

Paper and board — European list of standard grades of paper and board for recycling

Papier und Pappe — Europäische Liste der Standardarten für Papier und Pappe für Recycling

Papiers et cartons — Liste européenne des sortes standard de papiers et cartons pour recyclage

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Foreword

This document (prEN 643:2011) has been prepared by Technical Committee CEN/TC 172 "Pulp, paper and board", the secretariat of which is held by DIN (Germany).

This document is a working document.

This document will supersede EN 643:2001.

With regard to EN 643:2001 the following changes have been made:

- a) due to fundamental changes in waste legislation, the structure of the classification of grades has to be adapted (see introduction);
- b) the terminology has been modified to be in accordance with the use of the product for paper recycling;
- c) addition of a limit 1,5 % non-paper component;
- d) addition of "Bibliography";
- e) editorial updating.

Introduction

The European list of standard grades of paper and board for recycling is to be used by industry professionals, organisations and individuals with an interest in the paper recycling sector to assist them in the buying and selling of these raw materials, which are intended for recycling by the paper and board industry without the need of additional sorting prior to use at a paper mill.

The definition for prohibited material and the limits for non-paper components provide help and support for Customs and Excise Officers who are required to differentiate these raw materials from waste in the context of supranational legislation on the control of waste movement.

Furthermore, it will be recommended that this document is used at all national levels in all official reports and in the day-to-day running of companies. It secures the quality of the supply of paper and board for recycling to the paper mills through responsible sourcing of the paper industry's raw materials.

The revision of the EN 643 coincides with a fundamental change in waste legislation. The Waste Framework Directive (2008/98/EC) introduces a procedure for defining end-of-waste (EoW) criteria, which a given waste stream has to fulfil in order to cease to be waste.

The end-of-waste criteria require compliance with the EN 643, the provision of information on material that has ceased to be waste and the implementation of a quality management system.

A further major criterion is the use of the product for paper fibre recycling. To take account of this criterion, the terminology of the EN 643 has been amended by substituting the term "recovered paper and board" by "paper and board for recycling" in the title and throughout the document.

In this conjunction, it should be pointed out that the code numbers are not consecutive, because some grades have lost their importance in recent years. Wherever possible, the classification of grades was not changed compared to the previous edition.

Finally, a limit of 1,5 % non-paper components is set for end-of-waste material. For this reason, much effort was given to the definition of tolerance levels for non-paper components and unwanted materials at this revision. The definition of tolerance levels also reduces the need for individual agreements between buyer and supplier.

This document has been agreed and approved by the following European organisations:

- CEPI Confederation of European Paper Industries;
- ERPA European Recovered Paper Association;
- FEAD European Federation of Waste Management and Environmental Service.

1 Scope

This document defines grades of paper and board for recycling used as the source of raw material, for recycling in the manufacture of paper products in the paper industry.

This document also specifies levels/limits of tolerance for the composition of paper and board for recycling and unusable materials (prohibited materials, non-paper components and paper and board detrimental to production). It also defines concepts clarifying them for all the people involved in the management of paper and board for recycling.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

2.1

'paper & board for recycling'

Broad term denoting natural fibre based paper and board suitable for recycling. It consists of:

- paper and board in any shape.
- products made predominately from paper and board, which may include other constituents that can not be removed by dry sorting, such as coatings and laminates, spiral bindings, etc.

2.2

prohibited materials

any materials which represent a hazard for health, safety and environment, such as medical waste, contaminated products of personal hygiene, hazardous waste, organic waste including foodstuffs, bitumen, toxic powders and the like.

2.3

non-paper components

consist of any foreign matter in paper and board for recycling, which is not a constituent part of the product and can be separated by dry sorting, such as:

- metal;
- plastic;
- glass;
- textiles;
- wood;

- sand and building materials;
- synthetic materials;

2.4

paper and board detrimental to production

paper and board which have been recovered or treated in such a way that they are, for a basic or standard level of equipment, unsuitable as raw material for the manufacture of paper and board, or are actually damaging, or whose presence makes the whole consignment of paper unusable. For grades intended for deinking, all papers containing brown, unbleached fibres are considered detrimental to production.

