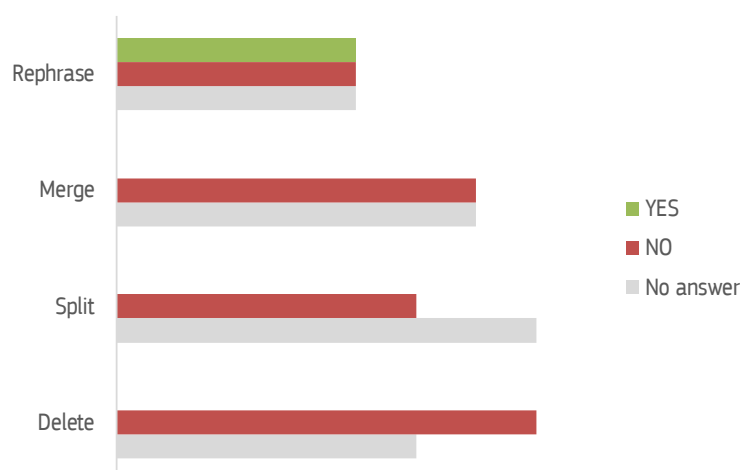


Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

11.7.10.5 Member States suggestions for the revision

Figure 51 provides information on general suggestions for the revision of D10. As for D8 and D9, no MS was in favour of merging, splitting or deleting D10. The rephrasing option was balanced.

Figure 51: General suggestions for the revision of D10 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 60**.

The requests mainly asked for the inclusion of clarifications on the type and purpose of operations included in or excluded from D10 (e.g. thermal treatment, not calcination, evaporation of water content). A possible overlapping with D9 was pointed out as D9 may also include heating.

Two final suggestions were made for the revised list of D codes. The first was the one of the rephrasing supported by two MS. The second was to keep the description as it is, and it was supported by three MS.

Table 60: Specific and final suggestions for the revision of D10 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Thermal treatment (e.g. incineration)	2
Rephrase	to clarify that D10 is not calcination but burning of the calorific value of the waste and/or evaporation of water content and not heating	1
Rephrase	Waste Incineration on land	1
Final 1	Thermal treatment (e.g. incineration)	2
Final 2	Incineration on land	3

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.11 Answers provided on D11

11.7.11.1 Definitions and current practices

Table 61 summarises the current situation in Member States (MS), providing an overview of the definition applied to D11 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D11 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, use the description of D11 provided in Annex I to the WFD and define D11 as an incineration of waste at sea.

In Finland D11 includes ship's incinerators.

In Romania D11 is not used, whereas in Denmark, Spain and Portugal D11 is prohibited.

Estonia, Croatia, Hungary, Latvia and the Netherlands did not provide a clear answer.

Table 61: Key words and concepts used by MS to define D11 operations

Key words defining D11 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Incineration at sea	✓				✓			✓				
Ship's incinerators					✓							
Not used												✓
Prohibited		✓		✓							✓	

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.11.2 Legal regimes

No MS reported any D11 waste facility.

Austria, Denmark, Spain, Finland, Latvia, the Netherlands and Portugal reported a ban on disposal of all wastes in D11.

11.7.11.3 Waste flows

No disposal of waste reported.

11.7.11.4 Protection measures

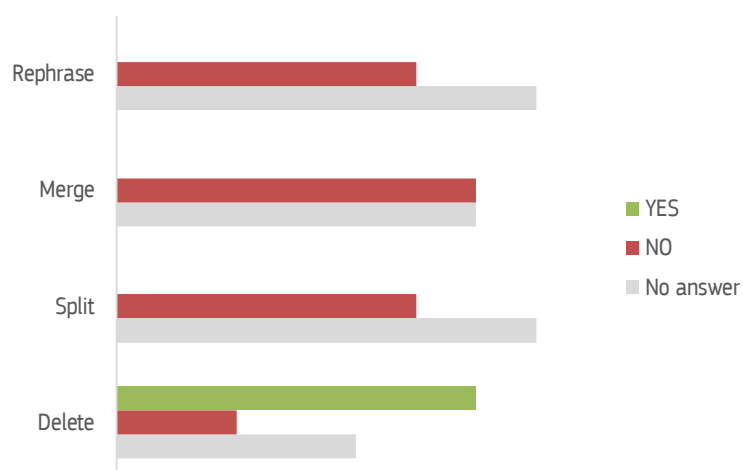
The disposal operation being banned, protection measures are not relevant.

11.7.11.5 Member States suggestions for the revision

The majority of MS suggested to delete D11 from the list (see **Figure 52**) because it is a prohibited disposal operation.

No MS was in favour of rephrasing, merging or splitting D11.

Figure 52: General suggestions for the revision of D11 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

11.7.12 Answers provided on D12

11.7.12.1 Definitions and current practices

Table 62 summarises the current situation in Member States (MS), providing an overview of the definition applied to D12 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D12 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, Austria, Denmark, Estonia, Spain, Lithuania and the Netherlands define a D12 operation as a permanent storage, as stated in Annex I to the WFD.

Nevertheless, in Hungary, D12 is defined as a non-permanent or movable storage operation.

In Denmark, D12 includes emplacement of containers in a mine as the example provided in Annex I to the WFD.

In Austria, Denmark, Spain, Finland and the Netherlands, includes underground storage. Besides, in Austria and Denmark, D12 operations are classified as landfills. Therefore, in Austria D12 are specially engineered landfills, in Denmark they have to meet the LfD requirements, and in Estonia they have to be isolated from groundwater.

Finland reported to use D12 for the disposal of ash and slag.

In Austria, Estonia, Latvia, Portugal and Romania, D12 is not used.

Croatia did not provide a clear answer.

Table 62: Key words and concepts used by MS to define D12 operations

Key words defining D12 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Permanent storage	✓	✓	✓	✓	✓			✓		✓		
Emplacement of containers in a mine		✓										
Not permanent / Movable							✓					
Underground storage	✓	✓		✓	✓					✓		

Key words defining D12 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Landfills	✓	✓										
Specially engineered	✓											
Isolated from groundwater			✓									
Meeting the LfD requirements		✓										
Ash					✓							
Slag					✓							
Not used	✓		✓						✓		✓	✓

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.12.2 Legal regimes

Table 63 provides an overview of the MS' answers to the questions on legal regimes. The number of D12 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Only Finland reported to have three D12 waste facilities.

No MS reported D12 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

No MS reported data on waste amounts apart from Spain. However, In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Spain and Croatia indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia and Finland reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Spain and Lithuania reported D12 permits always contain adequate financial security, whereas Estonia reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D12 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Spain and Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Denmark, Hungary, Latvia, the Netherlands and Portugal did not provide details.

1

2 **Table 63:** Legal data and information provided by MS on the permitting of D12 operations

Permitting of D12 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit					3							
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									
Processed amounts in 2010 (Mt)												
Processed amounts in 2012 (Mt)												
Processed amounts in 2014 (Mt)												
Processed amounts in 2016 (Mt)												
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒	☒	☒	☒		☒				
Permit contains adequate financial security by the applicant?			☒	☒				☒				
Or other equivalent provision?												
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒	☒				☒				

Permitting of D12 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 64 provides an overview of the reported EIA/Environmental Screening category D12 projects may fall under. Based on the answers provided by Estonia and Lithuania, D12 projects may fall under one main Environmental Screening project category: '11(b) Installations for the disposal of waste (projects not included in Annex I)'. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 64: Information provided by MS on the EIA classification of D12 operations when falling under the EIA Directive

EIA and Screening of D12 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
EIA - Other: 9.6. Disposal or recovery of hazardous waste by thermal treatment such as incineration, pyrolysis, gasification, degassing, plasma process or any combination								✓				
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 65 provides an overview of the reported IED waste management categories under which D12 may fall. This table shows that in Austria, Spain and Latvia, D12 disposal operations may fall under '5.6 Underground storage of hazardous waste with a total capacity >50 t'.

Denmark, Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 65: Information provided by MS on the IED activity classification of D12 operations when falling under the IED

IED category of certain D12 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.6 Underground storage of hazardous waste with a total capacity >50 t	✓			✓					✓			

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 66 indicates the reported bans or restrictions for specific waste streams sent to D12 disposal operations.

In Austria, the disposal of municipal waste, bio-waste, waste oils, WEEE, waste batteries and accumulators, ELVs and other wastes not listed in D12 is banned. In Denmark, the disposal of PCB wastes in D12 is restricted. In Spain, the disposal of municipal waste, construction and demolition waste, bio-waste and sludge in D12 is restricted; whereas the disposal of WEEE, waste batteries and accumulators and ELVs in D12 is banned. In addition, Spain reported that only treated waste can be disposed of. In the Netherlands the disposal of any waste stream in D12 is banned, and D12 is not used. Lithuania reported that only waste subject to prior treatment can be disposed of in D12 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 66: Bans and restrictions on waste streams for D12 operations as reported by MS

Waste categories banned or restricted in D12	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Hazardous waste										B		
Non-hazardous waste										B		
Waste meeting A landfill category criteria										B		
Waste meeting B1 landfill category criteria										B		
Waste meeting B2+B3 landfill category criteria										B		
Waste meeting C landfill category criteria										B		
Waste meeting D_{HAZ} landfill category criteria										B		
Municipal	B			R						B		
Construction & Demolition				R						B		
Extractive										B		
Bio-waste	B			R						B		
Sludge				R						B		
Waste oils	B			B						B		
WEEE	B			BR						B		
Batteries & Accumulators	B			BR						B		

Waste categories banned or restricted in D12	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
ELVs	B			BR						B		
Packaging	B			R						B		
PCBs		R								B		
Other waste steam not listed	B									B		
Waste subject to separate collection for preparation for re-use & recycling				B						B		
Waste suitable for recycling & recovery										B		
Treated waste only				✓				✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				
Not used										✓		

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.12.3 Waste flows

Figure 53 presents the Sankey diagram of the different waste flows sent to D12. The contribution of each MS to the total amount of waste sent to D12 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

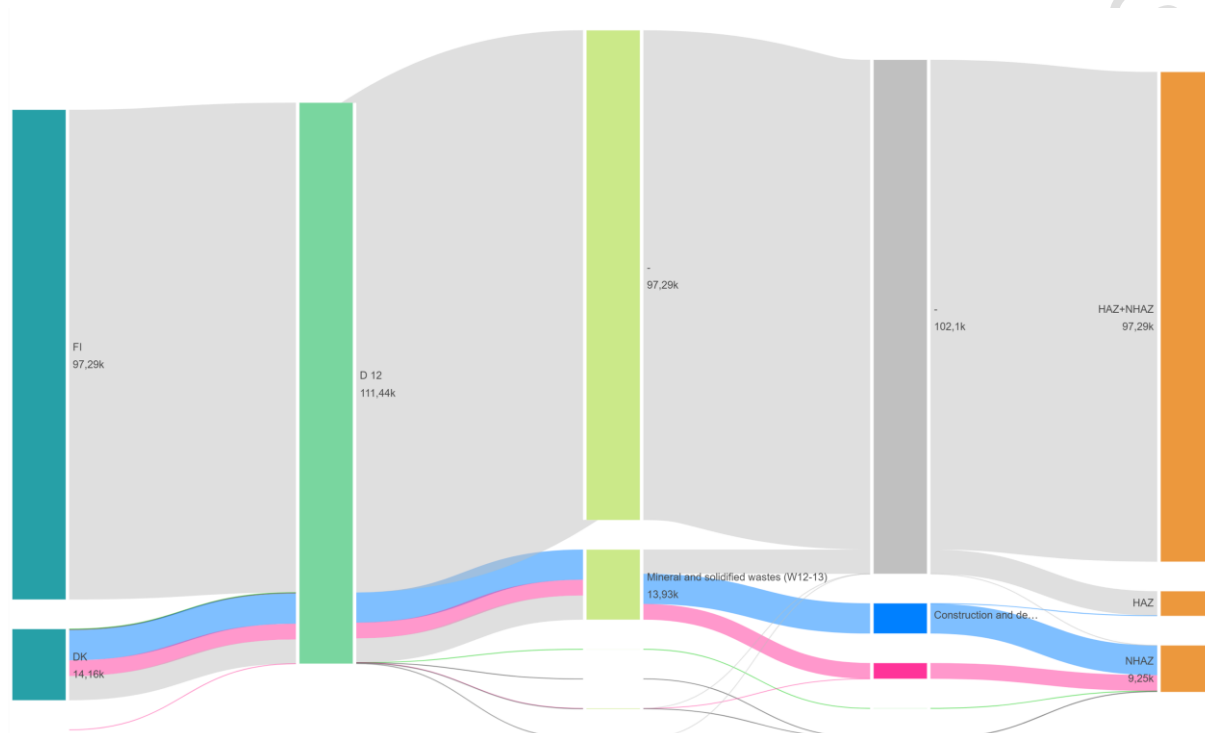
Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D12 was mostly used in Finland, but no disaggregated data provided (Remark: Germany did not answer the survey but represents probably a major country for the disposal of waste in D12);
- excluding the unspecified wastes, D12 was mostly used in Denmark for the disposal of construction and demolition waste (the mineral and solidified fraction);

- municipal bio-waste and other municipal wastes represented minor fractions (<5%) of the wastes disposed of in D12;
- no textile waste was disposed of in D12;
- 4% of the waste disposed of in D12 was classified as hazardous (however 88% of the waste disposed of in D12 was not classified, i.e. unspecified); and
- the hazardous fraction was divided into 98% other wastes and 2% construction and demolition waste.

