

Questionnaire - JRC workshop on recycled content in batteries (27 November 2024)

Fields marked with * are mandatory.

JRC questionnaire on recycled content in batteries (27 November 2024 stakeholder meeting)

Background of the JRC study

Article 8 of Regulation (EU) 2023/1542 (henceforth: Batteries Regulation) sets recycled content targets for industrial batteries, electric vehicle batteries, LMT batteries and SLI batteries that contain cobalt, lead, lithium or nickel in active materials.

Those provisions apply to battery manufacturers or entities placing the battery on the market. Conformity assessment of the recycled content in batteries shall be carried out with procedures that involve third-party verification and surveillance by notified bodies, as per Article 17 of the Regulation.

By 18 August 2026, the Commission shall adopt a delegated act establishing a methodology for the calculation and verification of the percentage share of cobalt, lithium, nickel and lead.

The Joint Research Centre (JRC) of the European Commission is executing a study to support the development of the aforementioned methodology. The main objective is the development of harmonised rules applicable to the different battery models and chemistries.

The calculation and verification rules will allow battery manufacturers and entities placing batteries on the market to:

- i) calculate the amount of cobalt, lithium or nickel (recovered from battery manufacturing waste or post-consumer waste) in active materials, and the amount of lead (recovered from waste) in the battery; and
- ii) demonstrate that the batteries placed on the market meet the recycled content targets, as defined in the Batteries Regulation to enable verification. The verification rules will also allow market surveillance authorities to verify the attainment of the recycled content targets.

To this end, the JRC is organising a stakeholder workshop on 27 November 2024 with experts from Member States, industry and non-governmental organisations (NGOs).

This questionnaire aims to provide workshop participants the opportunity to complement their oral feedback with written answers on topics discussed at the stakeholder workshop.

Introduction to the questionnaire

The deadline for completing the questionnaire is **8 January 2025**. Please complete the questionnaire by providing relevant data wherever your organisation can contribute, and feel free to leave other questions unanswered. We deeply appreciate the efforts of your organisation in sharing valuable information with the JRC. Your collaboration contributes significantly to our collective pursuit of knowledge and informed decision-making.

The questionnaire has been divided into distinct parts, encompassing (a) guiding principles and elements, (b) traceability, (c) calculation, (d) verification and (e) key takeaways from the JRC report. This structured approach ensures a comprehensive examination of the relevant topics covered during the stakeholder workshop.

Please be aware that the JRC has limited resources to process feedback. As a result, priority will be given to consolidated feedback from Member States, NGOs, and industry organisations with an international scope. Therefore, we kindly ask (i) Member States and pan-European organisations to gather and integrate information from their subsidiary organisations into a single, consolidated response, and (ii) smaller organisations operating primarily at a national level to share their input with Member States or relevant industry umbrella organisations. We greatly appreciate your cooperation with these guidelines to ensure that all stakeholders' input can be considered.

Member States, NGOs and industry organisations are requested to submit a single, consolidated reply.

The JRC aspires to utilise data for publicly available reports. However, we acknowledge that certain data may be confidential and unsuitable for sharing. In such instances, we kindly request that you notify the JRC, and we will diligently ensure that the data are either aggregated, anonymised, or excluded from publication in the reports.

Further information on how to save and edit the questionnaire are given at the bottom of this page.

Information on your organisation

- * We kindly request the submission of one consolidated reply per organisation.

