



Welcome to the Kick-Off Workshop for “Developing EU-wide End-of-Waste criteria for mineral construction and demolition waste (CDW)”




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We start at 9:30 sharp!

**Please log in, stating your
affiliation and your name.**

Example: "ORGANISATION - Name"

Agenda

Stakeholder workshop 26 September 2024 CDW End-of-Waste	
09:15 – 09:30	Opening of the meeting room and time allocated to log-in
09:30 – 09:35	Opening session (5 min presentation)
09:35 – 09:55	Session 1: Introduction (10 min presentation, 10 min Q&A)
09:55 – 10:15	Session 2: Definitions used as reference (10 min presentation, 10 min Q&A)
10:15 – 10:50	Session 3: Conditions for EoW (20 min presentation, 15 min Q&A)
10:50 – 11:05	Coffee break 
11:05 – 12:00	Session 4: Development of EU-wide End-of-Waste criteria for mineral CDW (25 min presentation, 30 min Q&A)
12:00 – 12:20	Session 5: Written stakeholder consultation (10 min presentation, 10 min Q&A)
12:20 – 12:30	Closing session (10 min Q&A)



Please **mute** your microphone and **switch off** your video.



Developing EU-wide End-of-Waste criteria for mineral construction and demolition waste (CDW)

First stakeholder workshop (Kick-off Meeting)

Lukas Egle, Leonidas Milios, Hans Saveyn (JRC)

Florian Flachenecker (DG ENV), Philippe Moseley (DG GROW)

26 September 2024

Joint
Research
Centre

Opening session

Housekeeping rules



- By default, please **mute** your microphone and **switch off** your video.



- Please write your questions and comments (relevant for each session) in the **chat-box**.
 - When given the floor, you can switch on your microphone and camera.
 - Please clearly state your name and affiliation the first time you are given the floor.
 - Please mute yourself (and switch off your camera again) after your intervention.



- Please note that the (Webex) meeting **will be recorded** to help prepare the **internal** meeting minutes, but **will not** be livestreamed or made publicly available for replay.



- **Slide-deck** will be shared after the meeting.

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Project team

JRC-Seville - Unit B5 (Circular Economy and Sustainable Industry)



Hans Saveyn



Lukas Egle



Leonidas Milios

ENV B3 (Circular Economy – From Waste to Resources) and GROW H1 (Construction)



Florian Flachenecker



Philippe Moseley

Session 1

Introduction

EU regulatory framework on CDW

- **Waste Framework Directive¹**
 - Promote selective demolition in order to enable removal and safe handling of hazardous substances and facilitate re-use and high-quality recycling.
 - Minimum 70 % (by weight) of non-hazardous CDW, excluding naturally occurring material, need to be prepared for re-use, recycling and other material recovery by 2020.
 - The Commission shall consider the setting of preparing for re-use and recycling targets for CDW and its material-specific fractions by 31 December 2024.
- **Landfill Directive²**
 - In 2030 all waste suitable for recycling or other recovery, in particular in municipal waste, shall not be accepted in a landfill with the exception of waste for which landfilling delivers the best environmental outcome.
- **Basel Convention³ and Waste Shipment Regulation⁴**
- **Legislation on hazardous classification of waste⁵ (CLP see slide 32)**
- **REACH⁶ (see slide 32)**
- **Best Available Techniques (BAT) Reference Document (BREF)⁷**

¹ Waste Framework Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0098-201807057>

² Landfill Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0031>

³ Basel Convention (<https://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx>)

⁴ Shipments of Waste: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1157>

⁵ Technical guidance on the classification of waste: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018XC0409%2801%29>; Classification, labelling and packaging of substances and mixtures (CLP) <https://eur-lex.europa.eu/eli/reg/2008/1272/oj>

⁶ REACH: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02006R1907-20221217>

⁷ BREF Document for the Production of Cement, Lime and Magnesium Oxide: https://eippcb.jrc.ec.europa.eu/sites/default/files/2019-11/CLM_Published_def_0.pdf

EU regulatory framework on EoW

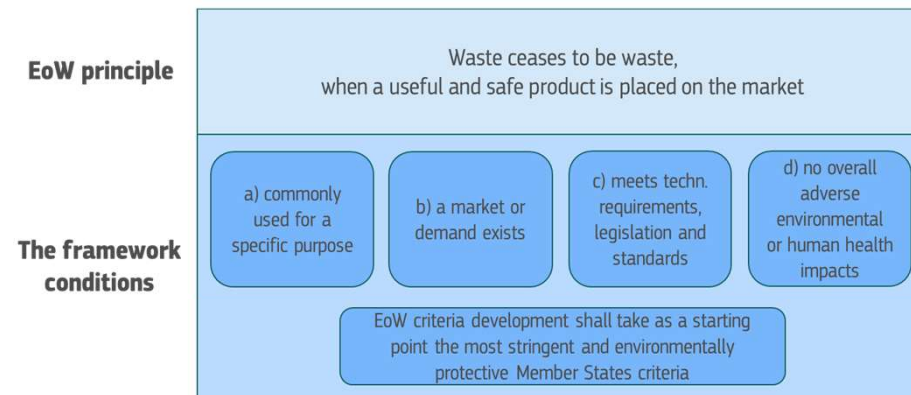
Waste Framework Directive (EC No 2008/98)

Article 6(1):

“[...] waste which has undergone a recycling or other recovery operation is considered to have ceased to be waste if it complies with the following conditions:

- a) the substance or object is to be used for **specific purposes**;*
- b) a **market or demand** exists for such a substance or object;*
- c) the substance or object fulfils the **technical requirements** for the specific purposes and meets the **existing legislation and standards** applicable to products; and*
- d) the use of the substance or object will not lead to overall adverse **environmental or human health impacts**”.*

“When adopting those implementing acts, the Commission shall take account of the relevant criteria established by Member States in accordance with paragraph 3 and shall take as a starting point the most stringent and environmentally protective of those criteria”.



Note Article 6(4) : The national EoW criteria are used as a reference and not the case-by-case decisions. Case-by-case decisions are not required to be notified to the Commission in accordance with Directive (EU) 2015/1535¹.