2.5

paper and board not according to grade definition

paper and board or products thereof which are not included in the description of the grade of paper and board for recycling

NOTE This could lead to regrading.

2.6 paper not suitable for deinking

At the current state of knowledge, this refers to most flexographic printing, inkjet, liquid toners and to some UV cured prints. In grades intended for deinking, paper products not suitable for deinking belong to unwanted material. This refers to the grades 1.06.00, 1.06.01, 1.06.02, 1.07.00, 1.09.00, 1.11.00, 2.01.00, 2.02.01, 2.03.00, 2.03.01, 2.04.00, 2.04.01, 2.05.00, 2.05.01, 2.06.00, 2.06.01, 2.07.00, 2.07.01, 2.08.00, 2.12.00, 2.13.00, 3.01.00, 3.02.00, 3.03.00, 3.03.01, 3.04.00, 3.05.00, 3.06.00, 3.08.00, 3.09.00, 3.10.00, 3.10.01, 3.11.00, 3.11.01, 3.12.00, 5.05.00, 5.05.01, 5.09.00, 5.10.00 and 5.10.01.

If paper and board for recycling is not suitable for deinking, it is usable in other paper recycling processes.

2.7

unwanted material ("outthrows")

material not suitable for the production of paper and board.

The unwanted material comprise:

- non-paper components;
- paper and board not according to grade definition;
- paper and board detrimental to production;
- paper not suitable for deinking (if applicable).

3 Group classification

Paper and board for recycling is classified as follows:

- Group 1: Ordinary grades
- Group 2: Medium grades
- Group 3: High grades
- Group 4: Kraft grades
- Group 5: Special grades

4 Grade identification

Grades of paper and board for recycling have been systematically numbered according to a numerical code system as follows:

Example for a designation: paper grade - EN 643 - 2 - 03 - 01

Description _____

Standard main number _____

Group 2 (medium grade) _____

Grade 3 (lightly printed white shavings) _____

Subgrade 01 (lightly printed white shavings without glue) _____

In case no subgrade exists, add "00".

5 General Requirements

5.1 Source of the paper and board for recycling

Paper and board mills may ask for a declaration from the supplier about the origin of the material, in relation to national regulations or standard requirements relating to paper and board for recycling.

NOTE: The use of the "European Recovered Paper Identification System" (2008) is recommended. Paper and board for recycling originating from multi-material collection systems, containing only material of a valuable, recyclable nature, has to be specifically marked. It is not permissible to mix it unmarked with other paper and board for recycling.

Paper sorted from refuse collections is not suitable for use in the paper industry.

5.2 Prohibited materials

Prohibited materials, as defined on section 2.2 are not permitted at all.

5.3 Unwanted materials

Paper and board for recycling should in principle be supplied free of unwanted materials. The list of grades, however, specifies levels of tolerance for non-paper components and the total unwanted material (outthrows). The total value of unwanted materials comprise the tolerance for non paper components and the tolerance for paper and board not according to grade definition, paper and board detrimental for production, and paper not suitable for deinking (if applicable).

5.4 Moisture content in paper and board for recycling

Paper and board for recycling will, in principle, be supplied with moisture of not more than the naturally occurring level. Where the moisture content is higher than 10 % (of air dried weight), the additional weight in excess of 10 % may be claimed back – with the method of testing and sampling to be agreed between buyer and seller.

5.5 Additional requirements for grades intended for deinking

5.5.1 Age of newspapers

Newspapers older than six months from the date of issue are considered detrimental to production in grades 1.09.00, 1.11.00, 2.01.00 and 2.02.01, although not for other paper recycling processes.

5.5.2 Form of delivery

If paper and board for recycling is intended to be used in a deinking process, shredding of paper and board for recycling should be avoided and thus be limited to reasons where confidentiality is required. If shredding can not be avoided, the pieces should be left as large as possible.