Figure 53: Yearly average waste tonnages disposed of in waste disposal operation D12 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D12, it was not possible to calculate disposal rates for the major streams.

11.7.12.4 Protection measures

Figure 54 depicts the different types of measures for the protection of the environment and human health reported by MS.

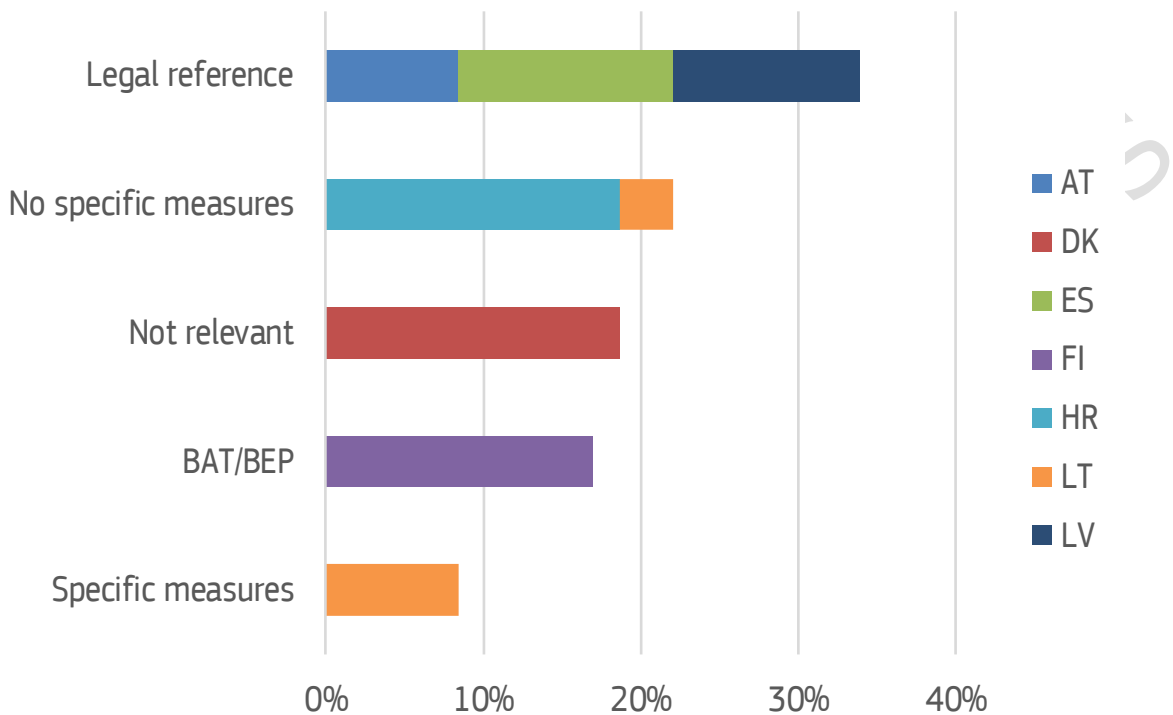
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

References to national or EU legislation were the most answers provided.

General and not specific measures were the second most answers provided.

- 1 Finland, reported the implementation of the BAT/BEP, without details on the specific measures.
- 2 Only Lithuania reported a number of specific measures.
- 3

4 **Figure 54:** Protection measures type distribution for D12 operations



5 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
6 consultation and the workshop.
7

8
9 **Figure 55** provides an illustrative overview of the key words used to describe the specific measures reported by MS.

10
11 As for D8, where reported, the specific measures mostly include measures for the management of water and requirements on
12 the basal structure, mainly technical requirements on the type and the thickness of the layers of materials composing the
13 basal structure. Additional measures for air pollution such as the use of filters, and measures for the safe access to the site
14 such as fences were also reported. Finally, at closure, revegetation and capping were reported.

15 Nonetheless, compared to D1 or D5 waste disposal operations, significantly fewer measures were provided for D12.

1 **Figure 55:** Protection measures key words cloud for D12 operations

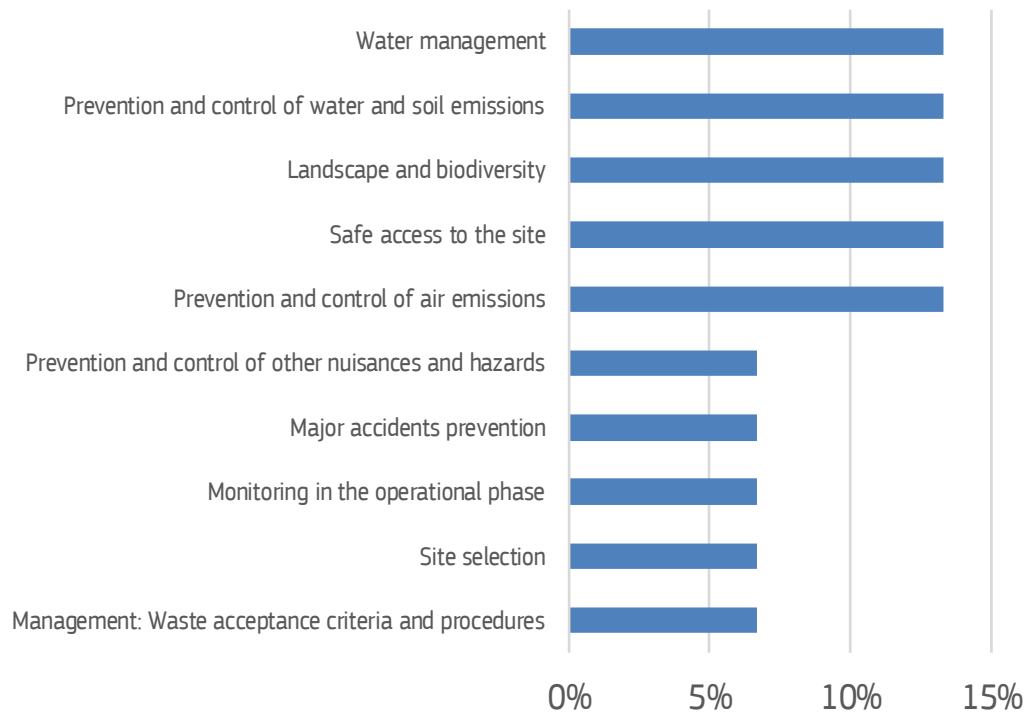


2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 56** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

7 As for D8, specific measures for the management of water, the prevention and control of water, air and soil emissions, the
8 landscape and biodiversity, and the safe access to the site were the most provided.

1 **Figure 56:** Protection measures category distribution for D12 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.
5

6 **11.7.12.5 Member States suggestions for the revision**

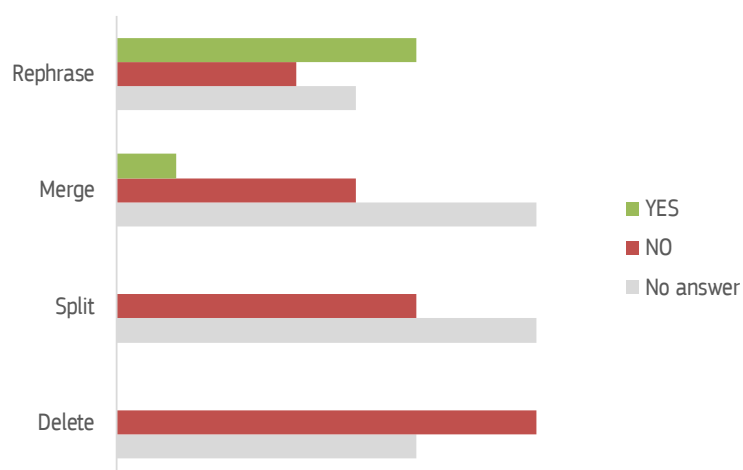
7 **Figure 57** provides information on general suggestions for the revision of D12.

8 Most of the MS were in favour of rephrasing D12.

9 No MS was in favour of splitting or deleting D12.

10 The majority of MS was not in favour of merging D12 with another D code.
11

Figure 57: General suggestions for the revision of D12 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 67**.

The requests mainly asked to limit D12 to underground permanent storage and if necessary to move/include the aboveground storage in D1. A possible overlapping with D3 was pointed out and clarification was requested with that point.

Two final suggestions were made for the revised list of D codes. The first was the one of the first rephrasing suggestion. The second was to keep the description as it is, and it was supported by two MS.

Table 67: Specific and final suggestions for the revision of D12 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Permanent underground storage (e.g. emplacement of containers in a mine)	3
Rephrase	to clarify the difference between D3 and D12. Possibly delete one.	1
Merge	with D1 "into land" and rephrase as "permanent underground storage (e.g. emplacement of containers in a mine)"	1
Final 1	Permanent underground storage (e.g. emplacement of containers in a mine)	1
Final 2	Permanent storage (e.g. emplacement of containers in a mine)	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the workshop.

11.7.13 Answers provided on D13

11.7.13.1 Definitions and current practices

Table 68 summarises the current situation in Member States (MS), providing an overview of the definition applied to D13 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D13 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, all MS that answered apart from Latvia, i.e. Austria, Denmark, Estonia, Spain, Finland, Lithuania, the Netherlands, Portugal and Romania define a D13 operation as a blending or mixing of waste prior to submission to any of the operations numbered D1 to D12, as stated in Annex I to the WFD.

In Austria, Denmark, Estonia, Spain, Latvia, Portugal and Romania, D13 also includes e.g. sorting/separating, crushing, compacting, pelletizing, drying, shredding and conditioning in line with the footnote of code D13: 'If there is no other D code appropriate, this can include preliminary operations prior to disposal including pre-processing such as, inter alia, sorting, crushing, compacting, pelletising, drying, shredding, conditioning or separating prior to submission to any of the operations numbered D1 to D12'.

Latvia did not provide a clear definition for D13, nevertheless D13 was reported as an operation 'preparing waste for landfilling, except biological treatment of waste'.

In Austria, D13 includes three subcategories: (1) General re-conditioning (2) Collection and storage with preliminary treatment steps like sorting, crushing, compacting, blending, mixing (3) First, unspecific preliminary treatment steps prior to subsequent disposal; to be used only in cases where no more specific detailed operation applies. It also includes collection or storage with preliminary mechanical treatment.

In Denmark, Spain, Finland and Romania, D13 may also include conditioning and packaging, which may create confusion with disposal operation D14, re-packaging.

In Denmark, Spain, Portugal and Romania, D13 may include homogenisation of waste, and in addition in Denmark and Portugal it may include solidification, which was also included in D8, and therefore may create confusion/overlapping with D8.

No specific type of waste was associated with D13.

Croatia and Hungary did not provide a clear answer.

Table 68: Key words and concepts used by MS to define D13 operations

Key words defining D13 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Blending or mixing prior to D1-D12	✓	✓	✓	✓	✓			✓		✓	✓	✓*
Sorting/separating, crushing, compacting, pelletizing, drying, shredding, conditioning or separating	✓	✓	✓	✓				✓			✓	✓*
Conditioning and packaging for subsequent transport and treatment prior to disposal		✓		✓	✓							✓
Homogenisation		✓		✓							✓	✓*
Solidification		✓										✓*
First unspecific steps prior to subsequent disposal	✓								✓*			
Including collection or storage with preliminary mechanical treatment	✓											

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

* No clear definition but a reference to an operation 'preparing waste for landfilling, except biological treatment of waste'.

11.7.13.2 Legal regimes

Table 69 provides an overview of the MS' answers to the questions on legal regimes. The number of D13 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted

pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Finland reported the highest number of D13 facilities: 127, and Latvia the lowest: 2.

No MS reported D13 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D13 waste facilities were about or less than 1 Mt/year of waste in Denmark, Estonia and Croatia (0.1% of the total EU-27 waste sent to disposal). In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Croatia indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia, Finland and Portugal reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D13 permits always contain adequate financial security, whereas Estonia and Portugal reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D13 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, Latvia and the Netherlands did not provide details.