EU regulatory framework on EoW Waste Framework Directive (EC No 2008/98)

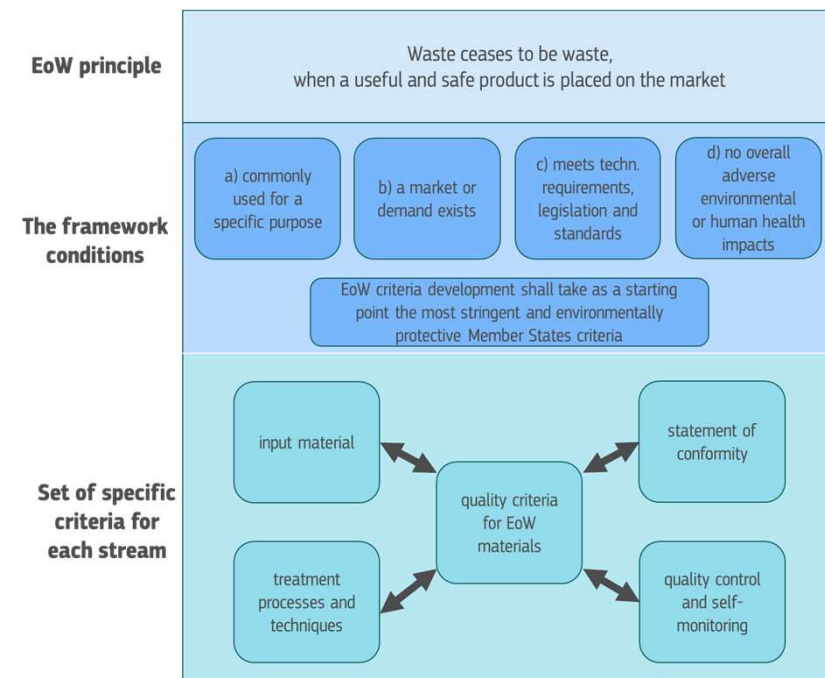
Article 6(2):

[...] the Commission shall adopt implementing acts in order to establish detailed criteria [...]

Those detailed criteria [...] shall include:

- a) permissible waste input material for the recovery operation;*
- b) allowed treatment processes and techniques;*
- c) quality criteria for end-of-waste materials resulting from the recovery operation in line with the applicable product standards, including limit values for pollutants where necessary;*
- d) requirements for management systems to demonstrate compliance with the end-of-waste criteria, including for **quality control and self-monitoring**, and accreditation, where appropriate; and*
- e) a requirement for a **statement of conformity**.”*

EoW methodology developed by the JRC in 2009¹, providing a comprehensive approach for the development of end-of-waste criteria.



11 ¹ Delgado, L., Catarino, A. S., Eder, P., Litten, D., Luo, Z., & Villanueva, A. (2009). End of waste criteria, final report. In JRC Scientific and Technical Reports (Vol. 14, Issue 3). <https://doi.org/10.2791/28650>

EoW criteria transposed into legislation

- EoW criteria have been **successfully laid down** for:
 - iron, steel and aluminium scrap (EC No 333/2011)
 - glass cullet (EU No 1179/2012)
 - copper scrap (EU No 715/2013)
 - various component material categories (CMC) in the Fertilising Products Regulation (EU) No 2019/1009

CMC 3 (Compost) and CMC 5 (Digestate other than fresh crop digestate) (EU No 2019/1009); CMC 12 (Precipitated phosphate salts and derivatives) (EU No 2021/2086); CMC 13 (Thermal oxidation materials and derivatives) (EU No 2021/2087); CMC 14 (Pyrolysis and gasification materials) (EU No 2021/2088); CMC 15 (Recovered high purity materials) (EU No 2022/1171).

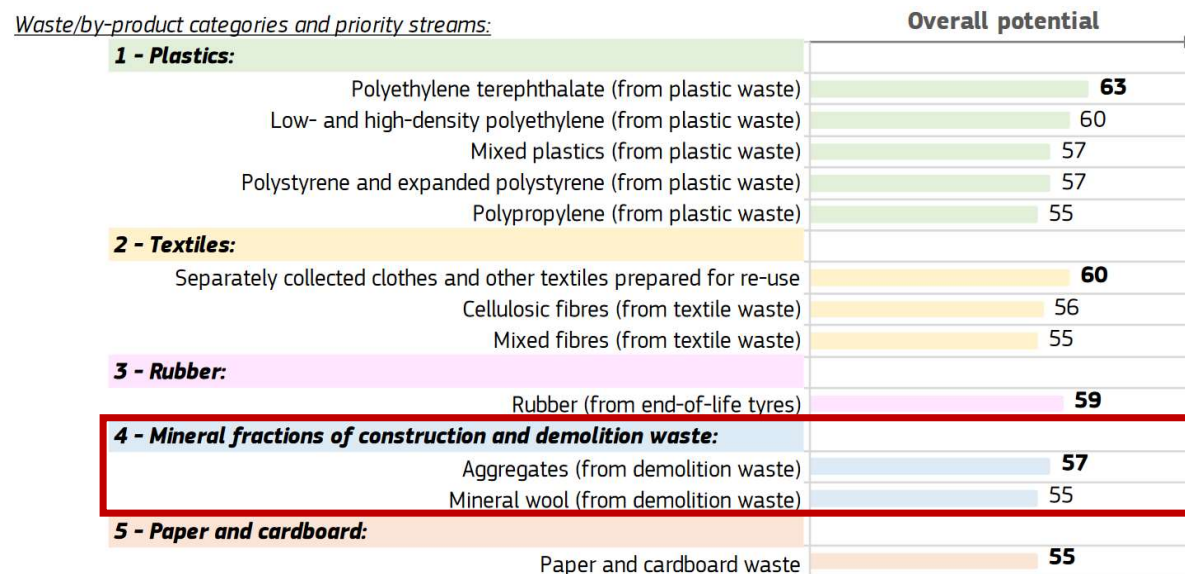
- Currently technical proposals for EoW criteria for **plastic waste** and **textile waste** are under development by the JRC.