6 Classifications

6.1 Group 1, ordinary grades

Code	Title	Description	Non-paper components in %	Total unwanted material in %
1.01.00	ordinary mixed paper and board	A mixture of various grades of paper and board,	1,5	3
1.02.00	mixed paper and board	A mixture of various qualities of paper and board, containing a maximum of 40 % newspapers and magazines.	1,5	2,5
1.03.00	boxboard cuttings	Printed and unprinted white lines and unlined grey board or mixed board, free from corrugated material.	1	2
1.04.00	ordinary corrugated paper and board	Used paper and board packaging, containing a minimum of 70 % of corrugated board, the rest being other paper and board products.	1,5	3
1.04.01	corrugated paper and board	Used paper and board packaging, containing a minimum of 80 % of corrugated board, the rest being other paper and board products.	1,5	3
1.04.02	Corrugated paper and board packaging	Used paper and board packaging, containing a minimum of 70 % of corrugated board, the rest being other paper and board packaging.	1,5	3
1.05.00	ordinary corrugated board (OCC)	Used boxes and sheets of corrugated board of various qualities, may include 10 % of other packaging papers and boards.	1,5	2,5
1.05.01	corrugated board (OCC)	Used boxes and sheets of corrugated board of various qualities, may include 5 % of other packaging papers and boards.	1,5	2,5
1.06.00	magazines	Magazines, with or without glue.	0,5	1
1.06.01	magazines without glue	Magazines without glue.	0,5	1
1.06.02	magazines with product samples	Magazines, with or without glue, may contain attached product related non-paper components (percentage to be agreed between seller and buyer in addition to the percentages in the columns to the right).	1	2
1.07.00	telephone books	New and used telephone books, with unlimited content of pages coloured in the mass, with and without glue. Shavings allowed.	0,5	1

1.09.00	newspapers and magazines	Mixture of newspapers and magazines (predominantly unsold); each of them with a minimum of 30 %.	0,5	1
1.11.00	sorted graphic paper for deinking	Sorted graphic paper, consisting of a minimum of 80 % newspapers and magazines. Print products which are not suitable for deinking are limited to 1,5 %.	0,5	2,5

6.2 Group 2, medium grades

Code	Title	Description	Non-paper components in %	Total unwanted material in %
2.01.00	newspapers	Newspapers, containing a maximum of 5 % of newspapers or advertisements coloured in the mass.	0,5	1,5
2.02.00	unsold newspapers not suitable for deinking	Unsold newspapers, which may contain inserts originally circulated with the publication. No additional inserts allowed.. Paper not suitable for deinking allowed.	0,5	1
2.02.01	unsold newspapers	Unsold newspapers, which may contain inserts originally circulated with the publication. No additional inserts allowed.	0,5	1
2.03.00	lightly printed white shavings	Lightly printed white shavings, coated or uncoated, mainly mechanical pulp-based paper with no restriction for glue.	0,5	1
2.03.01	lightly printed white shavings without glue	Lightly printed white shavings, coated or uncoated, mainly mechanical pulp-based paper without glue.	0,5	1
2.04.00	heavily printed white shavings	Heavily printed white shavings, coated or uncoated, mainly mechanical pulp-based paper with no restriction for glue.	0,5	1
2.04.01	heavily printed white shavings without glue	Heavily printed white shavings, coated or uncoated, mainly mechanical pulp-based paper without glue.	0,5	1
2.05.00	ordinary sorted office paper	Paper, as typically generated by offices, shredded or unshredded, printed, may contain coloured papers, with a minimum 60 % woodfree paper, free of carbon and principally free from carbonless copy paper, less than 10 % unbleached fibres including manila envelopes and file covers, less than 5 % news and packaging.	1	2
2.05.01	sorted office paper	Paper, as typically generated by offices, shredded or unshredded, printed, may contain coloured papers, with a minimum 80 % woodfree paper, free of carbon and principally free from carbonless copy paper, less than 5 % unbleached fibres including manila envelopes and file covers.	1	2
2.06.00	ordinary sorted coloured letters	Paper, as typically generated by offices, shredded or unshredded, lightly printed, mass coloured paper allowed, but no deep coloured papers, with a minimum of 70 % woodfree	1	2