Table 69: Legal data and information provided by MS on the permitting of D13 operations

Permitting of D13 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		39	3		127	14		2			10	
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									

Permitting of D13 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Processed amounts in 2010 (Mt)		<1	<1									
Processed amounts in 2012 (Mt)		<1	<1			<1						
Processed amounts in 2014 (Mt)		<1	<1			<1						
Processed amounts in 2016 (Mt)		<1	<1			<1						
Waste facilities under any other legal regime												
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒			☒	☒
Permit contains adequate financial security by the applicant?			☒					☒			☒	
Or other equivalent provision?											☒	
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 70 provides an overview of the reported EIA/Environmental Screening category D13 projects may fall under. Based on the answers provided by Spain and Latvia, D13 projects may fall under one main Environmental Screening project category: '11(b) Installations for the disposal of waste (projects not included in Annex I)'. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 70: Information provided by MS on the EIA classification of D13 operations when falling under the EIA Directive

EIA and Screening of D13 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			

EIA and Screening of D13 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - Other: 11.5. Storage of non-hazardous waste, including preparation for recovery, other than preparation for re-use or disposal, in which 100 tonnes or more of waste is stored at the same time								✓				
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 71 provides an overview of the reported IED waste management categories under which D13 may fall. This table shows that in Austria, Estonia, Spain, Finland, Latvia and Romania, D13 disposal operations may mostly fall under '5.1 Disposal of hazardous waste with a capacity >10 t/day involving 5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2'. In addition, in some MS, it may fall under pre-treatment of waste prior to incineration or co-incineration either as disposal of non-hazardous waste (5.3 (a)) or mix of recovery and disposal (5.3 (b)). Finally, a number of other categories such as biological treatment, physico-chemical treatment or underground storage were also reported.

Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 71: Information provided by MS on the IED activity classification of D13 operations when falling under the IED

IED category of certain D13 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (a) biological treatment		✓										
5.1 (b) physico-chemical treatment		✓										
5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2	✓		✓	✓	✓				✓			✓

IED category of certain D13 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (ii) physico-chemical treatment										✓		
5.3 (a) (iii) pre-treatment of waste for incineration or co-incineration;	✓		✓	✓					✓	✓		
5.3 (a) (iv) treatment of slags and ashes	✓											
5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3. (b) (i) biological treatment		✓										
5.3. (b) (ii) pre-treatment of waste for incineration or co-incineration		✓	✓						✓			
5.3. (b) (iii) treatment of slags and ashes		✓										
5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity >50 t excluding temporary storage, pending collection, on the site where the waste is generated										✓		
5.6 Underground storage of hazardous waste with a total capacity >50 t								✓				

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 72 indicates the reported bans or restrictions for specific waste streams sent to D13 disposal operations.

In Denmark, the disposal of WEEE, waste batteries and accumulators, and packaging waste in D13 is banned, as well as the disposal of separately collected wastes and wastes suitable for recycling or recovery; whereas the disposal of PCB wastes in D13 is restricted. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D13 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D13 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 72: Bans and restrictions on waste streams for D13 operations as reported by MS

Waste categories banned or restricted in D13	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
----------------------------------------------	----	----	----	----	----	----	----	----	----	----	----	----

Waste categories banned or restricted in D13	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
WEEE		B		B								
Batteries & Accumulators		B		B								
ELVs				B								
Packaging		B										
PCBs		R		B								
Other waste streams not listed												
Waste subject to separate collection for preparation for re-use & recycling		B										
Waste suitable for recycling & recovery		B										
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.

B means bans, R means restrictions

11.7.13.3 Waste flows

Figure 58 presents the Sankey diagram of the different waste flows sent to D13. The contribution of each MS to the total amount of waste sent to D13 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

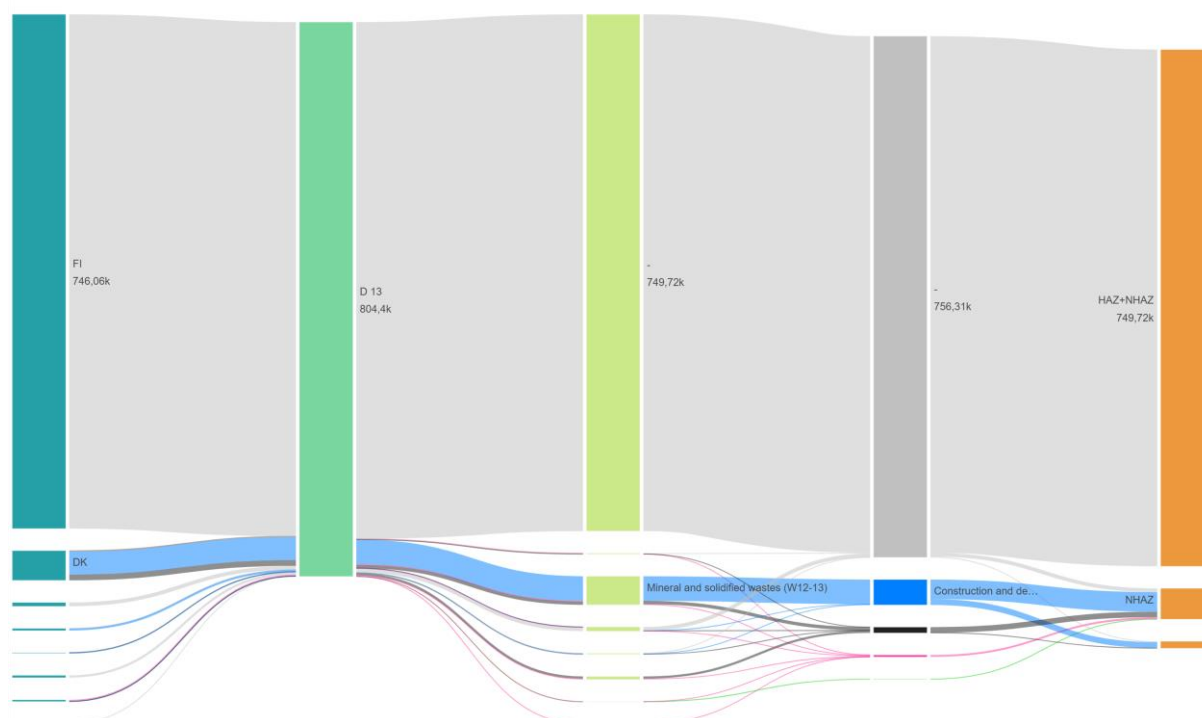
Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D13 was mostly used in Finland, but no disaggregated data provided;

- excluding the unspecified wastes, D13 was mostly used in Denmark for the treatment of construction and demolition waste (the mineral and solidified fraction);
- municipal bio-waste, other municipal wastes, and other industrial non-hazardous wastes represented minor fractions (<5%) of the wastes disposed of in D13;
- no textile waste was treated in D13;
- 1% of the waste treated in D13 was classified as hazardous (however 94% of the waste disposed of in D13 was not classified, i.e. unspecified); and
- the hazardous fraction was divided into 87% construction and demolition waste, 10% other wastes and 3% other municipal wastes.

Figure 58: Yearly average waste tonnages disposed of in waste disposal operation D13 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D13, it was not possible to calculate disposal rates for the major streams.

11.7.13.4 Protection measures

Figure 59 depicts the different types of measures for the protection of the environment and human health reported by MS.

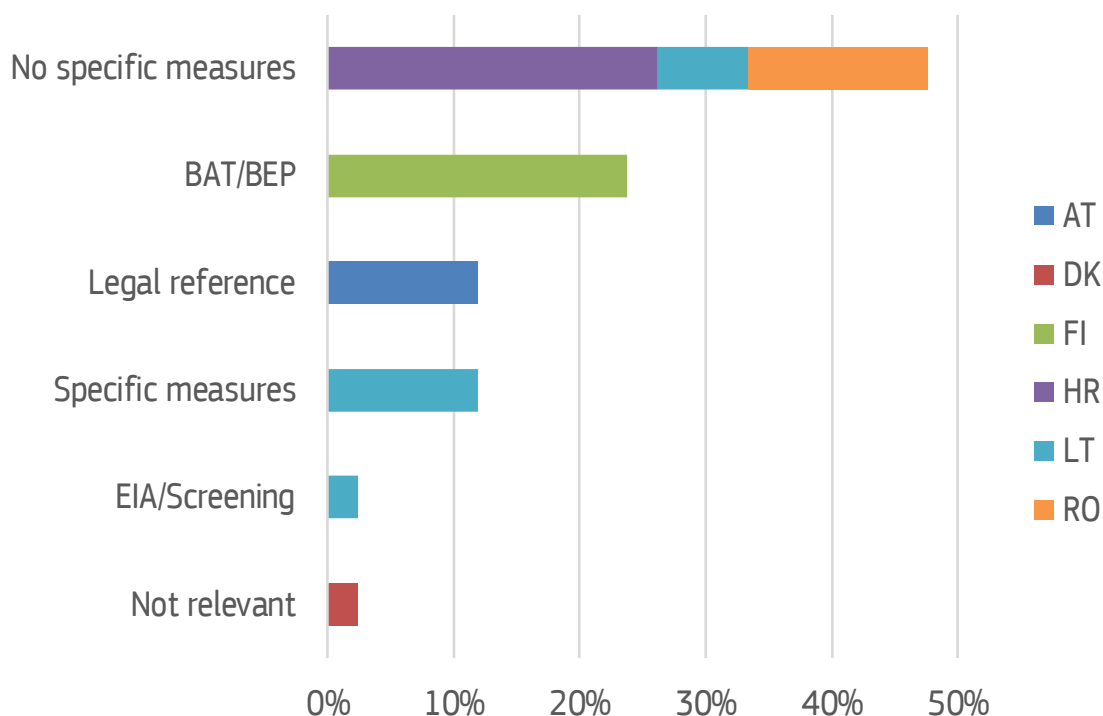
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

General and not specific measures were the most answers provided.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Only Lithuania reported a number of specific measures.

Figure 59: Protection measures type distribution for D13 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 60 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

As for D8 and D12, where reported, the specific measures mostly include measures for the management of water and requirements on the basal structure, mainly technical requirements on the type and the thickness of the layers of materials composing the basal structure. Additional measures for air pollution such as the use of filters, and measures for the safe access to the site such as fences were also reported. Finally, at closure, revegetation and capping were reported.

Nonetheless, compared to D1 or D5 waste disposal operations, significantly fewer measures were provided for D13.

1 **Figure 60:** Protection measures key words cloud for D13 operations

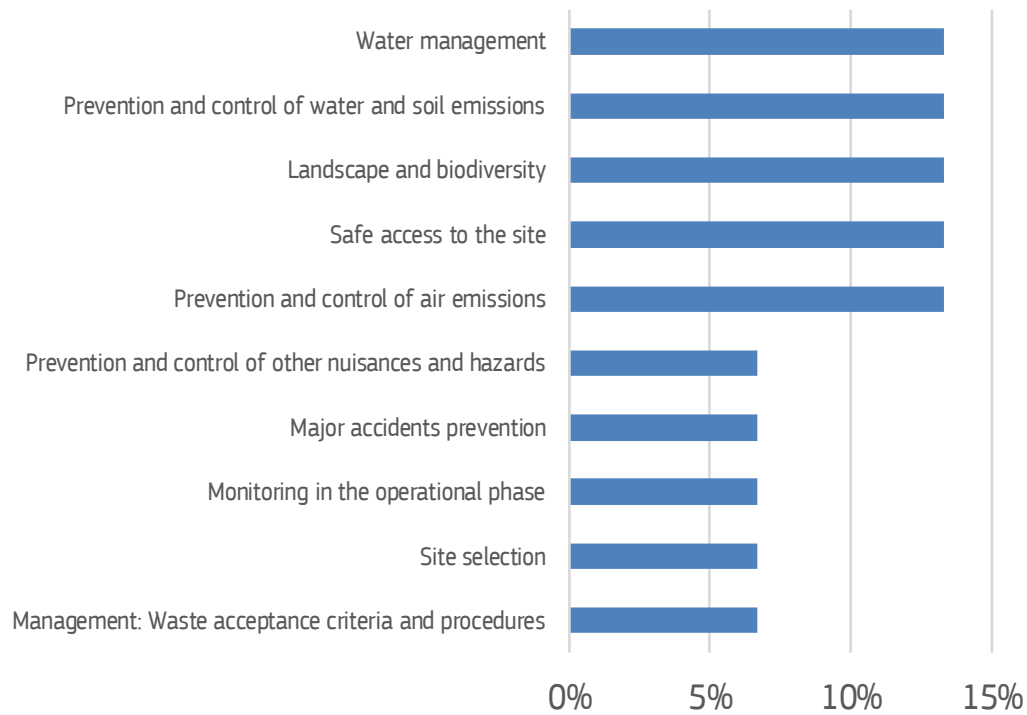


2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6
7 Finally, **Figure 61** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

8 As for D8 and D12 specific measures for the management of water, the prevention and control of water, air and soil
9 emissions, the landscape and biodiversity, and the safe access to the site were the most provided.