Protocols and Guidelines

- **EU Construction and Demolition Waste Management Protocol including guidelines for pre-demolition and pre-renovation audits of construction works (updated 2024)¹**
 - This protocol aims to enhance confidence in CDW management processes and increase trust in re-used products and recycled materials. It covers the full CDW management process, providing guidance on:
 - Waste identification through pre-demolition and pre-renovation audits
 - Selective Demolition
 - Waste logistics
 - Waste processing and treatment
 - Quality management
 - Policy framework
 - It emphasises shared responsibility, from identifying re-use opportunities to ensuring quality recycled materials, to facilitate circularity in construction and demolition activities across the EU.
 - The guidelines provide guidance on best practices for the assessment of CDW streams prior to demolition or renovation of buildings and infrastructures.
 - The aim of the guidance is to facilitate and maximise recovery of materials and components from demolition or renovation of buildings and infrastructures for beneficial re-use and recycling.

Scoping exercise – priority streams

- Further to the commitment by the Commission to assess the scope to develop EU-wide EoW criteria for certain waste streams, the Commission carried out a **scoping exercise**¹ to **identify candidate streams** for the development of EU-wide EoW or by-product criteria.
- **CDW** selected as **forth priority stream** for the development of **EoW criteria**.



¹ Orveillon, G., Pierri, E., Egle, L., Gerbendahl, A., Wessman, P., Garcia John, E., & Saveyn, H. G. M. (2022). Scoping possible further EU-wide end-of-waste and by-product criteria (Issue arch). <https://doi.org/10.2760/067213>

Background data collection for future EU EoW criteria of CDW

- Apart from the JRC scoping study, DG GROW launched in 2023 a study to collect background data for the future development of EoW criteria for ten different CDW streams¹.
- **Final ranking of the CDW stream:**

Rank	CDW waste stream
Third tertile	Aggregates
	Concrete
	Fired Clay
	Gypsum*
Second tertile	Asphalt
	Inert insulation
	Plastics foam insulation
	Rigid plastic
	Wood
First tertile	Building products for re-use

Higher potential

* the sensitivity analysis shows that the results for **gypsum** vary more compared to the other streams

Average potential

Lower potential

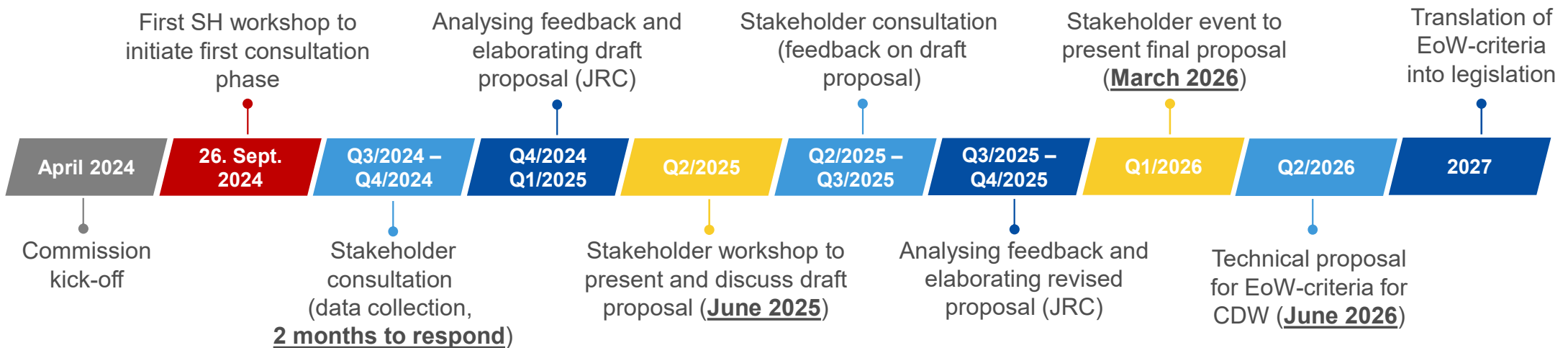
Objectives and scope of this project

- Objective: Develop technical proposals for **EU-wide EoW criteria for mineral construction and demolition waste**.
- Methodology: the development of technical proposals is **data driven** and supported by **stakeholder consultations**.
- Current ambition: Develop **one set of EoW criteria for mineral construction and demolition waste**

Objectives of this workshop

- Launch the project on the development of **EU-wide End-of-Waste criteria for mineral CDW**.
- Present **main definitions** and **background information**.
- Present and discuss the consolidated **scope** and **preliminary proposals**.
- Launch the written **stakeholder consultation** for data collection.
- Explain the format of the **EU-Survey** and **expected input** from stakeholders.

Tentative timeline



Q&A | Introduction



Session 2

Definitions used as reference

Definitions used as reference

- **Construction and demolition waste** (follows the EC No 2008/98 definition): means waste generated by construction and demolition activities.
- **Non-hazardous mineral construction and demolition waste**:

17	CONSTRUCTION AND DEMOLITION WASTE
17 01	concrete, bricks, tiles and ceramics
17 02	wood, glass and plastic
17 03	bituminous mixtures, coal tar and tarred products
17 04	metals (including their alloys)
17 05	soil (including excavated soil from contaminated sites), <u>stones</u> and dredging spoil
17 06	insulation materials and asbestos- containing construction material
17 08	gypsum-based construction material
17 09	other construction and demolition waste



Mineral construction and demolition waste

17 01 01 concrete
17 01 02 bricks
17 01 03 tiles and ceramics
17 01 07 mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 05 04 soil and stones other than those mentioned in 17 05 03

In Article 11(1) from the WFD the term 'mineral fraction' is used for the waste fractions concrete, bricks, tiles etc.