		paper, free of carbon and principally free of carbonless copy paper, free of manila envelopes, file covers, news and cardboard.		
2.06.01	sorted coloured letters	Paper, as typically generated by offices, shredded or unshredded, lightly printed, mass coloured paper allowed, but no deep coloured papers, with a minimum of 90 % woodfree paper, free of carbon and principally free of carbonless copy paper, free of manila envelopes, file covers, news and cardboard.	1	2
2.07.00	white woodfree bookquire	Books or their shavings, without hard covers, mainly of white woodfree paper, mainly black printed, containing a maximum of 10 % coated paper.	0,5	1
2.07.01	white mechanical pulp-based bookquire	Books or their shavings mainly of white mechanical pulp-based paper, without hard covers, mainly black printed, may contain 10 % of coated paper.	0,5	1
2.08.00	coloured woodfree magazines	Coated or uncoated magazines, white or coloured in the mass, free from hard covers, bindings and poster papers. May include heavily printed circulars and coloured in the mass shavings. Contain a maximum of 10 % mechanical pulp-based papers.	0,5	1
2.10.00	bleached woodfree board with plastic layer	Unprinted bleached woodfree board with - plastic layer from board manufacturers and converters.	0,25	1
2.11.00	other board with plastic layer	Other printed or unprinted board with plastic layer. May contain unbleached board and paper from board manufacturers and converters.	0,25	1
2.12.00	mechanical pulp-based computer print-out	Mechanical pulp-based continuous computer printout, may include recycled fibres.	0,50	1
2.13.00	multigrade	A blend of coloured and white letters, coloured woodfree magazines and other woodfree papers and shavings. Free from newsprint but 10 % of other wood containing papers are permitted. May contain 2 % paper with plastic layer.	0,5	1
2.14.00	coloured log end tissue	Unused coloured tissue including soft cores. May contain printed material.	0,25	1
2.14.01	white log end tissue	Unused white tissue including soft cores. May contain printed material.	0,25	1

6.3 Group 3, high grades

Code	Title	Description	Non-paper components in %	Total unwanted material in %
3.01.00	mixed lightly coloured printer shavings	Mixed shavings of printing and writing papers, lightly coloured in the mass, containing a minimum of 50 % of woodfree paper.	0,5	1
3.02.00	mixed lightly coloured woodfree printer shavings	Mixed shavings of printing and writing papers, lightly coloured in the mass, containing a minimum of 90 % of woodfree paper.	0,5	1
3.03.00	woodfree binders	White woodfree lightly printed shavings with glue, free from paper coloured in the mass. May contain 2 % paper with plastic layer and a maximum of 10 % of mechanical pulp-based paper.	0,5	1
3.03.01	special woodfree binders	White woodfree lightly printed shavings with glue, free from paper coloured in the mass. Plastic layered and mechanical pulp-based papers not permitted.	0,5	1
3.04.00	tear white shavings	White woodfree lightly printed shavings without glue, free from wet-strength paper and paper coloured in the mass.	0,5	1
3.05.00	white woodfree letters	Sorted uncoated white woodfree printing and writing papers, printed, free from cash books, carbon paper and non-water soluble adhesives. May contain 5 % mechanical pulp-based paper.	0,5	1
3.05.01	white woodfree letters unprinted	Sorted uncoated white woodfree printing and writing papers, unprinted, free from carbon paper, NCR and non-water soluble adhesives.	0,5	1
3.06.00	white business forms	White woodfree business forms free from NCR and glue.	0,5	1
3.08.00	printed bleached sulphate board	Heavily printed sheets of bleached sulphate board, without glue, polycoated or waxed materials.	0,5	1
3.09.00	lightly printed bleached sulphate board	Lightly printed sheets of bleached sulphate board, without glue, plastic layers and waxed materials.	0,5	1
3.10.00	multi printing	Printed woodfree coated papers in sheets or trim, free from wet-strength paper and from paper coloured in the mass.	0,5	1