1 **Figure 61:** Protection measures category distribution for D13 operations



2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.
5

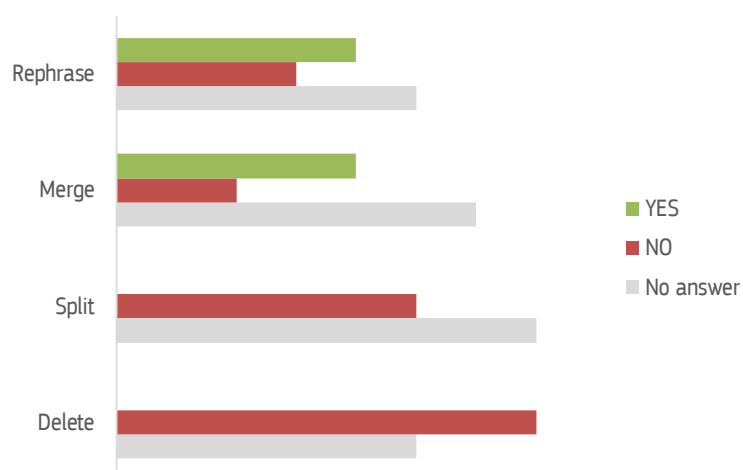
6 **11.7.13.5 Member States suggestions for the revision**

7 **Figure 62** provides information on general suggestions for the revision of D13.

8 The majority of the MS was in favour of rephrasing D13 and merging D13 with another D code.

9 No MS was in favour of splitting or deleting D13.

Figure 62: General suggestions for the revision of D13 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 73**.

The requests mainly asked to merge D13 with D14 and/or to include the mechanical treatment providing a number of examples such as dismantling, sorting/separation, crushing, shredding, etc., in addition to blending or mixing, as provided in the footnote of D13 code in Annex I to the WFD.

Three final suggestions were made for the revised list of D codes. The first one was one of the rephrasing suggestion to rename the code as 'mechanical treatment' and to include in the description the examples provided in the footnote. The second was to rephrase it as preliminary or preparatory operations prior to submission to any of the disposal operations (i.e. including re-packaging and storage). The last one was to keep the description as it is, and it was supported by one MS.

In addition, it was pointed out that D13 is an interim operation according to the Waste Shipments Regulation (see Section 11.1.1.2). Because of that, companies may use rather D8 or D9 codes than D13. In addition, possible overlapping with R codes (e.g. R12) was highlighted in the case of sorting of waste into 2 streams one to be recovered and the other to be disposed of.

Table 73: Specific and final suggestions for the revision of D13 code

General suggestion	Specific suggestion	Number of suggestions
Merge	with D14	2
Merge and rephrase	with D14 and rephrase as 'Mechanical treatment prior to submission to any of the operations numbered D1 to D12'	2
Rephrase	into 'Mechanical treatment (e.g. dismantling, sorting, crushing, compacting, pelletizing, shredding, conditioning, repackaging, separating, blending, mixing) prior to submission to any of the operations numbered D1 to D12'	2
Rephrase	to include sorting and separation also.	1
Final 1	Mechanical treatment (e.g. dismantling, sorting, crushing, compacting, pelletizing, shredding, conditioning, repackaging, separating, blending, mixing) prior to submission to any of the operations numbered D1 to D12	2
Final 2	Preparatory activities or preliminary operations prior to submission to any of the others	1

	operations of disposal	
Final 3	Blending or mixing prior to submission to any of the operations numbered D1 to D12	1

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.14 Answers provided on D14

11.7.14.1 Definitions and current practices

Table 74 summarises the current situation in Member States (MS), providing an overview of the definition applied to D14 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D14 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the answers provided, all MS that answered, i.e. Austria, Denmark, Estonia, Spain, Finland, Lithuania, Portugal and Romania define a D14 operation as a repackaging operation prior to submission to any of the operations numbered D1 to D13, as stated in Annex I to the WFD. In practice, D14 is a waste transfer station.

In Denmark, Estonia, Spain, Finland and Romania, the subsequent operation includes the transport of waste to a D1-D13 installation.

In Austria, Denmark, Spain and Romania the conditioning of waste is also included in D14, and in Spain, the compaction is additionally included. Both conditioning and compaction of waste are clearly overlapping with D13.

Finally, Austria and Denmark reported to include repackaging of asbestos/waste containing asbestos in D14.

No specific type of waste was associated with D14.

Croatia, Hungary, Latvia and the Netherlands did not provide a clear answer.

Table 74: Key words and concepts used by MS to define D14 operations

Key words defining D14 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Repackaging prior to D1-D13	✓	✓	✓	✓	✓			✓			✓*	✓
Repackaging prior to transport to D1-D13		✓	✓	✓	✓							✓
Conditioning	✓	✓		✓								✓
Compaction				✓								
Waste containing asbestos	✓	✓										

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

* 'Prior to submission to any of the operations numbered D 1 to D 13' not included in the definition provided.

11.7.14.2 Legal regimes

Table 75 provides an overview of the MS' answers to the questions on legal regimes. The number of D14 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Denmark reported the highest number of D14 facilities: 32, and Estonia the lowest: 1.

No MS reported D14 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D14 waste facilities were less than 1 Mt/year of waste in Denmark, Estonia and Croatia (0.1% of the total EU-27 waste sent to disposal). In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Croatia indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia, Finland and Portugal reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D14 permits always contain adequate financial security, whereas Estonia and Portugal reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D14 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, Latvia and the Netherlands did not provide details.

Table 75: Legal data and information provided by MS on the permitting of D14 operations

Permitting of D14 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		32	1		29	5		6			7	
Waste facilities with a permit accepting municipal waste												
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												
No exemption			✓									

Permitting of D14 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Processed amounts in 2010 (Mt)		<1	<1									
Processed amounts in 2012 (Mt)		<1	<1			<1						
Processed amounts in 2014 (Mt)		<1				<1						
Processed amounts in 2016 (Mt)		<1										
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒			☒	☒
Permit contains adequate financial security by the applicant?			☒					☒			☒	
Or other equivalent provision?											☒	
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 76 provides an overview of the reported EIA/Environmental Screening category D14 projects may fall under. Based on the answers provided by Spain and Latvia, D14 projects may fall under one main Environmental Screening project category: '11(b) Installations for the disposal of waste (projects not included in Annex I)'. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 76: Information provided by MS on the EIA classification of D14 operations when falling under the EIA Directive

EIA and Screening of D14 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			

EIA and Screening of D14 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - Other: 11.5. Storage of non-hazardous waste, including preparation for recovery, other than preparation for re-use or disposal, in which 100 tonnes or more of waste is stored at the same time								✓				
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 77 provides an overview of the reported IED waste management categories under which D14 may fall. This table shows that in Austria, Estonia, Spain, Finland, Latvia and Romania, D14 disposal operations may mostly fall under '5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities: 5.1 (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2'. In addition, in some MS, it may fall under pre-treatment of waste prior to incineration or co-incineration either as disposal of non-hazardous waste (5.3 (a)) or mix of recovery and disposal (5.3 (b)). Finally, a number of other categories such as biological treatment, physico-chemical treatment, landfills or underground storage were also reported.

Denmark, Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 77: Information provided by MS on the IED activity classification of D14 operations when falling under the IED

IED category of certain D14 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (a) biological treatment								✓				
5.1 (b) physico-chemical treatment								✓				
5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2								✓				

IED category of certain D14 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2	✓		✓	✓	✓			✓	✓			✓
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (iii) pre-treatment of waste for incineration or co-incineration;										✓		
5.3 (a) (iv) treatment of slags and ashes								✓				
5.3. (b) Mix of recovery and disposal, of non-hazardous waste with a capacity >75 t/day (or >100 t/day if anaerobic digestion is the only treatment) involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3. (b) (ii) pre-treatment of waste for incineration or co-incineration										✓		
5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste								✓				
5.6 Underground storage of hazardous waste with a total capacity >50 t								✓				

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 78 indicates the reported bans or restrictions for specific waste streams sent to D14 disposal operations.

As for D13, in Denmark, the disposal of WEEE, waste batteries and accumulators, and packaging waste in D14 is banned, as well as the disposal of separately collected wastes and wastes suitable for recycling or recovery; whereas the disposal of PCB wastes in D14 is restricted. In Spain, the disposal of WEEE, waste batteries and accumulators, ELVs and PCBs in D14 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D14 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 78: Bans and restrictions on waste streams for D14 operations as reported by MS

Waste categories banned or restricted in D14	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
WEEE		B		B								
Batteries & Accumulators		B		B								

Waste categories banned or restricted in D14	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
ELVs				B								
Packaging		B										
PCBs		R		B								
Other waste streams not listed												
Waste subject to separate collection for preparation for re-use & recycling		B										
Waste suitable for recycling & recovery		B										
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.
B means bans, R means restrictions

11.7.14.3 Waste flows

Figure 63 presents the Sankey diagram of the different waste flows sent to D14. The contribution of each MS to the total amount of waste sent to D14 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

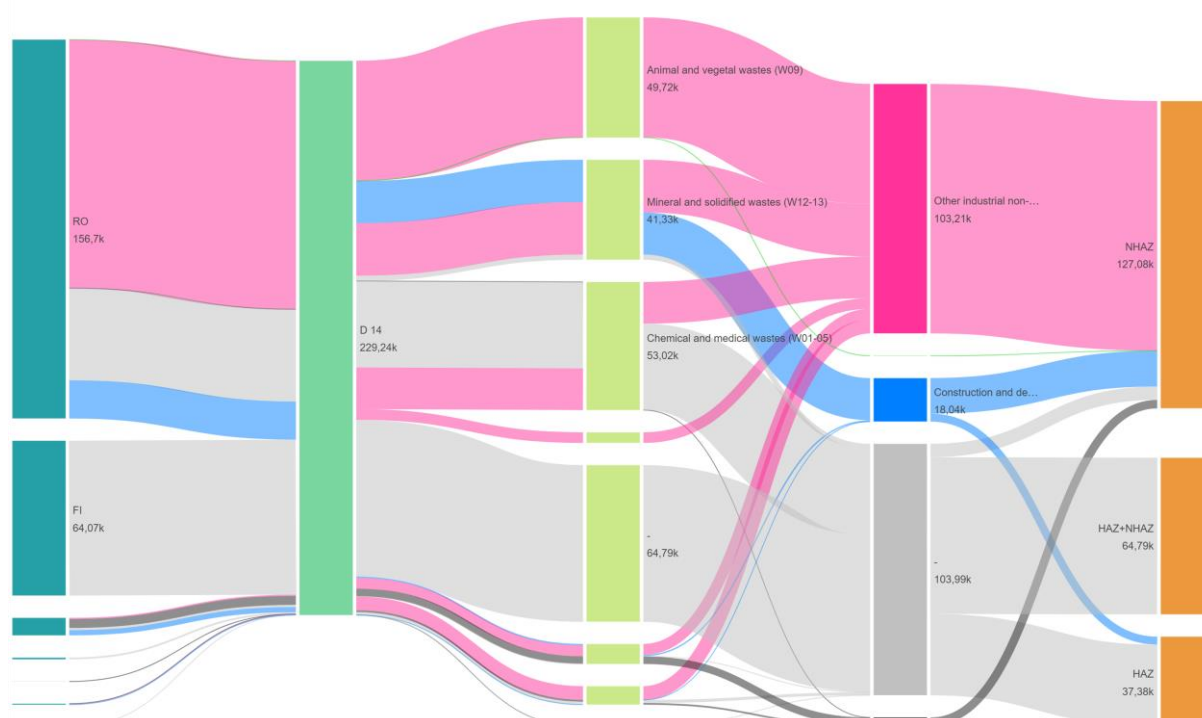
Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D14 was mostly used in Romania for the repackaging of other industrial non-hazardous wastes;
- other industrial non-hazardous wastes sent to D14 included a wide variety of waste types, e.g. animal and vegetal, chemical and medical, common sludges, mixed ordinary, mineral and solidified and recyclable wastes;

- construction and demolition wastes (mostly the mineral and solidified fraction) was the second most important waste stream sent to D14;
- municipal bio-waste (<0.1%) and other municipal wastes (0.8%), represented minor fractions (<5%) of the wastes repacked in D14;
- no textile waste was sent to D14;
- 16% of the waste treated in D14 was classified as hazardous; and
- the hazardous fraction was divided into 90% other wastes, 9% construction and demolition waste and 1% other municipal wastes.