Organisation name

- * Name and surname of the organisation representative

- * Email of the organisation representative

* Geographical scope of your organisation

At most 1 choice

- | | | | |
|-------------------------------------|------------------------------------|--|--|
| <input type="radio"/> AT - Austria | <input type="radio"/> FI - Finland | <input type="radio"/> LT - Lithuania | <input type="radio"/> SI - Slovenia |
| <input type="radio"/> BE - Belgium | <input type="radio"/> FR - France | <input type="radio"/> LU - Luxembourg | <input type="radio"/> ES - Spain |
| <input type="radio"/> BG - Bulgaria | <input type="radio"/> DE - Germany | <input type="radio"/> MT - Malta | <input type="radio"/> SE - Sweden |
| <input type="radio"/> HR - Croatia | <input type="radio"/> EL - Greece | <input type="radio"/> NL - Netherlands | <input type="radio"/> ALL - ALL (Pan-European) |
| <input type="radio"/> CY - Cyprus | <input type="radio"/> HU - Hungary | <input type="radio"/> PL - Poland | <input type="radio"/> OTHER - - please specify below |
| <input type="radio"/> CZ - Czechia | <input type="radio"/> IE - Ireland | <input type="radio"/> PT - Portugal | |
| <input type="radio"/> DK - Denmark | <input type="radio"/> IT - Italy | <input type="radio"/> RO - Romania | |
| <input type="radio"/> EE - Estonia | <input type="radio"/> LV - Latvia | <input type="radio"/> SK - Slovak Republic | |

Other:

* Type of organisation

Maximum 2 selection(s)

- ☐ Industry organisation - battery (cell) manufacturer
- ☐ Industry organisation - recycler or metal refiner
- ☐ Industry organisation - other battery precursor
- ☐ EU/EEA Member State
- ☐ Non-governmental organisation
- ☐ Other, please specify below:

Other:

* I consent that any responses and information provided in this questionnaire may be used for the development of the JRC reports.

Maximum 1 selection(s)

- ☐ Yes
- ☐ No
- ☐ Yes, but only on condition that any information provided is anonymised, and that the data provided cannot be associated or linked to my organisation

* The stakeholder consultation will feed the final report. Please indicate if you would like your organisation to be acknowledged in the final report.

- ☐ Yes
- ☐ No

* I agree to be contacted by the JRC to further expand on the answers provided.

If deemed suitable for the further development of the project, the JRC may want to follow up with a limited number of stakeholders. In such case, the JRC will contact your organisation via email to schedule a telephone or videocall.

- ☐ Yes
- ☐ No

Part A: Guiding principles and elements (section 4.1 of the JRC background document)

Background

The JRC has established a set of guiding principles and elements that provide a non-technical foundation for developing technical JRC recommendations on traceability, calculation, and verification. These principles are explained in layman's terms to ensure transparency and to assist experts attending the workshop in understanding the rationale behind the technical JRC's recommendations. The guiding principles, detailed in Section 4.1 of the background document, are: i) coherence; ii) clarity, accuracy and verifiability; iii) simplicity; iv) flexibility; v) continuity with existing standards and certification schemes.

While trade-offs may occur among these principles (e.g. clarity vs. simplicity), the JRC aims to find a suitable balance in their recommendations.

Q A1: Are the guiding principles comprehensive and clear enough to effectively guide the JRC in developing technical recommendations on traceability, calculation, and verification? Do they address all relevant issues, or do they miss any critical points that the JRC should consider?

Answer A1:

Additional comments and suggestions in relation to the guiding principles and elements as presented in the JRC background document:

Part B: Traceability (section 4.2.2 of the JRC background document)

Background

The JRC recommendations for traceability are subdivided into two points: i) chain of custody, including the minimum requirements on documentation of input and output materials, applicable chain of custody models and the related requirements; and ii) traceability requirements. These measures should provide guidance on the application of chain of custody models to trace recycled content throughout the battery value chain as well as on approaches to share data and information with other supply chain actors.

Q B1: The JRC has presented three options for traceability (option 1a, 1b and 2, as outlined in section 4.2.2 of the background document). Do you agree with the rationale provided by the JRC for each of these options? Do you agree that options 1a and 1b might not support certain industrial production techniques and practices, since the recycled content in the output of a production process cannot always be determined? What is in your view the most suitable option for traceability? Please justify your selection of the preferred option with techno-scientific arguments.

Q B2: Are the proposed chain of custody models appropriate to ensure integrity and accuracy of recycled content calculations for battery manufacturers?