3.10.01	medium printed multi printing	Medium and heavily printed woodfree coated papers in sheets or trim, free from wet-strength paper and from paper coloured in the mass.	0,5	1
3.11.00	white heavily printed multiply board	New cuttings of heavily printed white multiply board, containing woodfree or wood containing plies, but without grey plies.	0,25	0,5
3.11.01	mixed white heavily printed multiply board	New cuttings of heavily printed white multiply board, containing woodfree or wood containing plies, with a maximum of 20 % grey and brown plies.	0,25	0,5
3.12.00	white lightly printed multiply board	New cuttings of lightly printed white multiply board, containing woodfree or mechanical pulp-based plies, but without grey plies.	0,25	0,5
3.13.00	white unprinted multiply board	New cuttings of unprinted white multiply board, containing woodfree or mechanical pulp-based plies, but without grey plies.	0,25	0,5
3.14.00	white newsprint	Shavings and sheets of white unprinted newsprint, free from magazine paper and glue.	0,25	0,5
3.15.00	white mechanical pulp-based paper	Shavings and sheets of white unprinted coated and uncoated mechanical pulp-based paper without glue.	0,25	0,5
3.15.01	white coated mechanical pulp-based paper	Shavings and sheets of white unprinted mechanical pulp-based coated paper without glue.	0,25	0,5
3.16.00	white coated woodfree paper	Shavings and sheets of white unprinted woodfree coated paper without glue.	0,25	0,5
3.16.01	white woodfree papers	Shavings and sheets of white unprinted woodfree coated and uncoated papers without glue.	0,25	0,5
3.17.00	white shavings	Shavings and sheets of white unprinted paper, free from newsprint containing a minimum of 60 % of woodfree paper. No glue permitted.	0,25	0,5
3.18.00	white woodfree shavings	Shavings and sheets of white unprinted woodfree paper, may contain a maximum of 5 % of coated paper. Without glue.	0,25	0,5
3.18.01	white woodfree uncoated shavings	Shavings and sheets of white unprinted woodfree paper, free from coated paper. Without glue.	0,25	0,5
3.18.02	white envelope cuttings	Shavings and sheets of white unprinted woodfree paper, free from coated paper. May contain some glue.	0,25	0,5

3.19.00	unprinted bleached sulphate board	Unprinted sheets of bleached sulphate board, without glue, polycoated or waxed materials.	0,25	0,5
3.20.00	unprinted tissue coloured in the mass	Unused unprinted tissue coloured in the mass free of packaging materials.	0,25	1
3.20.01	white unprinted tissue	Unused white unprinted tissue free from packaging materials.	0,25	1

6.4 Group 4, kraft grades

Code	Title	Description	Non-paper components in %	Total un-wanted material in %
4.01.00	unused board and shavings of corrugated material	Unused boxes, sheets and shavings of corrugated board, with liners of kraft and/or testliner.	0,25	0,5
4.01.01	unused corrugated kraft	Unused boxes, sheets and shavings of corrugated board, with kraft liners only, the fluting made from chemical or chemo thermo mechanical pulp.	0,25	0,5
4.02.00	used corrugated kraft 1	Used boxes of corrugated board, with kraft liners only, the fluting made from chemo thermo mechanical pulp.	1	2,5
4.03.00	used corrugated kraft 2	Used boxes of corrugated board, with liners of kraft or testliners but having at least one liner made of kraft.	1	2,5
4.04.00	used kraft sacks	Clean used kraft sacks. May be printed or unprinted or may be wet strength or non wet-strength.	1	2
4.05.00	unused kraft sacks	Unused kraft sacks. May be printed or unprinted and may be wet strength and non wet-strength.	0,5	1
4.06.00	used kraft	Used kraft paper and board of a natural or white shade. May be printed or unprinted.	0,5	1
4.07.00	new kraft	Shavings and other new kraft paper and board of a natural shade.	0,5	1
4.08.00	new carrier kraft	New carrier kraft, may include wet-strength paper. May be printed or unprinted.	0,5	1

6.5 Group 5, special grades

The grades of paper and board for recycling in this group can only be recycled by using specific processes, or can cause some particular constraints to recycling in most cases. Their inclusion in the list is justified by the existence of a significant European market. Actual recycling of the qualities can only be done by a limited number of mills located in a few countries only.