Figure 63: Yearly average waste tonnages disposed of in waste disposal operation D14 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D14, the calculated disposal rate ranges for the major streams are:

- 6% (based on only one MS) disposal rate for the animal and vegetal wastes (W09) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX);
- from <0.5% to 14% disposal rate for the chemical and medical wastes (W01-05) fraction of other waste streams;
- from <0.5% (based on only one MS) disposal rate for the mineral and solidified wastes (W12-13) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX); and

— from <0.5% to 2% disposal rate for the chemical and medical wastes (W01-05) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX).

11.7.14.4 Protection measures

Figure 64 depicts the different types of measures for the protection of the environment and human health reported by MS.

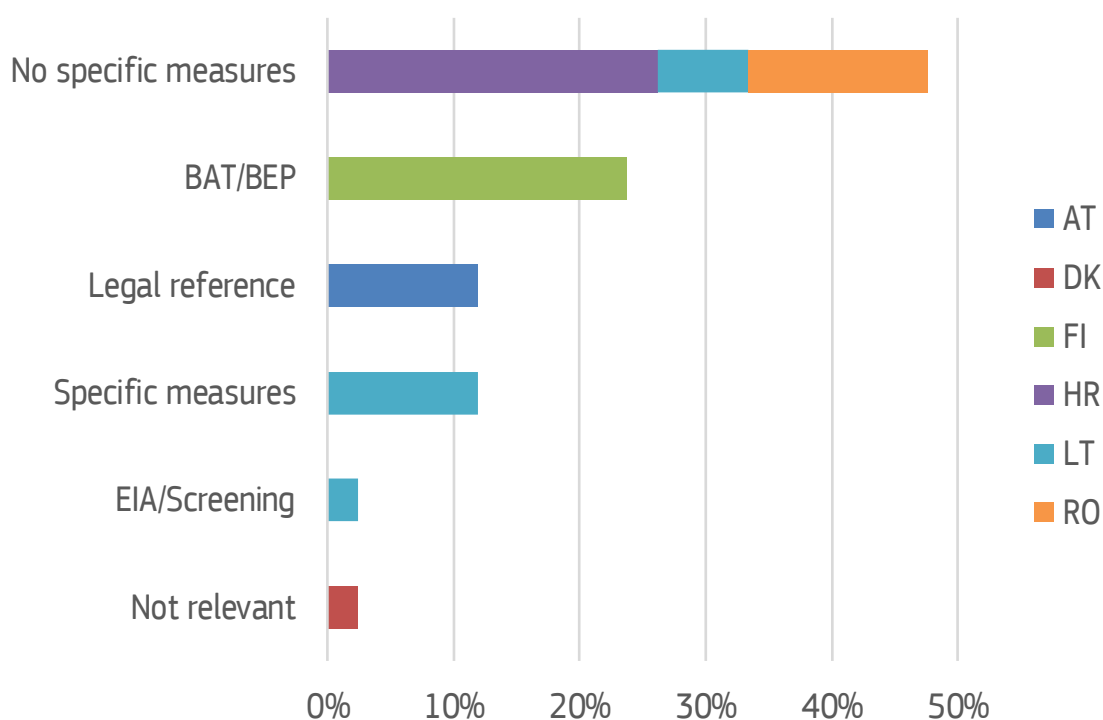
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

General and not specific measures were the most answers provided.

Finland, reported the implementation of the BAT/BEP, without details on the specific measures.

Only Lithuania reported a number of specific measures.

Figure 64: Protection measures type distribution for D14 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 65 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

As for D8, D12 and D13, where reported, the specific measures mostly include measures for the management of water and requirements on the basal structure, mainly technical requirements on the type and the thickness of the layers of materials composing the basal structure. Additional measures for air pollution such as the use of filters, and measures for the safe access to the site such as fences were also reported. Finally, at closure, revegetation and capping were reported.

Nonetheless, compared to D1 or D5 waste disposal operations, significantly fewer measures were provided for D14.

1 **Figure 65:** Protection measures key words cloud for D14 operations

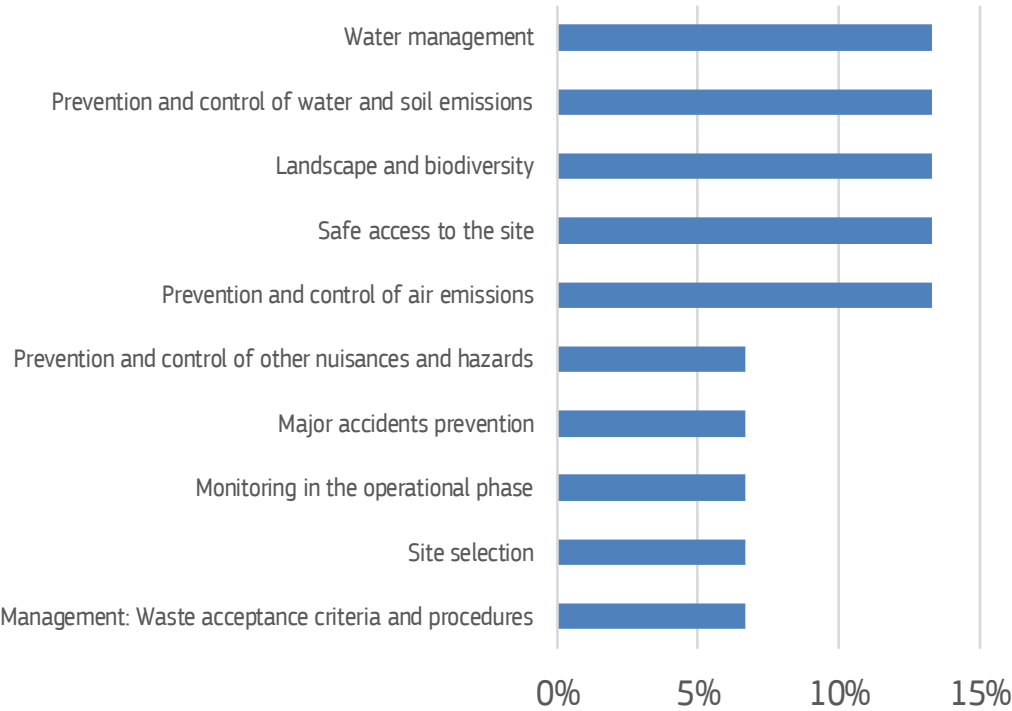


2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 66** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

7 As for D8, D12 and D13 specific measures for the management of water, the prevention and control of water, air and soil
8 emissions, the landscape and biodiversity, and the safe access to the site were the most provided.
9

Figure 66: Protection measures category distribution for D14 operations

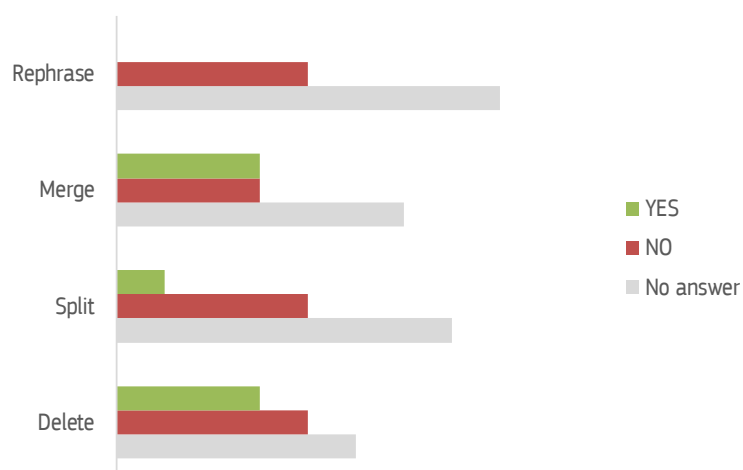


Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

11.7.14.5 Member States suggestions for the revision

Figure 67 provides information on general suggestions for the revision of D14.
The majority of the MS was not in favour of splitting or deleting D14.
No MS was in favour of rephrasing D14.
The possibility of merging D14 with another D code was balanced.

Figure 67: General suggestions for the revision of D14 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 79**.

The requests mainly asked to merge D14 with D13 and/or to include repackaging into the mechanical treatment.

One suggestion was made to split D14 into three subcategories: (i) preparation of waste mixtures (ii) sorting (iii) mechanical treatment (dismantling, shredding) prior to disposal. This suggestion is similar to the merging suggestion as it includes mechanical treatment operations.

One final suggestion was made for the revised list of D codes: to keep the description as it is, and it was supported by one MS.

Table 79: Specific and final suggestions for the revision of D14 code

General suggestion	Specific suggestion	Number of suggestions
Delete	Delete and merge with D13	3
Merge	with D13	2
Merge	with D13 and rephrase as "Mechanical treatment prior to submission to any of the operations."	1
Split	into: (i) preparation of waste mixtures (ii) sorting (iii) mechanical treatment (dismantling, shredding) prior to disposal	1
Final 1	Repackaging prior to submission to any of the operations numbered D1 to D13	1

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

11.7.15 Answers provided on D15

11.7.15.1 Definitions and current practices

Table 80 summarises the current situation in Member States (MS), providing an overview of the definition applied to D15 waste disposal operations in the EU-27. The first column provides a list of key words and concepts used by MS to define D15 code, whereas the next columns of the table indicate which MS reported specific key words or concepts.

Based on the provided answers, Estonia, Spain, Finland, Lithuania, Portugal and Romania, define a D15 operation as a waste storage operation pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced), as stated in Annex I to the WFD. In practice, D15 are waste transfer stations carrying out storage prior to treatment and/or disposal of waste (including repackaging D14).

It was also reported that D15 may overlap with R13, as the facilities may be the same but the counting is done depending on the final destination of the waste: either disposal or recovery operations.

In Finland, the pending operation includes the transport of waste to any of the operations numbered D1 to D14; whereas in Latvia it is prior to landfilling.

In Denmark, D15 is defined as a temporary storage pending any of the operations numbered D1 to D12.

Denmark and Portugal include a time frame of 1 year or less to define D15 storage.

Spain include a time frame of less than 1 year for non-hazardous waste and less than 6 months for hazardous waste.

No specific type of waste was associated with D14.

Austria, Croatia, Hungary, Latvia and the Netherlands did not provide a clear answer.

Table 80: Key words and concepts used by MS to define D15 operations

Key words defining D15 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage, pending collection, on the site where the waste is produced)			✓	✓	✓			✓			✓	✓
Temporary storage prior to landfilling									✓			
Temporary storage prior to D1-D12		✓										
Storage prior to transport to D1-D14					✓							
< or ≤ 1 year		✓									✓	
< 1 year for non-hazardous waste				✓								
< 6 months for hazardous waste				✓								

Key words and concepts are based on the information provided by MS in the survey (Q02, Q03 and Q04), and the comments collected during written the consultation and the workshop.

11.7.15.2 Legal regimes

Table 81 provides an overview of the MS' answers to the questions on legal regimes. The number of D15 waste facilities with and without a permit pursuant to Article 23 of Directive 2008/98/EC as amended by Directive (EU) 2018/851, or permitted pursuant requirements of any other legal regime. The number of waste facilities accepting municipal waste is also indicated. The amounts of waste disposed of are indicated, showing the general trend in each MS from 2010 to 2016.

The table also reports the answers provided by MS to the specific questions on complementary requirements to the permit, i.e.: the inclusion of an environmental impact assessment or a screening in the permit, the request for financial security or any other equivalent provision.

In addition, the table reports the answers provided by MS to the specific questions on permit conditions, i.e.: the inspection prior to commencement, the coverage of disposal operations cost, the waste acceptance procedures or any other permit conditions in place prior to issuing the permit. Finally, the table also reports the general and specific rules that may be in place for permit exemptions.

Estonia reported the highest number of D15 facilities: 500, and Lithuania the lowest: 17.

Only Lithuania reported one D15 waste facilities accepting municipal waste.

No MS reported waste facilities exempted from the permitting pursuant the WFD requirements or permitted under any other legal regime. Nevertheless, Estonia reported a general rule for permit exemption of less than 1 tonne of non-hazardous waste disposal per year. No specific condition was reported by Estonia for hazardous wastes.