Definitions used as reference

Sources of CDW:

- CDW from **constructions works**, including **buildings** and **other civil engineering works**
- **Construction works** means buildings and civil engineering works that may be over or in the ground or in a water body, including but not limited to roads, bridges, tunnels, pylons and other facilities for transport of electricity, communication cables, pipelines, aqueducts, dams, airports, ports, waterways, and installations which are the basis for rails of railways

Definitions used as reference

- **Aggregate:** granular material used in construction. Aggregates may be natural, manufactured or recycled (definition from CEN/TC 154).
- Aggregates have different particle sizes (sand, gravel, rock) ranging from 0.063–90 mm.
- Depending on the input material and recycling technology applied, different coarse and fine aggregates are produced:
 - RBA: Recycled Brick/Ceramic Aggregates (predominantly ceramic type material)
 - RCA: Recycled Concrete Aggregates (mostly concrete, >80%)
 - RMA: Recycled Mixed Aggregates (composed of concrete and brick/ceramic)

Definitions used as reference

Bound application

- Structural concrete (e.g. ready-mix, precast)
- Non-structural concrete (levelling, infill)
- Roads and flooring
- Bituminous mixtures (hot, warm and cold)
Capping layers
- Masonry products
- Supplementary cementitious materials
- Filler for the manufacture of cement-based products

Unbound applications

- Engineering embankments
- Courses
 - Surface courses: wearing and binder courses for roads
 - Foundation courses: base course and sub-base course for roads, pedestrian paths and cycle paths
 - Subgrade courses
- Uncapped pavement or shoulder sublayers
- Backfilling

Q&A | Definition used as reference



Session 3

Conditions for End-of-Waste

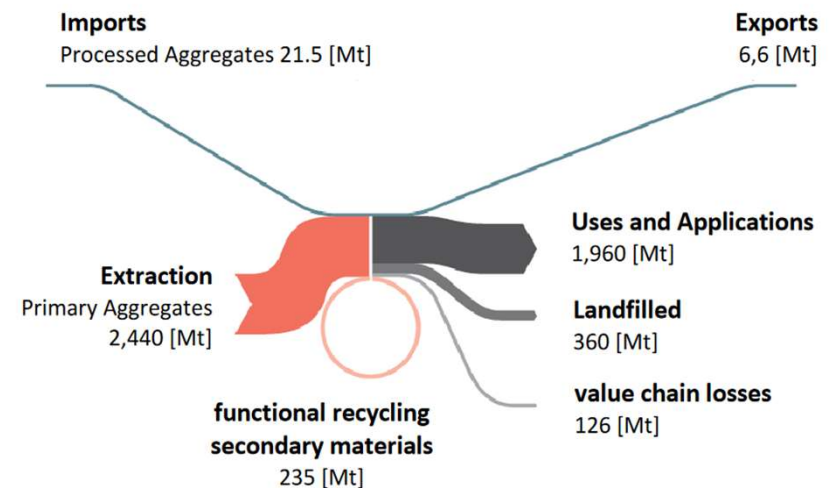


- a) the substance or object is to be used for **specific purposes**;*
- b) a **market or demand** exists for such a substance or object;*

Directive 2008/98/EC

Market, demand and common applications for recycled aggregates

- Concrete, bricks, ceramics and tiles have currently the highest recovery rates for CDW (average of 89 % for recycling and backfilling¹).
- From all aggregates produced in the EU-27 (2019), recycled and re-used aggregates account for 8–9 %².
- Even in an optimal recycling scenario, 85 % of the aggregates consumed will still need to be extracted from natural resources³.



¹Eurostat. (2023). *Waste generation by economic activities and households, 2020*. Source: env_wasgen. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics#Total_waste_generation

²UEPG. (2021). Annual review 2020-2021. European Aggregates Association

³NEFA. (2022). Plan estratégico del sector de los áridos – Áridos 2030. ISBN 978-84-125559-0-5

Market, demand and common applications for recycled aggregates

- Depending on the final output of the various recycling processes, there is a variety of potential recycled aggregates (e.g. RCA, RMA, RBA) that can be obtained for different uses according to quality requirements and specifications.
 - Recycled aggregate in unbound and bound application (see slide 24)
 - With or without mechanical stress
 - Contact with water: Permanent, intermediate, never



c) *the substance or object fulfils the **technical requirements** for the specific purposes and meets the existing **legislation and standards** applicable to products;*

Directive 2008/98/EC

Legislation applicable to products

- **Construction Products Regulation (CPR) (EU No 305/2011¹) (New regulation expected Nov. 2024)**
 - Improve the functioning of the single market and free movement of CP in the EU. CPR lays down uniform rules for the marketing of these products and providing a common technical language to assess the performance of construction products.
 - One key aspect is to set out methods and criteria for assessing and expressing the performance of construction products and the conditions for the use of CE marking.
 - Regarding sustainable design and production of construction products, the new product requirements will ensure that the design and manufacture of construction products is based on state-of-the-art to make these more durable, repairable, recyclable and easier to re-manufacture.
- **European Technical Assessment (ETA)²**
 - The ETA is an alternative for construction products not covered by a harmonised standard.
 - The procedure is established in the construction products regulation and offers a way for manufacturers to draw up the declaration of performance and affix the CE marking.
 - It contributes to the free movement of construction products and the creation of a strong single market.
- **CE Marking³**
 - CE marking is necessary for the marketing in the EU, as it states that the product complies with the applicable legislation.
 - it indicates that the product conforms to a harmonised standard (hEN) or a European Technical Assessment (ETA).