Code	Title	Description	Non-paper components in %	Total unwanted material in %
5.01.00	mixed papers	A mixture of various paper grades, unsorted.	1,5	3
5.02.00	mixed packaging	A mixture of various qualities of used paper and board packaging free from graphic papers.	1,5	3
5.03.00	used liquid packaging board	Used liquid packaging board with plastic layer (with or without aluminium content), containing a minimum of 50 % by weight of fibres.	3	3
5.03.01	unused liquid packaging board	Printed or unprinted shavings or sheets and trim of liquid packaging board (with or without aluminium and/or plastic layer), containing a minimum of 50 % by weight of fibres.	0,5	1
5.04.00	wrapper kraft	Used Kraft paper with a plastic layer. Must not contain wax coatings.	1	2
5.05.00	wet labels	Used wet labels from wet-strength papers, containing a maximum of 1 % glass content, and a maximum of 50 % moisture, without other unusable materials.	1,5	2,5
5.05.01	dry labels	Labels made from wet-strength papers.	0,5	1
5.05.02	labels with base layer	Material for Recycling from production of label paper, release paper and labelstock and from converting and dispensing of labels.	0,5	1
5.05.03	paper release liner for self-adhesive labels	Release liner materials from the converting and dispensing of self-adhesive labels. Materials shall be free from labels and cores and other contaminants like tapes and trash.	0,5	1
5.06.00	unprinted white wet-strength woodfree papers	Unprinted white wet-strength woodfree papers.	0,5	1

5.06.01	unprinted white and coloured wet-strength papers	Unprinted white and coloured in the mass wet-strength papers.	0,5	1
5.07.00	printed white wet-strength woodfree papers	Printed white wet-strength woodfree papers	0,5	1
5.07.01	printed white and coloured wet-strength woodfree papers	Printed white and coloured in the mass wet-strength woodfree papers	0,5	1
5.08.00	cores	Shredded, hogged or unshredded solid cores from paper reels without metal ends.	1	2
5.09.00	carbonless copy paper (NCR)	Sheets or shavings of new carbonless copy paper (NCR).	0,25	1
5.10.00	printed white envelope	White envelopes, printed on the inside with or without soluble or latex glue and windows (plastic or glassine).	0,5	1
5.10.01	mixed envelopes	Mixed white or coloured in mass envelopes with or without soluble or latex glue and windows (plastic or glassine).	0,5	1
5.11.00	blister pack	Packaging board with plastic display panels. May be board with plastic layers and inserts.	1	2
5.12.00	used kraft sacks with plastic layer papers	Clean used kraft sacks. May be printed or unprinted or may be wet strength or non wet-strength. May include plastic layer papers.	1	2
5.12.01	used kraft sacks with plastic layer papers	Clean used kraft sacks with plastic layer. May be printed or unprinted and may contain wet-strength or non wet-strength plies.	0,5	1
5.13.00	unused kraft sacks with plastic layer papers	Unused kraft sacks. May be printed or unprinted and may be wet-strength or non wet-strength, and may also include papers with a plastic layer .	0,5	1
5.13.01	unused kraft sacks with plastic layer papers and poly liners	Unused kraft sacks with plastic layerpoly liners. May be printed or unprinted and may contain wet-strength or non- wet-strength plies.	0,5	1
5.14.00	Used paper cups and other used tableware	Used paper cups and other tableware, including used plastic layered paper cups and tableware, containing a minimum of 75% by weight of fibres.	1,5	2,5
5.14.01	Unused paper cups and other tableware	Printed or unprinted shavings or sheets and trims from the production of paper cups and other tableware, including plastic layered paper cups and tableware, containing a minimum of 75% by weight of fibres.	0,5	1

Bibliography

- [1] Recovered Paper Quality Control Guidelines
- [2] Guidelines for Responsible Sourcing and Supply of Recovered Paper