The reported waste amounts sent to D15 waste facilities were less than 1 Mt/year of waste in Denmark and Croatia (<0.1% of the total EU-27 waste sent to disposal). In Estonia, this amount ranged from 1 Mt/year in 20010-2014 to 8 Mt/year in 2016. In Spain no disaggregated data are available for this single D code.

When it comes to complementary requirements to the permit, Croatia indicated to always include either an Environmental Impact Assessment (EIA) or a Screening in the permit; whereas Estonia, Finland and Portugal reported to include it sometimes. Lithuania reported to never include neither an EIA nor a Screening in the permit. Concerning financial security or other equivalent provisions, Lithuania reported D15 permits always contain adequate financial security, whereas Estonia and Portugal reported this is not always the case. In addition, Lithuania reported that a bank security or insurance surety agreement is always included in the permit.

With regards to the permit conditions, Estonia, Spain and Romania indicated that D15 sites are always inspected prior to commencement of disposal operations, whereas this is not always required in Finland and Lithuania. For the costs of disposal operations, Estonia indicated that the price charged does not always cover the costs, whereas Finland indicated it always does and Lithuania indicated it never does. Finally, waste acceptance procedures are always in place in Lithuania, but sometimes in Estonia. No other conditions of the permit prior to issuing were reported by MS.

Austria, Hungary, Latvia and the Netherlands did not provide details.

Table 81: Legal data and information provided by MS on the permitting of D15 operations

Permitting of D15 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Total number of waste facilities with a permit		105	500		143	80		17			159	
Waste facilities with a permit accepting municipal waste								1				
Waste facilities exempted from permit												
Waste facilities under any other legal regime												
General rules for permit exemption:												
<1 t/y of NHAZ waste			✓									
No exemption						✓						
Specific conditions for permit exemption for hazardous wastes:												

Permitting of D15 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
No exemption			✓									
Processed amounts in 2010 (Mt)		<1	1									
Processed amounts in 2012 (Mt)		<1	1			<1						
Processed amounts in 2014 (Mt)		<1	1			<1						
Processed amounts in 2016 (Mt)		<1	8			<1						
Permit contains EIA, including screening, for those activities falling under the EIA Directive?			☒		☒	☒		☒			☒	☒
Permit contains adequate financial security by the applicant?			☒					☒			☒	
Or other equivalent provision?											☒	
Other complementary requirements: Bank security or insurance surety agreement								☒				
Prior to commencement of disposal operations, the site is inspected?			☒	☒	☒			☒				☒
The costs of disposal operations are covered by the price charged?			☒		☒			☒				
Waste acceptance procedures are in place?			☒					☒				
Other permit conditions prior to issuing												

Based on the answers provided by MS in the Survey (Q18, Q19, Q20, Q21 and Q22) and the comments collected during written the consultation and the workshop.

● or ✓ means Yes, ● means Sometimes, ● means No

Table 82 provides an overview of the reported EIA/Environmental Screening category D15 projects may fall under. Based on the answers provided by Spain and Latvia, D15 projects may fall under one main Environmental Screening project category: '11(b) Installations for the disposal of waste (projects not included in Annex I)'. In Lithuania, new categories were reported, not listed in the Annexes to the EIA Directive (but neither the EIA nor the Screening are included in the permit according to the answer provided on the complementary permit requirements).

Austria, Denmark, Estonia, Finland, Croatia, Hungary, the Netherlands, Portugal and Romania did not provide any details on the EIA/Screening categories.

Table 82: Information provided by MS on the EIA classification of D15 operations when falling under the EIA Directive

EIA and Screening of D15 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - 11. (b) Installations for the disposal of waste (projects not included in Annex I)				✓					✓			

EIA and Screening of D15 projects	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
Screening - Other: 11.5. Storage of non-hazardous waste, including preparation for recovery, other than preparation for re-use or disposal, in which 100 tonnes or more of waste is stored at the same time								✓				
Screening - Other: 11.6. Disposal of non-hazardous waste not covered by points 11.2 to 11.5 of this Annex								✓				
Screening - Other: 11.7. The disposal or recovery of hazardous waste, except: 11.7.1. Activities specified in Sections 9.6, 9.7 and 9.8 of Annex 1 to this Law; 11.7.2. The storage of hazardous waste, including its preparation for recovery or disposal, in quantities not exceeding 10 tonnes at a time; 11.7.3. Preparation for re-use of hazardous waste, including storage of such waste;								✓				
Screening - Other: 11.10. Storage or disposal of sludge in specially equipped areas								✓				

Based on the answers provided by MS in the Survey (Q19 and Q23) and the comments collected during written the consultation and the workshop.

Table 83 provides an overview of the reported IED waste management categories under which D15 may fall. This table shows that in Austria, Estonia, Spain, Finland, Lithuania, Latvia and Romania, D15 disposal operations may mostly fall under '5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity >50 t excluding temporary storage, pending collection, on the site where the waste is generated'.

Denmark, Croatia, Hungary and Portugal did not report any link to an IED waste management activity.

Table 83: Information provided by MS on the IED activity classification of D15 operations when falling under the IED

IED category of certain D15 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 Disposal of hazardous waste with a capacity >10 t/day involving one or more of the following activities:												
5.1 (a) biological treatment								✓				
5.1 (b) physico-chemical treatment								✓				
5.1 (c) blending or mixing prior to submission to any of the other activities listed in points 5.1 and 5.2								✓				

IED category of certain D15 operations	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
5.1 (d) repackaging prior to submission to any of the other activities listed in points 5.1 and 5.2								✓		✓		
5.1 (k) surface impoundment										✓		
5.3 (a) Disposal of non-hazardous waste with a capacity >50 t/day involving one or more of the following activities, and excluding activities covered by the urban waste-water treatment Directive:												
5.3 (a) (iv) treatment of slags and ashes								✓				
5.4 Landfills, as defined in Article 2(g) of the LfD, receiving >10 t/day or with a total capacity exceeding 25 000 t excluding landfills of inert waste								✓				
5.5 Temporary storage of hazardous waste not covered under point 5.4 pending any of the activities listed in points 5.1, 5.2, 5.4 and 5.6 with a total capacity >50 t excluding temporary storage, pending collection, on the site where the waste is generated	✓		✓	✓	✓			✓	✓	✓		✓
5.6 Underground storage of hazardous waste with a total capacity >50 t								✓				

Based on the answers provided by MS in the Survey (Q24) and the comments collected during written the consultation and the workshop.

Table 84 indicates the reported bans or restrictions for specific waste streams sent to D15 disposal operations.

As for D13 and D14, in Denmark, the disposal of WEEE, waste batteries and accumulators, and packaging waste in D15 is banned, as well as the disposal of separately collected wastes and wastes suitable for recycling or recovery; whereas the disposal of PCB wastes in D15 is restricted. In Spain, the disposal of WEEE, waste batteries and accumulators and ELVs in D15 is banned. Lithuania reported that only waste subject to prior treatment can be disposed of in D15 and that specific requirements on waste properties for landfill are in place in Lithuania. Lithuania also reported a ban on the disposal of imported mixed municipal wastes and imported recovered solid fuels.

Table 84: Bans and restrictions on waste streams for D15 operations as reported by MS

Waste categories banned or restricted in D15	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
WEEE		B		B								
Batteries & Accumulators		B		B								
ELVs				B								
Packaging		B										

Waste categories banned or restricted in D15	AT	DK	EE	ES	FI	HR	HU	LT	LV	NL	PT	RO
PCBs		R										
Other waste streams not listed												
Waste subject to separate collection for preparation for re-use & recycling		B										
Treated waste only								✓				
Specific requirements on waste related to different landfill categories								✓				
Imported mix municipal waste and recovered solid fuels								✓				

Based on the answers provided by MS in the Survey (Q16 and Q17) and the comments collected during written the consultation and the consultation and the workshop.

B means bans, R means restrictions

11.7.15.3 Waste flows

Figure 68 presents the Sankey diagram of the different waste flows sent to D15. The contribution of each MS to the total amount of waste sent to D15 is plotted on the left hand of the diagram. The flows are coloured based on the 5 specific streams used in this report (other or unspecified streams are coloured in light grey):

- construction and demolition wastes coloured in blue;
- textile wastes coloured in orange;
- municipal bio-waste coloured in green;
- other municipal wastes coloured in dark grey; and
- other industrial non-hazardous wastes coloured in pink.

The total amount of these specific waste streams is presented on the right hand of the diagram.

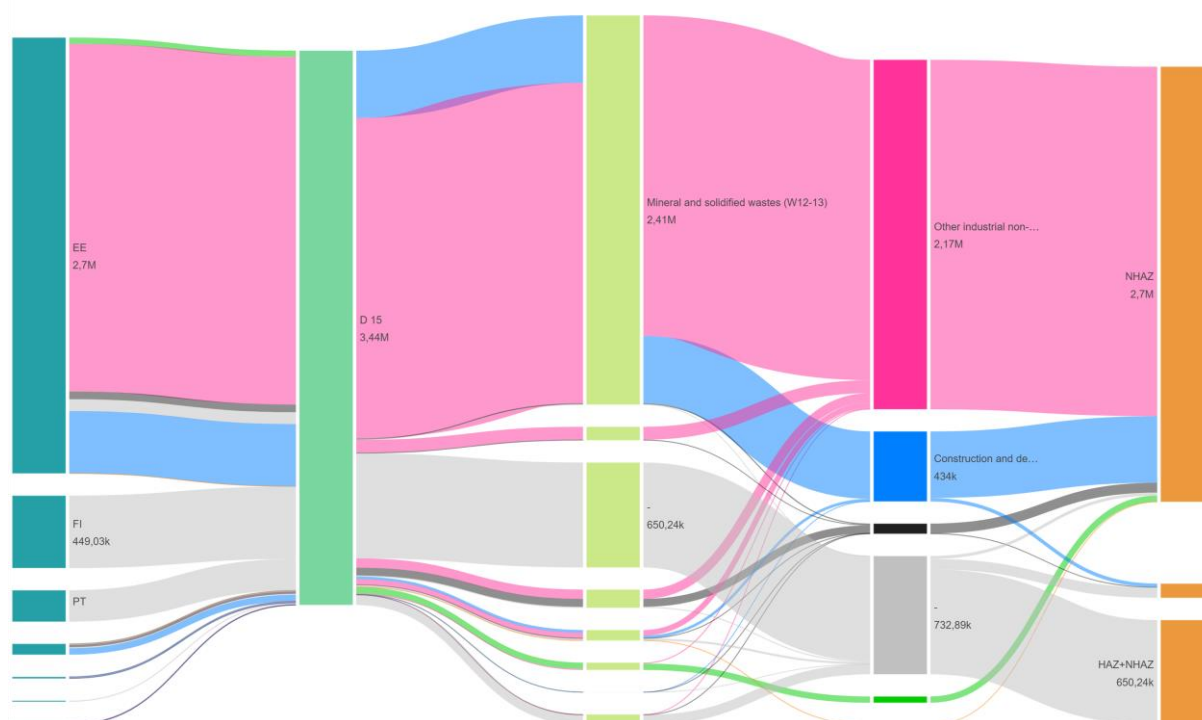
In addition, the contribution of different types of wastes (based on Eurostat categories) is also presented and corresponds to the yellow nodes (in the middle).

Finally, on the right side, orange nodes point out the share of hazardous (HAZ) and non-hazardous wastes (NHAZ). For unspecified waste, i.e. where the level of disaggregation of the reported data does not allow to differentiate between hazardous and non-hazardous waste, the stream is reported as non-hazardous and hazardous (HAZ+NHAZ).

The main findings from the data provided by the MS are the following:

- D15 was mostly used in Estonia for the storage of other industrial non-hazardous wastes (mostly the mineral and solidified fraction) pending any of the operations numbered D1 to D14;
- construction and demolition wastes (mostly the mineral and solidified fraction) was the second most important waste stream sent to D15;
- municipal bio-waste (1%), other municipal wastes (2%) and textile wastes (<0.1%) represented minor fractions (<5%) of the wastes repacked in D15;
- 3% of the waste stored in D15 was classified as hazardous; and
- the hazardous fraction was divided into 73% other wastes, 25% construction and demolition waste and 2% other municipal wastes.

Figure 68: Yearly average waste tonnages disposed of in waste disposal operation in D15 in the EU-27 in 2010-2016



Based on the data provided by MS in the survey (Q36 and Q37), and the comments collected during written the consultation and the workshop.

Besides, disposal rates for the most disposed waste streams, excluding unknown streams, were calculated. The disposal rate for a specific stream was calculated as the total waste amount of waste disposed divided by the total amount of waste generated. Only four MS provided the necessary data to calculate disposal rates: Estonia, Lithuania, Latvia and Romania. Croatia and Denmark provided disaggregated data but either the level of disaggregation was not enough or waste generation data were missing.