¹Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive (EEC) No 89/106

²European assessment documents and European technical assessments. Internal Market, Industry, Entrepreneurship and SMEs. European Commission. [https://single-market-](https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/european-assessment-documents-and-european-technical-assessments_en)

[economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/european-assessment-documents-and-european-technical-assessments_en](https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/european-assessment-documents-and-european-technical-assessments_en)

³CE marking. Internal Market, Industry, Entrepreneurship and SMEs. European Commission. Access on 4.6.2024. https://single-market-economy.ec.europa.eu/single-market/ce-marking_en

Legislation applicable to products

- **CLP Regulation (EC No 1272/2008¹)**
 - Has the purpose of ensuring a high level of protection of human health and the environment as well as the free movement of substances, mixtures and articles.
 - Applies also to placing on the market of recycled substances and mixtures.
 - Annex I sets out criteria for classification in hazard classes and in their differentiations and additional provisions on how the criteria may be met.
- **REACH Regulation (EC No 1907/2006²)**
 - lays down obligations for substances on their own, in mixtures and in articles
 - This includes registration obligations for manufacturers or importers of substances and substances in mixtures above 1 ton/year to gain access to the EU market (subject to exemptions).
 - Other relevant obligations include substances of very high concern (SVHC) listed in Annex XIV, for which an authorisation is needed to place them on the market for a use or to use them in the EU.
- **POP Regulation (EU No 2019/1021³)**
 - Aims at protecting human health and the environment from POPs with specific control measures.
 - Article 3 of the POPs Regulation prohibits the manufacturing, placing on the market and use of substances listed in Annexes I and II, whether on their own, in mixtures or in articles, unless covered by any of the exemptions in Article 4.

¹Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures

²Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

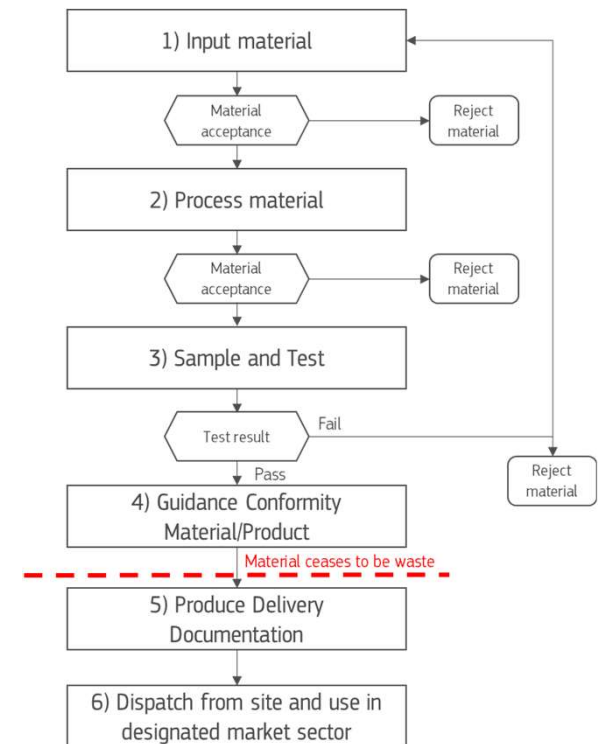
³Regulation (EU) 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Technical requirements and standards

Standard	Content
AT OENORM B 4710-1:2018, concrete standard	Existing standard has been adapted for the application of recycled aggregates in concrete formulations
CEN/TC 154 (SC1 to SC6 and WG 1 to WG13)	Aggregates. Standardization in the field of natural, recycled and manufactured aggregates, by specifying aggregate performance characteristics, sampling and methods of test.
EN 206 (1 to 9)	Concrete
EN 932 (1 to 6)	Tests for general properties of aggregates
EN 933 (1 to 9)	Tests for geometrical properties of aggregates
EN 1097 (1 to 8)	Tests for mechanical and physical properties of aggregates
EN 12457-4:2004	Characterisation of waste - Leaching - Compliance test for leaching of granular waste materials and sludges
EN 12620:2002+A1:2008	Aggregates for concrete
EN 13043:2002/AC:2004	Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas;
EN 13055-1:2002/AC:2004 (1+2)	Lightweight aggregates
EN 13108-1 to 5	Bituminous mixtures – Material specifications
EN 13108-8	Bituminous mixtures – Material specifications – Part 8: Reclaimed asphalt.
EN 13139:2002/AC:2004	Aggregates for mortar
EN 13242:2003+A1:2008	Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction
EN 13285	Unbound mixtures – Specifications
EN 13286	Unbound and hydraulically bound mixtures – Test methods
EN 14227-1 to 5	Hydraulically Bound Mixtures: Specifications

Voluntary industrial guidelines

- In the absence of EU-wide harmonised EoW-criteria, ‘*Aggregates Europe*’¹ developed guidance to set out the common requirements that will enable recycled materials (aggregates) to cease to be waste and hence meet the relevant product standards.
- Important: This guidance is voluntary and producers and users are not obliged to conform with the defined criteria.





*d) the use of the substance or object will **not** lead to overall adverse environmental or human health impacts*

Directive 2008/98/EC

Environmental and human health impacts

- Collection, sorting and recycling of CDW, as well as storage and transport of recovered/recycled materials can lead to environmental and human health impacts.
- The use of recycled aggregates, instead of natural aggregates, generally improves the environmental footprint of the produced concrete.
- Certain substances can affect occupational health and safety of workers, such as asbestos, mould, decomposition products from adhesives and levelling compounds containing casein.
- With handling CDW the main sources of concern are the hazards that exist from materials or substances in CDW or the previous use of buildings, and physical accidents that take place during deconstruction (demolition) and/or waste removal activities.

Environmental and human health impacts

Contaminants in mineral CDW

- Contamination of concrete can occur due to the structure's use and proximity to contaminations (e.g. mineral oils, PCB, PAH, heavy metals such as As, Cr, Hg).
- Improper destruction/dismantling can lead to contamination of the mineral CDWs during demolition (e.g. brominated flame retardants in EPS facade insulation).
- Coloured tiles and similar materials could possibly contain heavy metals such as cadmium or lead.