If the answer to this question is “no”, please explain why the proposed chain of custody models are not appropriate and provide alternative suggestions for the JRC to consider in their evaluation.

Q B3: According to the principle “keep it simple”, the JRC aimed at recommending requirements that are applicable to all supply chain actors. Segregation can be used only if no mixing of recycled and virgin materials occurs, hence only by the recycler. Nonetheless, this model ensures a very high level of physical traceability of recycled content and is therefore retained as a possible chain of custody model. Is this recommendation appropriate? Does it reflect current practices? Are the requirements for segregation under point 1.3 (I) appropriate and comprehensive?

If the answer to any of these subquestions is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q B4: Is the recommendation to apply controlled blending when the proportion of recycled material is known appropriate? Does it reflect current practices for the different supply chain actors? Are the requirements for controlled blending under point 1.3 (II) appropriate and comprehensive?

If the answer to any of these subquestions is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q B5: Do you agree with the recommendation to apply mass balance with rolling average percentage implementation as an alternative chain of custody model? Does it reflect current practices? Are the requirements for mass balance under point 1.3 (III) appropriate and comprehensive?

If the answer to any of these subquestions is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q B6: Are the traceability requirements on start/end point of traceability, the minimum information to be passed on to the next supply chain actor and the approach to be used (point 2) appropriate to ensure a good level of transparency throughout the supply chain?

If the answer to this question is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q B7: Are there any missing elements that need to be defined in the JRC recommendations in relation to traceability? Should any of the given requirements be recommended in a more clear or specific manner? Please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation. Note that any suggestions have to be aligned to (your comments and suggestions on) the parts C and D on calculations and verification, respectively.

Answer B1:

Answer B2:

Answer B3:

Answer B4:

Answer B5:

Answer B6:

Answer B7:

Additional comments and suggestions in relation to traceability of recycled content in batteries:

Part C: Calculation (section 4.2.3 of the JRC background document)

Background

The JRC recommendations for calculations are built in one block (grey box in the background document) but consist of two main formulae: (1) calculation of recycled content (ReCo) at any step of the battery supply chain and (3) calculation of the losses between input and output of a single step. Formula (2) is an algebraically revised version of formula (1) to calculate the mass of recycled material (X) when its total mass and the ReCo(X) are known. These recommendations should provide guidance on the calculations for the recycled content in batteries based on data to be collected along the battery supply chain (see recommendations on verification in section 4.2.4 of the JRC background document).

Q C1: Are the recommended calculations for recycled content appropriate and clear for the different supply chain actors? Can they be executed based on the available data, as well considering documentation collection requirements as specified for verification (see section 4.2.4. of the JRC background document)? If the answer to this question is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q C2: The JRC recommendations state that to determine the total mass of a material in active materials (or precursors thereof, for nickel, cobalt, lithium) or in battery compounds (or precursors thereof, for lead), the chemical formula of these materials must be known. This process appears straightforward for cells with a single chemistry. However, is the guidance clear when considering batteries with multiple chemistries at the same electrodes? In such cases, is the proportion of different chemistries always known and defined for each battery design? Would you anticipate any particular challenge if batteries have multiple chemistries at the same electrodes? [Note: this question does not refer to batteries made up of cells with different chemistries, where calculations are done for each cell, but rather to multi-chemistry cells, if they exist].

Q C3: Is the definition of a 'conversion factor' in formula (3) clear and suitable for defining production process losses? Can a single conversion factor be established that accurately represents the production process over a specific (accounting) period? If not, please explain your reasoning and provide suggestions for alternative definitions of the conversion factor for your process.

Answer C1:

Answer C2:

Answer C3:

Additional comments and suggestions in relation to calculations of recycled content in batteries:

Part D: Verification (section 4.2.4 of the JRC background document)

Background

The JRC recommendations for verification are subdivided into three different points: (i) the need for battery manufacturers to establish a traceability system, (ii) documentation to be collected by battery manufacturers and other supply chain actors, and (iii) specific responsibilities for the notified bodies. Collectively, these measures should ensure that notified bodies can verify the recycled content calculations made by battery manufacturers.