For D15, the calculated disposal rate ranges for the major streams are:

- from <0.5% to 26% disposal rate for the mineral and solidified wastes (W12-13) fraction of the other industrial non-hazardous waste (NHAZ except 15_16_17_18_20_XX_XX); and
- from <0.5% to 34% disposal rate for the mineral and solidified wastes (W12-13) fraction of the construction and demolition waste (17_XX_XX).

11.7.15.4 Protection measures

Figure 69 depicts the different types of measures for the protection of the environment and human health reported by MS.

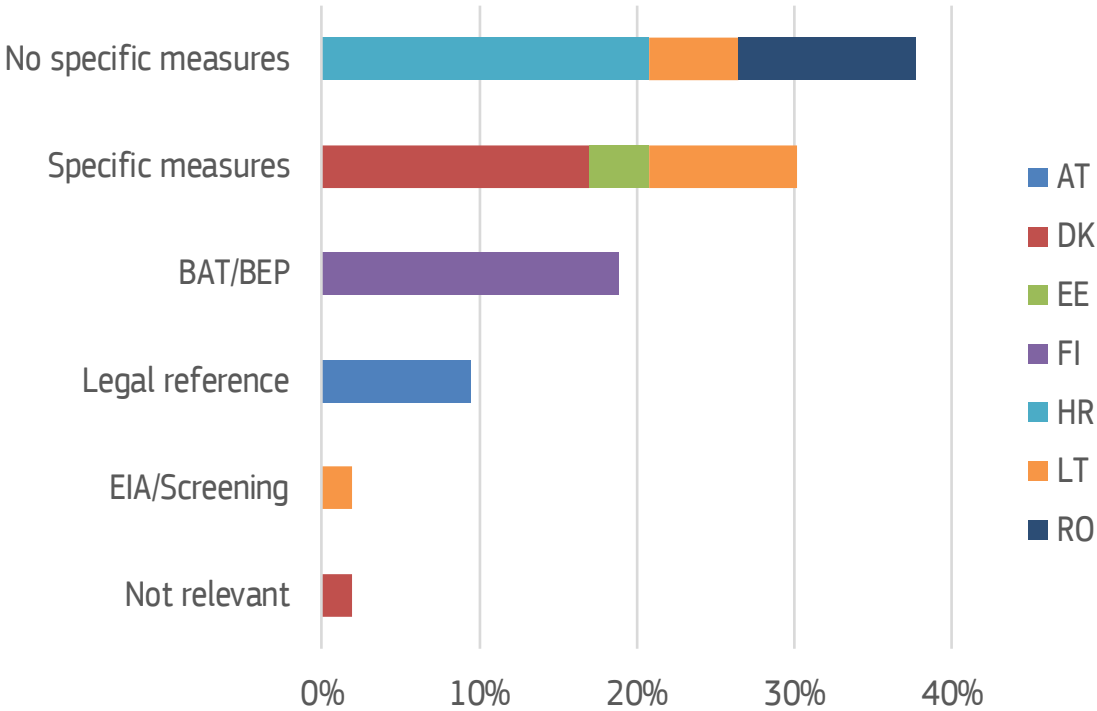
Some MS did not report any details on the measures, in which case these were reported as '*no specific measures*', whereas some other made a specific reference to Best Available Technique (BAT) and Best Environmental Practices (BEP), or to measures resulting from the Environmental Impact Assessment (EIA) or the screening.

General and not specific measures were the most provided answers.

Denmark, Estonia and Lithuania reported a number of specific measures.

Finland, reported the implementation of BAT/BEP, without details on the specific measures.

Figure 69: Protection measures type distribution for D15 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

Figure 70 provides an illustrative overview of the key words used to describe the specific measures reported by MS.

Where reported, the specific measures mostly include measures for the management of water, including rainwater and runoff water management, and requirements on the basal structure, mainly technical requirements on the type (e.g. waterproof) and the thickness of the layers of materials composing the basal structure. Additional measures for air pollution such as filters, measures for soil pollution such as oil traps, and measures for the safe access to the site such as fences were also reported. Finally, at closure, revegetation and capping were reported. Implementation of site-specific measures (based on the EIA and risk assessment) were also reported.

1 **Figure 70:** Protection measures key words cloud for D15 operations

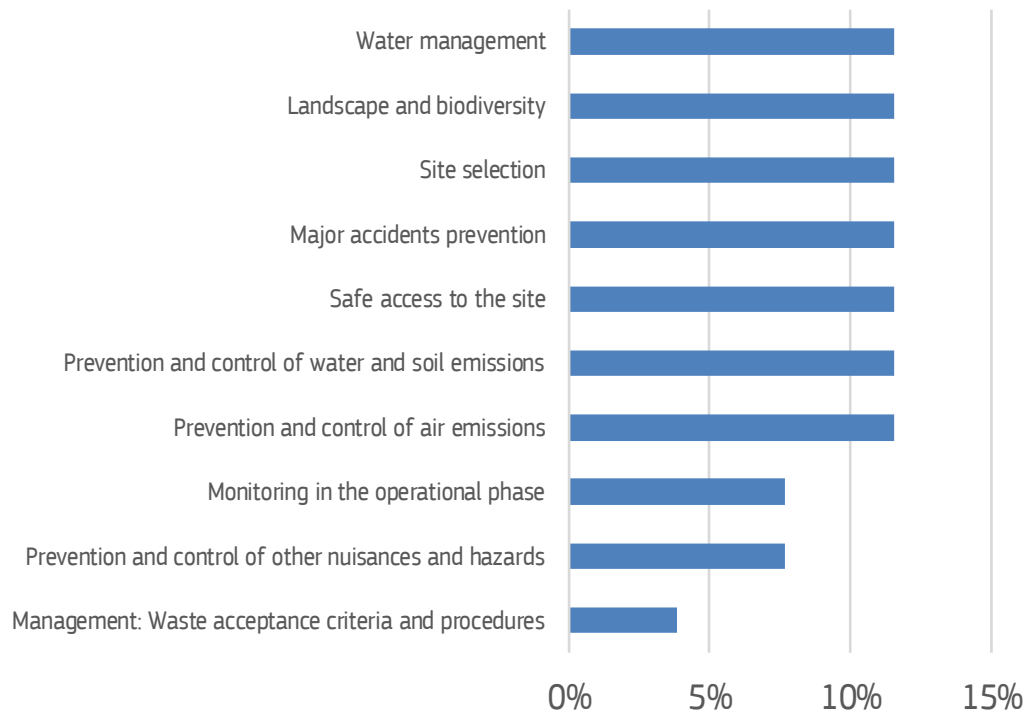


2
3 Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the
4 consultation and the workshop.

5
6 Finally, **Figure 71** highlights the coverage and distribution of the reported specific measures (including BAT/BEP references).

7 Specific measures covered almost equally all the specific categories. Only for waste acceptance criteria and procedures, less
8 specific measures were provided.
9

Figure 71: Protection measures category distribution for D15 operations



Based on the answers provided by MS in the Survey (Q25 to Q35) and the comments collected during written the consultation and the workshop.

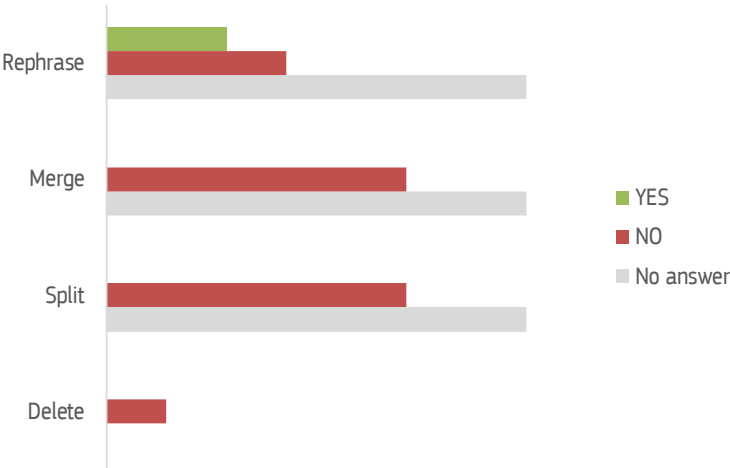
11.7.15.5 Member States suggestions for the revision

Figure 72 provides information on general suggestions for the revision of D15.

No MS was in favour of merging, splitting or deleting D15.

The majority of MS was not in favour of rephrasing D15.

Figure 72: General suggestions for the revision of D15 code



Based on the answers provided by MS in the Survey (Q09 to Q12) and the comments collected during written the consultation and the workshop.

The specific suggestions provided by MS, including the final suggestions, are presented in **Table 85**.

The requests mainly asked to limit D15 to '*temporary storage*' or to define a time-frame to limit in time the storage in D15. A suggestion was also made to merge D15 with D12 or D13.

Two final suggestions were made for the revised list of D codes: one was the rephrasing suggestion, and the other was to keep the description as it is, and it was supported by two MS.

Table 85: Specific and final suggestions for the revision of D15 code

General suggestion	Specific suggestion	Number of suggestions
Rephrase	Temporary storage pending any of the operations in this Annex	3
Merging	It should be limited how long waste can be stored before landfilling. Maybe an option would be to merge this code with D12 or D13.	1
Final 1	Temporary storage pending any of the operations in this Annex.	3
Final 2	Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	2

Based on the answers provided by MS in the Survey (Q09, Q12 and Q15) and the comments collected during written the consultation and the consultation and the workshop.

1 12 List of abbreviations and definitions

ABP	Animal By-Products
AT	Austria
B	Banned
BAT	Best Available Techniques
BE	Belgium
BEMP	Best Environmental Management Practices
BG	Bulgaria
BREF	Best available techniques REference document
CEWEP	the Confederation of European Waste-to-Energy Plants
CONCAWE	a division of the European Petroleum Refiners Association
COP	Conference Of the Parties (UN)
CY	Cyprus
CZ	the Czech Republic
DE	Germany
DG	Directorate General
DK	Denmark
EC	European Commission
EE	Estonia
EEC	European Economic Community
EFTA	European Free Trade Association
EIA	Environmental Impact Assessment
EL	Greece
ELV	End-of Life Vehicles
EP	European Parliament
ETRMA	the European Tyre and Rubber Manufacturers' Association
EU	European Union
EWD	Extractive Waste Directive
EWG	Expert Working Group
FEAD	the European Federation of Waste Management and Environmental Services
FI	Finland
FR	France
Gt	Giga-tonne or billion tonnes
HAZ	Hazardous (waste)
HR	Croatia
HU	Hungary
HWE	Hazardous Waste Europe
ICT	Information and Communications Technology
IE	Ireland
IED	Industrial Emissions Directive
IT	Italy
JRC	Joint Research Centre
kt	kilo-tonne or thousand tonnes
LfD	Landfill Directive
LT	Lithuania
LU	Luxembourg
LV	Latvia

MS	Member State
Mt	Mega-tonne or million tonnes
MT	Malta
MWEI	Management of Waste from Extractive Industries
NA	Not Applicable
NHAZ	Non-Hazardous (waste)
NL	the Netherlands
NU	Not Used
OSPAR	Oslo-Paris Convention (UN)
P	Prohibited
PCB	PolyChlorinated Biphenyls (and PolyChlorinated Terphenyls)
PL	Poland
POP	Persistent Organic Pollutants
PT	Portugal
R	Restriction
RO	Romania
RoHS	Restriction of the use of certain Hazardous Substances
SE	Sweden
SI	Slovenia
SK	Slovakia
SRD	Sectorial Reference Document
TAC	Technical Adaptation Committee
UN	United Nations
WAC	Waste Acceptance Criteria
WEEE	Waste Electrical and Electronic Equipment
WFD	Waste Framework Directive
WI	Waste Incineration
WT	Waste Treatment