*The Commission **shall take account** of the relevant criteria established by Member States...*

*... and shall take **as a starting point the most stringent and environmentally protective** of those criteria.*

Directive 2008/98/EC

CDW EoW criteria in Member States

MS	Targeted waste	Status
AT	EoW on specific recycled building materials	Implemented: Recycling Building Materials Ordinance BGBl. II Nr. 181/2015
DE	-	Planned: Key issues paper on the End of Waste Ordinance for certain mineral substitute building materials has been developed
FI	Crushed concrete (aggregates)	Implemented: Government Decree (858/2018).
FR	Aggregates produced from construction and public works to be used in road building	Implemented: Order no. 2010-1579 of 17 December 2010 based on the WFD definition and supplemented by Decree no. 2012-602 of 30 April 2012.
IE	Recycled aggregates (case-by-case decision)	Implemented: Art28-0034: Recycled Aggregates from Crushed Demolition Concrete (2019) Art28-0035: Recycled Aggregates from CDW (2019) Art28-0056: Decision on EoW Criteria relating for recycled aggregate (2022) Art28-0059: Decision on EoW Criteria relating for recycled aggregate (2023)
IT	Inert construction and demolition waste and other waste aggregates of mineral origin	Implemented: Regulation governing the termination of the waste status of inert construction and demolition waste and other inert waste of mineral origin DECRETO 27 settembre 2022, n. 152
NL	Recycled aggregates (case-by-case decision)	Implemented: Regulation on Recycling Aggregates from stony waste. Regulation No IENM / BSK-2015/18222 of February 5, 2015.

Q&A | Conditions for End-of-Waste



Coffee Break (until 11:10)



Session 4

Development of End-of-Waste criteria for mineral CDW

EoW criteria for mineral CDW

(First proposals on scope and criteria)

One set of criteria

- The JRC is aware that
 - 1) different input materials are used for the production of recycled aggregates,
 - 2) various recycling processes are applied and
 - 3) different recycled aggregates are produced for different applications (e.g. bound, unbound, with and without contact to water, high and low mechanical stress)
- When developing EU-wide EoW criteria, the JRC follows the approach to develop a simple yet robust system.

JRC proposal:

Develop **one single set of criteria** that can be applied to determine when mineral CDW is no longer considered waste.

Recycling and recycled aggregates (1/2)

- CDW recycling covers currently the largest mass flow, while the (preparing for) re-use of building products was ranked in the lowest priority group¹.
- Main reason for being ranked last is that (preparing for) re-use is mainly **limited to fire clay bricks** and the amount that is currently negligible in comparison to the total recycled mineral CDW fractions.

Recycling and recycled aggregates (2/2)

- Typical output from mineral CDW recycling are aggregates.
- Aggregates can be classified into fine aggregates (0.063–4 mm; sand) and coarse aggregate (>4–63 mm; gravel). Fines (< 0.063 mm; clays and silts) are not considered as targeted aggregates in this work.
- Also aggregates with a particle size up to 90 mm are used for certain unbound applications.
- With particle size ranging from 0.063–90 mm, the most common used aggregate sizes for bound and unbound purposes are covered.

JRC proposal:

- 1) EoW criteria shall **exclusively be developed for recycling of mineral CDW.**
- 2) The output material of a recycling process should be **recycled aggregates** with a particle size ranging from 0.063–90 mm.

Hazardous and POP containing CDW

- The WFD sets minimum recovery target of 70 % for **non-hazardous CDW** by 2020.
- Only a small percentage of total CDW fraction is considered as hazardous.
- An exclusion of hazardous and POP containing CDW fractions helps to develop less stringent output material requirements, as clean input materials are used for recycling. This helps to reduce administrative burden and analytical costs.

JRC proposal:

In line with the WFD targets, the existing national EoW criteria (e.g. AT, IE, IT, FI, NL) and the UEPG Guidance, CDW with hazardous properties and POP concentrations above the defined limit value in Annex IV of the POP Regulation (EU) No 2019/1021 **shall not be an allowed input material.**



Q&A | EoW criteria for mineral CDW

QUESTION 1. Do you agree with the proposal to develop one set of criteria?

QUESTION 2. Do you agree with the proposal to develop EoW criteria exclusively for recycling and recycled aggregates?

QUESTION 3. Do you agree with the proposal exclude hazardous and POP containing construction and demolition waste from scope?

Source separation

- Article 11(1) of the WFD defines, that *'Member States shall take measures to promote selective demolition at least for wood, mineral fractions (concrete, bricks, tiles and ceramics, stones), metal, glass, plastic and plaster.'*
- Nevertheless, due to the demolition, separation and management practices in MS, almost half of the mineral fraction material is reported as 'mixed mineral/other mineral/inert waste'.

	Total CDW generation excl. soil, track ballast, dredging spoils and asphalt	Total CDW generation incl. soil, track ballast, dredging spoils and asphalt
Mineral waste (total)	77.0 %	27.5 %
- Concrete	24.0 %	8.6 %
- Bricks	5.0 %	1.8 %
- Tiles and ceramics	1.2 %	0.4 %
- Mixed/other mineral/inert waste	46.8 %	16.8 %

Cristóbal García, J., Caro, D., Foster, G., Pristerà, G., Gallo, F., & Tonini, D. (2024a). *Techno-economic and environmental assessment of construction and demolition waste management in the European Union*. Publications Office of the European Union, Luxembourg, JRC135470. <https://doi.org/10.2760/721895>

Input materials (1/4)

- **Mineral CDW fractions** (concrete, fired clay, bricks, stones and mixtures thereof) account for around 80 % of the generated CDW in the EU (excl. soil, track ballast, dredging spoils and asphalt).
- Other potentially inert/mineral CDW fractions were investigated:
 - **Inert insulation (mineral and rock wool):** Relatively low proportion in CDW in terms of weight; only 2 % of the inert insulation is currently recycled, while 98 % is landfilled; in practice, mineral or rock wool are recycled into insulation materials again.
 - **Gypsum plasterboards:** low proportion in CDW in terms of weight; currently hardly any infrastructure for recycling (90 % of gypsum from CDW is landfilled); gypsum plasterboard is recycled into new gypsum plasterboards or other gypsum products.

Input materials (2/4)

- Other potentially inert/mineral CDW fractions were investigated:
 - **Glass:** has a low proportion in CDW in terms of its weight; currently 24 % of the glass from CDW is recycled. EU-wide EoW criteria have already been established for glass cullet (EU No 1179/2012).
 - **Track ballast:** low proportion on the total amount of CDW in terms of its weight, but information constraints and therefore difficult to assess; currently track ballast is already processed either directly on site or in external plants; over the decades of use, the track bed is inevitably exposed to certain sources of contamination (metals and heavy metals from abrasion of breaks, tracks, wheels and overhead contact lines, hydrocarbons from impregnated wooden railway sleepers and lubricants; herbicides (residues) from vegetation control; organics (e.g. plants, soil) from the surrounding environment).