Q D1: Are the minimum requirements for the traceability system that battery manufacturers must implement (point 1 b) appropriate to ensure connectivity and information transfer among supply chain operators? Is there enough flexibility for battery manufacturers to choose an appropriate traceability model (as outlined in section 3.2.1 of the background document)? Are the responsibilities of supply chain operators clearly defined to ensure that battery manufacturers can enforce them effectively?

If the answer to any of these subquestions is "no", please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q D2: Is the documentation that needs to be collected by the battery manufacturer limited to a minimum whilst being appropriate to comply with the requirements on traceability and calculation (according to the JRC recommendations of section 4.2.3 and 4.2.3)?

If the answer to this question is "no", please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q D3: Is the documentation that needs to be collected by the other supply chain operators limited to a minimum whilst being appropriate? They must permit the battery manufacturer to perform calculations that

are correct, reliable, appropriate, and of acceptable accuracy.

If the answer to this question is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q D4: Are the responsibilities of the notified body sufficiently clearly defined? Will their verification process ensure that documented recycled content shares in batteries are correct, reliable, appropriate, of acceptable accuracy? Are notified bodies being given the necessary tools (information, data, assessment visits) to perform their assessment?

If the answer to any of these subquestions is “no”, please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation.

Q D5: Are there other missing elements that need to be defined in the JRC recommendations in relation to verification? Should any of the given requirements be recommended in a more clear or specific manner? Please explain why the current formulation is inadequate and provide alternative suggestions for the JRC to consider in their evaluation. Note that any suggestions have to be aligned to (your comments and suggestions on) the parts B and C on traceability and calculations, respectively.

Answer D1:

Answer D2:

Answer D3:

Answer D4:

Answer D5:

Additional comments and suggestions in relation to the verification of recycled content in batteries:

Part E: Other main findings from the JRC background document

Background

The JRC background document, along with Annexes I and II, offers technical background information on value chains, traceability and chain of custody models, as well as existing standards and certification

schemes. Section 3 of the document summarises the main findings, which have been instrumental in formulating the JRC proposals outlined in section 4.

Q E1: Are the main findings and other information mentioned in section 3 accurate and complete? Does any information need to be updated or supplemented with additional findings that are relevant for the JRC when designing their final recommendations on traceability, calculation, and verification?

Answer E1:

Additional supporting information in relation to Parts A-E (e.g. techno-scientific studies, data)
Uploads are limited to 1 MB due to system requirements. Please send any larger attachments directly to JRC-BATT-RECYCLED-CONTENT-RULES@ec.europa.eu

General comments and additional issues not covered in the questionnaire for consideration by the JRC:

Further instruction on saving and editing the survey

Respondents have the possibility to save the contact form as draft and edit it at a later moment. When saving the contributions as draft, a link will be automatically generated. You will have two options:

- i) send this link by E-mail
- ii) copy to clipboard

We would strongly recommend option i) to make sure you do not lose the link. You can also save a PDF copy of the draft.

Kindly note that after submitting a survey, any subsequent edits can only be made using the **Contribution ID**. Therefore, it is necessary to either document this identification number or request a PDF containing the same ID via email (using the 'Get PDF' options available on the confirmation screen).

With this contribution ID, you will have the ability to make edits to your submission on the following webpage: <https://ec.europa.eu/eusurvey/home/editcontribution>
(note: not before a minimum of 5 minutes has elapsed since the initial submission).

JRC contact details

For any further questions in relation to this questionnaire, please contact the JRC at **JRC-BATT-RECYCLED-CONTENT-RULES@ec.europa.eu**

Privacy statement

When using EU Survey for creating and managing surveys, the Commission collects and further processes personal data pursuant to Regulation (EU) N° 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data. For more information, please consult <https://ec.europa.eu/eusurvey/home/privacystatement>