13 List of figures

Figure 1: Yearly average waste tonnages disposed of in waste disposal operation D1 in the EU-27 in 2010-2016.....	61
Figure 2: Protection measures type distribution for D1 operations.....	62
Figure 3: Protection measures key words cloud for D1 operations.....	63
Figure 4: Specific protection measures category distribution for D1 operations.....	64
Figure 5: General suggestions for the revision of D1 code.....	65
Figure 6: Yearly average waste tonnages disposed of in waste disposal operation D2 in the EU-27 in 2010-2016.....	72
Figure 7: Protection measures type distribution for D2 operations.....	73
Figure 8: Protection measures key words cloud for D2 operations.....	74
Figure 9: Protection measures category distribution for D2 operations.....	75
Figure 10: General suggestions for the revision of D2 code.....	76
Figure 11: Yearly average waste tonnages disposed of in waste disposal operation D3 in the EU-27 in 2010-2016.....	83
Figure 12: Protection measures type distribution for D3 operations.....	84
Figure 13: Protection measures key words cloud for D3 operations.....	85
Figure 14: Protection measures category distribution for D3 operations.....	86
Figure 15: General suggestions for the revision of D3 code.....	87
Figure 16: Yearly average waste tonnages disposed of in waste disposal operations in the EU-27 in 2010-2016.....	94
Figure 17: Protection measures type distribution for D4 operations.....	95
Figure 18: Protection measures key words cloud for D4 operations.....	96
Figure 19: Protection measures category distribution for D4 operations.....	97
Figure 20: General suggestions for the revision of D4 code.....	98
Figure 21: Yearly average waste tonnages disposed of in waste disposal operation D5 in the EU-27 in 2010-2016.....	106
Figure 22: Protection measures type distribution for D5 operations.....	107
Figure 23: Protection measures key words cloud for D5 operations.....	108
Figure 24: Protection measures category distribution for D5 operations.....	109
Figure 25: General suggestions for the revision of D5 code.....	110
Figure 26: Yearly average waste tonnages disposed of in waste disposal operation D6 in the EU-27 in 2010-2016.....	116
Figure 27: Protection measures type distribution for D6 operations.....	117
Figure 28: Protection measures key words cloud for D6 operations.....	118
Figure 29: Protection measures category distribution for D6 operations.....	119
Figure 30: General suggestions for the revision of D6 code.....	120

1	Figure 31: Yearly average waste tonnages disposed of in waste disposal operation D7 in the EU-27 in 2010-	
2	2016.....	126
3	Figure 32: Protection measures type distribution for D7 operations	127
4	Figure 33: Protection measures key words cloud for D7 operations	128
5	Figure 34: Protection measures category distribution for D7 operations	129
6	Figure 35: General suggestions for the revision of D7 code	130
7	Figure 36: Yearly average waste tonnages disposed of in waste disposal operation D8 in the EU-27 in 2010-	
8	2016.....	137
9	Figure 37: Protection measures type distribution for D8 operations	138
10	Figure 38: Protection measures key words cloud for D8 operations	139
11	Figure 39: Protection measures category distribution for D8 operations	140
12	Figure 40: General suggestions for the revision of D8 code	141
13	Figure 41: Yearly average waste tonnages disposed of in waste disposal operation D9 in the EU-27 in 2010-	
14	2016.....	150
15	Figure 42: Protection measures type distribution for D9 operations	151
16	Figure 43: Protection measures key words cloud for D9 operations	152
17	Figure 44: Protection measures category distribution for D9 operations	153
18	Figure 45: General suggestions for the revision of D9 code	154
19	Figure 46: Yearly average waste tonnages disposed of in waste disposal operation D10 in the EU-27 in	
20	2010-2016	162
21	Figure 47: Yearly average waste tonnages disposed of in waste disposal operation D10 in the EU-27 in	
22	2010-2016	163
23	Figure 48: Protection measures type distribution for D10 operations	164
24	Figure 49: Protection measures key words cloud for D10 operations.....	165
25	Figure 50: Protection measures category distribution for D10 operations.....	166
26	Figure 51: General suggestions for the revision of D10 code.....	167
27	Figure 52: General suggestions for the revision of D11 code.....	169
28	Figure 53: Yearly average waste tonnages disposed of in waste disposal operation D12 in the EU-27 in	
29	2010-2016	175
30	Figure 54: Protection measures type distribution for D12 operations	176
31	Figure 55: Protection measures key words cloud for D12 operations.....	177
32	Figure 56: Protection measures category distribution for D12 operations.....	178
33	Figure 57: General suggestions for the revision of D12 code.....	179
34	Figure 58: Yearly average waste tonnages disposed of in waste disposal operation D13 in the EU-27 in	
35	2010-2016	186
36	Figure 59: Protection measures type distribution for D13 operations	187
37	Figure 60: Protection measures key words cloud for D13 operations.....	188
38	Figure 61: Protection measures category distribution for D13 operations.....	189
39	Figure 62: General suggestions for the revision of D13 code.....	190

1	Figure 63: Yearly average waste tonnages disposed of in waste disposal operation D14 in the EU-27 in	
2	2010-2016	197
3	Figure 64: Protection measures type distribution for D14 operations	198
4	Figure 65: Protection measures key words cloud for D14 operations.....	199
5	Figure 66: Protection measures category distribution for D14 operations.....	200
6	Figure 67: General suggestions for the revision of D14 code.....	201
7	Figure 68: Yearly average waste tonnages disposed of in waste disposal operation in D15 in the EU-27 in	
8	2010-2016	208
9	Figure 69: Protection measures type distribution for D15 operations	209
10	Figure 70: Protection measures key words cloud for D15 operations.....	210
11	Figure 71: Protection measures category distribution for D15 operations.....	211
12	Figure 72: General suggestions for the revision of D15 code.....	212
13		

DRAFT - WORK IN PROGRESS

14 List of tables

Table 1: Summary of the options for possible amendment proposals to Annex IV section A, including the preferred options of EU and its Member States (dated 30/04/2020)	37
Table 2: Summary of the options for final disposal operations proposed by the EU and its MS (dated 30/04/2020)	42
Table 3: Key words and concepts used by MS to define D1 operation	54
Table 4: Legal data and information provided by MS on the permitting of D1 operations	55
Table 5: Information provided by MS on the EIA classification of D1 operations when falling under the EIA Directive	56
Table 6: Information provided by MS on the IED activity classification of D1 operations when falling under the IED	57
Table 7: Bans and restrictions on waste streams for D1 operations as reported by MS	59
Table 8: Specific and final suggestions for the revision of D1 code	65
Table 9: Key words and concepts used by MS to define D2 operations	66
Table 10: Legal data and information provided by MS on the permitting of D2 operations	68
Table 11: Information provided by MS on the EIA classification of D2 operations when falling under the EIA Directive	69
Table 12: Information provided by MS on the IED activity classification of D2 operations when falling under the IED	70
Table 13: Bans and restrictions on waste streams for D2 operations as reported by MS	70
Table 14: Specific and final suggestions for the revision of D2 code	76
Table 15: Key words and concepts used by MS to define D3 operations	77
Table 16: Legal data and information provided by MS on the permitting of D3 operations	78
Table 17: Information provided by MS on the EIA classification of D3 operations when falling under the EIA Directive	79
Table 18: Information provided by MS on the IED activity classification of D3 operations when falling under the IED	80
Table 19: Bans and restrictions on waste streams for D3 operations as reported by MS	80
Table 20: Specific and final suggestions for the revision of D3 code	87
Table 21: Key words and concepts used by MS to define D4 operations	88
Table 22: Legal data and information provided by MS on the permitting of D4 operations	89
Table 23: Information provided by MS on the EIA classification of D4 operations when falling under the EIA Directive	90
Table 24: Information provided by MS on the IED activity classification of D4 operations when falling under the IED	91
Table 25: Bans and restrictions on waste streams for D4 operations as reported by MS	92
Table 26: Specific and final suggestions for the revision of D4 code	98
Table 27: Key words and concepts used by MS to define D5 operations	99
Table 28: Legal data and information provided by MS on the permitting of D5 operations	100

1	Table 29: Information provided by MS on the EIA classification of D5 operations when falling under the EIA	
2	Directive	102
3	Table 30: Information provided by MS on the IED activity classification of D5 operations when falling under	
4	the IED	102
5	Table 31: Bans and restrictions on waste streams for D5 operations as reported by MS	103
6	Table 32: Specific and final suggestions for the revision of D5 code	110
7	Table 33: Key words and concepts used by MS to define D6 operations	111
8	Table 34: Legal data and information provided by MS on the permitting of D6 operations	112
9	Table 35: Information provided by MS on the EIA classification of D6 operations when falling under the EIA	
10	Directive	113
11	Table 36: Bans and restrictions on waste streams for D6 operations as reported by MS	114
12	Table 37: Specific and final suggestions for the revision of D6 code	120
13	Table 38: Key words and concepts used by MS to define D7 operations	121
14	Table 39: Legal data and information provided by MS on the permitting of D7 operations	122
15	Table 40: Information provided by MS on the EIA classification of D7 operations when falling under the EIA	
16	Directive	123
17	Table 41: Bans and restrictions on waste streams for D7 operations as reported by MS	124
18	Table 42: Specific and final suggestions for the revision of D7 code	130
19	Table 43: Key words and concepts used by MS to define D8 operations	131
20	Table 44: Legal data and information provided by MS on the permitting of D8 operations	132
21	Table 45: Information provided by MS on the EIA classification of D8 operations when falling under the EIA	
22	Directive	133
23	Table 46: Information provided by MS on the IED activity classification of D8 operations when falling under	
24	the IED	134
25	Table 47: Bans and restrictions on waste streams for D8 operations as reported by MS	135
26	Table 48: Specific and final suggestions for the revision of D8 code	142
27	Table 49: Key words and concepts used by MS to define D9 operations	143
28	Table 50: Legal data and information provided by MS on the permitting of D9 operations	144
29	Table 51: Information provided by MS on the EIA classification of D9 operations when falling under the EIA	
30	Directive	145
31	Table 52: Information provided by MS on the IED activity classification of D9 operations when falling under	
32	the IED	147
33	Table 53: Bans and restrictions on waste streams for D9 operations as reported by MS	148
34	Table 54: Specific and final suggestions for the revision of D9 code	154
35	Table 55: Key words and concepts used by MS to define D10 operations	155
36	Table 56: Legal data and information provided by MS on the permitting of D10 operations	157
37	Table 57: Information provided by MS on the EIA classification of D10 operations when falling under the EIA	
38	Directive	158
39	Table 58: Information provided by MS on the IED activity classification of D10 operations when falling under	
40	the IED	159

1	Table 59: Bans and restrictions on waste streams for D10 operations as reported by MS.....	160
2	Table 60: Specific and final suggestions for the revision of D10 code.....	167
3	Table 61: Key words and concepts used by MS to define D11 operations.....	168
4	Table 62: Key words and concepts used by MS to define D12 operations.....	169
5	Table 63: Legal data and information provided by MS on the permitting of D12 operations.....	171
6	Table 64: Information provided by MS on the EIA classification of D12 operations when falling under the EIA	
7	Directive.....	172
8	Table 65: Information provided by MS on the IED activity classification of D12 operations when falling under	
9	the IED.....	173
10	Table 66: Bans and restrictions on waste streams for D12 operations as reported by MS.....	173
11	Table 67: Specific and final suggestions for the revision of D12 code.....	179
12	Table 68: Key words and concepts used by MS to define D13 operations.....	180
13	Table 69: Legal data and information provided by MS on the permitting of D13 operations.....	181
14	Table 70: Information provided by MS on the EIA classification of D13 operations when falling under the EIA	
15	Directive.....	182
16	Table 71: Information provided by MS on the IED activity classification of D13 operations when falling under	
17	the IED.....	183
18	Table 72: Bans and restrictions on waste streams for D13 operations as reported by MS.....	184
19	Table 73: Specific and final suggestions for the revision of D13 code.....	190
20	Table 74: Key words and concepts used by MS to define D14 operations.....	191
21	Table 75: Legal data and information provided by MS on the permitting of D14 operations.....	192
22	Table 76: Information provided by MS on the EIA classification of D14 operations when falling under the EIA	
23	Directive.....	193
24	Table 77: Information provided by MS on the IED activity classification of D14 operations when falling under	
25	the IED.....	194
26	Table 78: Bans and restrictions on waste streams for D14 operations as reported by MS.....	195
27	Table 79: Specific and final suggestions for the revision of D14 code.....	201
28	Table 80: Key words and concepts used by MS to define D15 operations.....	202
29	Table 81: Legal data and information provided by MS on the permitting of D15 operations.....	203
30	Table 82: Information provided by MS on the EIA classification of D15 operations when falling under the EIA	
31	Directive.....	204
32	Table 83: Information provided by MS on the IED activity classification of D15 operations when falling under	
33	the IED.....	205
34	Table 84: Bans and restrictions on waste streams for D15 operations as reported by MS.....	206
35	Table 85: Specific and final suggestions for the revision of D15 code.....	212
36		

GETTING IN TOUCH WITH THE EU

In person

All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696, or
- by electronic mail via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications

You can download or order free and priced EU publications from EU Bookshop at: <https://publications.europa.eu/en/publications>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

PROGRESS

The European Commission's science and knowledge service

Joint Research Centre

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.



EU Science Hub
ec.europa.eu/jrc



@EU_ScienceHub



EU Science Hub - Joint Research Centre



EU Science, Research and Innovation



EU Science Hub