Input materials (3/4)

- Other potentially inert/mineral CDW fractions were investigated:
 - **Asphalt:** Although asphalt is not a mineral CDW due to the bitumen content, it is listed here for the sake of completeness; share of asphalt waste in terms of its weight in total CDW is very low (1 %); likely reason is that asphalt is re-used/recycled in-situ and does not even become waste in practice.
 - **Mixed CDW:** recycling technologies are already on the market and capable to treat mixed CDW by removing waste materials such as metals, light fractions (e.g. plastics), and wood during the recycling process and to produce recycled aggregates; however, mixed CDW should not be an allowed input material as it would contradict the measure defined by the WFD Article 11 (promote selective demolition); mixed CDW under scope would most probably result in the need of additional output material criteria for certain substances, resulting in additional cost to analyse the output material.

NOTE:

JRC requests additional information on recycled aggregates from mixed CDW to carry out a more in-depth analysis of this waste stream.

Input materials (4/4)

JRC proposal:

The following **source-separated non-hazardous mineral CDW** and **mixtures thereof shall be** under scope:

- concrete (pure and reinforced concrete);
- fired clay (e.g. bricks and tiles, also with rests of mortar);
- ceramics (e.g. glazed and unglazed, such as wall & floor tiles, bricks & roof tiles, refractories, sanitary ware);
- stones and boulders (e.g. armour stones);
- mixtures of the above mentioned mineral CDW.

Sources of mineral CDW (1/2)

JRC proposal:

Non-hazardous mineral CDW from construction work, including buildings and civil engineering works, from all economic activity sectors shall be allowed as input to reach EoW.

Furthermore, **mineral CDW generated at every stage of the life cycle of a building and civil engineering work**, including construction, maintenance, renovation, refurbishment, deconstruction and demolition shall be under scope.

Sources of mineral CDW (2/2)

- The JRC is aware of certain sources of CDW that could be restricted to avoid negative impacts on recycling process and output material.
- The list below is non-exhaustive and should be considered as examples for restricted source for input material:
 - Selected CDW from the (petro-)chemical - or extractive industry (e.g. building and infrastructure parts that are in contact with potentially hazardous substances such as reactors, reservoirs, or pipes).
 - Selected CDW from power plants (e.g. exclude any CDW from nuclear power plants due to radioactive concerns, exclude buildings parts that were in contact with substances that could affect the quality of the CDW (e.g stacks in contact with flue gas)).

NOTE:

The JRC does not propose any restrictions of source at this stage of the project, but the stakeholders will be asked to elaborate on the sources that should be restricted as allowed input material.

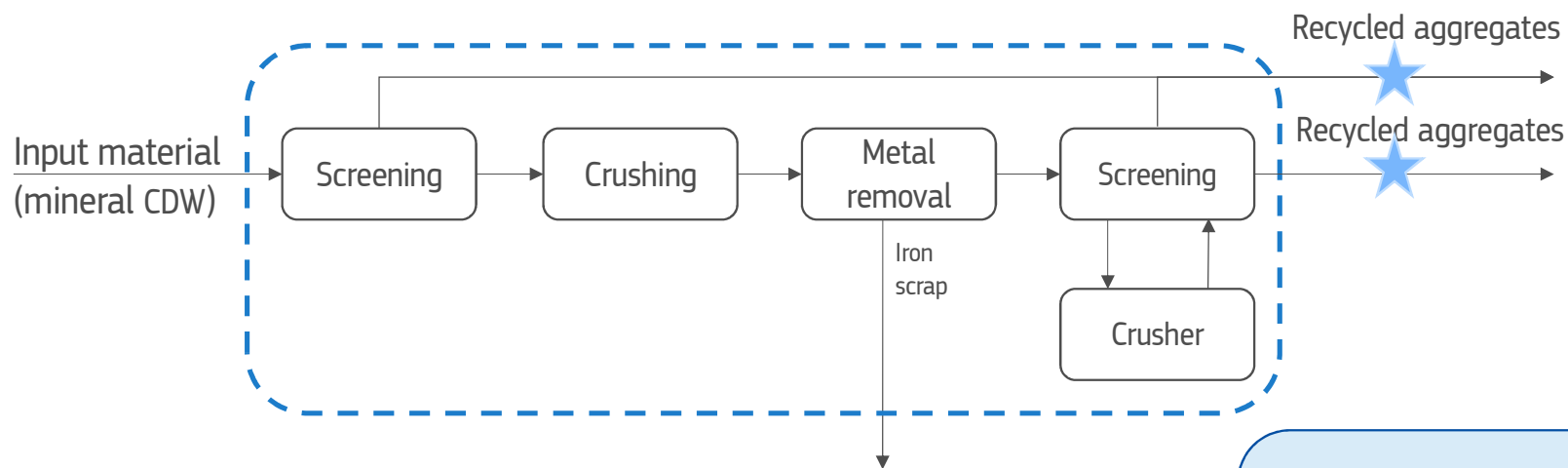


Q&A | EoW criteria for mineral CDW

QUESTION 4. Do you agree with the proposed input materials under scope?

QUESTION 5. Do you agree with the proposal on sources of mineral CDW under scope?

Point of End-of-Waste



Legend:

Process

System boundary
recycling

★ Examples for output material from CDW recycling: **Potential points** for EoW

JRC proposal:

The EoW status should be granted after a recycling operation has been **completed**, at the point at which the output material is in the form of **recycled aggregates**.

Intended use

- WFD: Recycling is defined as any recovery operation by which waste materials are reprocessed into products, materials or substances whether for **the original or other purposes**.
- Recycling does not include energy recovery and the reprocessing into materials that are to be used **as fuels** or for **backfilling operations**.
- By definition (WFD), backfilling is done with waste materials.

JRC proposal:

- 1) EoW status can only be achieved if the recycled aggregates **are again used in construction works** (construction material for buildings and other infrastructure).
- 2) The use the recycled aggregates for purpose such as reclamation in excavated areas or for engineering purposes in landscaping (see definition of backfilling in background paper) is **not considered as intended use to reach EoW**.



Q&A | EoW criteria for mineral CDW

QUESTION 6. Do you agree with the proposed point of End-of-Waste?

QUESTION 7. Do you agree with the proposed intended use?

Session 5

First written stakeholder consultation

Written stakeholder consultation

Aim

- Consolidate the **scope** and **align on first EoW criteria proposal** for mineral CDW waste.
- **Validating and extending available information** on CDW legislation, CDW waste management, existing standards, national EoW criteria, etc.
- Gathering additional technical data and information to support the development of **first technical proposals for EoW criteria for mineral CDW waste**.

Written stakeholder consultation

Deadline for feedback: 26 November 2024

- Provide answers to the questions raised in the **EU-survey**. Please always provide an argumentation to support your statements.
- Optional: provide direct feedback to the **background paper** using the Word template and upload the Word file at the **end of the EU-survey**.
- Please coordinate internally and provide one consolidated feedback per organisation and be reminded that there is no point in submitting surveys from members or sister organisations with the same input.
- For general questions please contact the JRC via functional mailbox:

JRC-END-OF-WASTE@ec.europa.eu (subject: **CDW EOW**)



https://ec.europa.eu/eusurvey/runner/CDW_EoW_Consultation

Password: jrc-cdw

In case you would like to have a pdf version before filling out the survey (e.g. for consultation of your members), you can create a dummy submission and save the result as pdf as follows:

- Step 1: Go to last section of the survey and press.



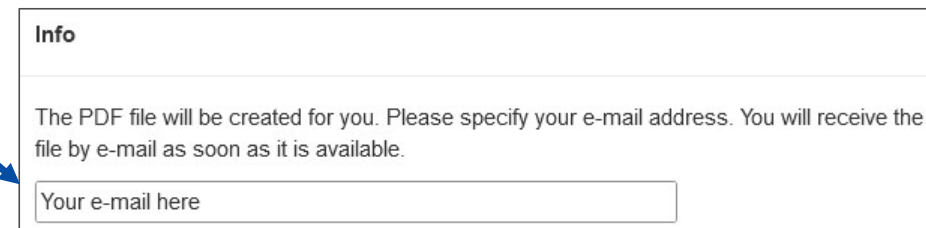
- Step 2: You receive an information that your **contribution is successfully submitted** and you also get a **Contribution ID** to make future edits.



- Step 3: Press "**Get PDF**"

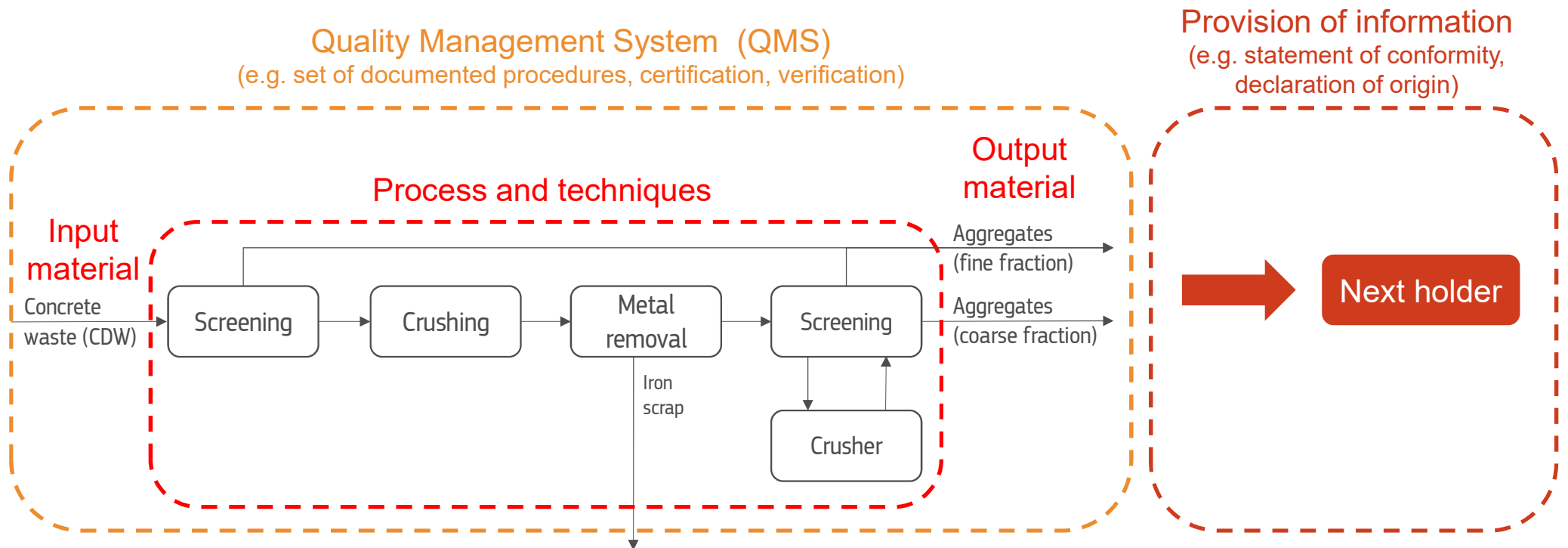


- Step 4: Insert your mail in the pop up.



- Step 5: You receive an e-mail with the PDF to e.g. distribute internally or translate into other languages.

Terminologies



Q&A | Stakeholder consultation



Closing session

Next action JRC and tentative timeline

- Slides will be sent out in the upcoming weeks.
- JRC will analyse feedback and develop a first draft proposal.
- The first draft proposal will be presented and discussed at the planned stakeholder workshop in June 2025.



Q&A | Closing session



Keep in touch

Contact:

JRC-END-OF-WASTE@ec.europa.eu

Subject: CDW EOW

EU Science Hub

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Thank you



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