

# EoW criteria for mineral construction and demolition waste

## Developing EU-wide end-of-waste criteria for mineral construction and demolition waste

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The aim of this survey is to consolidate the scope and align on **first EU-wide End-of-Waste (EoW) criteria proposal for mineral Construction and Demolition (CDW) waste**. Furthermore, the available information on CDW legislation, CDW waste management, existing standards and national EoW criteria, etc. shall be validated and extended by the stakeholders. Also the survey serves to gather additional technical data and information to support the development of a first technical proposals for EU-wide EoW criteria for mineral CDW waste.

### Deadline for feedback: 26 November 2024

Please provide answers to the questions raised in this EU-survey and always provide an argumentation to support your statements. For direct feedback on the background paper please use the Word template (attached to the e-mail you received on 12 September in preparation for the workshop) and upload the Word file at the end of the EU-survey (Section 6 - Upload Word template for direct background paper feedback).

Please coordinate internally and provide one consolidated feedback per organisation.

For general questions please contact the JRC via the functional mailbox: JRC-END-OF-WASTE@ec.europa.eu (subject: CDW EOW)

## Stakeholder information

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Organisation:

EQAR - European Quality Association for Recycling e.V.

First and last name:

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# 1. Scope and initial criteria

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## 1.1 Scope

### Question 1:

The JRC proposes to develop EU-wide EoW criteria for recycling of mineral CDW only. Do you agree to develop EU-wide EoW criteria exclusively for recycling and exclude the development of EU-wide EoW criteria for preparing for re-use?

- Yes  
 No

### Question 2:

Concrete, fired clay bricks and tiles, ceramics, stones and boulders and mixtures thereof were identified by the JRC to have the highest potential for the development of EU-wide EoW criteria and therefore should be allowed as input material to produce recycled aggregates.

Do you agree with the selection of the mineral CDW fractions mentioned above?

- Yes  
 No

Please upload your file(s)

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### Question 4:

Currently, the JRC proposes that recycled aggregates should only derive from the defined source separated mineral CDW fractions or mixes thereof (see question 2) to reach EU-wide EoW status.

Should the scope be extended to mixed CDW fractions (mineral CDW mixed with other CDW fractions such as plastics, wood, metals, etc.)?

- Yes  
 No

Please upload your file(s)

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### Question 5:

Do you agree with the terminology mineral construction and demolition waste for the CDW fractions under scope?

- Yes  
 No

If no, suggest other terminologies that should be used

Waste conveys negatives - the terminus „waste“ should be replaced by the terminus „material“

Is there a need to specify that mineral CDW should be inert?

- Yes
- No

If yes, how should inertness be defined?

Inert materials are mineral materials that has a low solubility and is not combustible. It nearly does not react physically, chemically, does not burn, harm the environment and is not explosive.

**Question 6:**

Do you agree with the terminology recycled aggregates for the output material of a mineral CDW recycling process?

- Yes
- No

**Question 7:**

The JRC proposes to have non-hazardous mineral CDW from construction works, including **buildings and civil engineering works** under scope.

Construction works means buildings and civil engineering works that may be over or in the ground or in the water, 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.

Do you agree that the sources of mineral CDW mentioned above should be under scope?

- Yes
- No

Should certain additional sources of mineral CDW be restricted as input material due to potential negative effects on recycling processes, quality of the output material or on the environment and human health (e.g. building and infrastructure parts that were in contact with potentially hazardous substances (e.g. reactors, reservoirs, pipes), CDW from nuclear power plants due to radioactive concerns)?

- Yes
- No

If yes, which selected sources should be restricted and why?

A market can only be built, if there is a trust in the recycled products. Therefore contaminated/hazardous wastes should be excluded from the terminus "recycled aggregates", because the customer must be sure that he can buy high environmental quality.. This exclusion applies specially for radioactive materials from reactors. Hazardous substances must be separated by pre-demolition In the case of radioactive components (nuclear power plants), too, hazardous components may not be utilised under any circumstances. The aim must be to ensure that the materials intended for reprocessing are free of hazardous substances.

Please upload your file(s)

## 1.2 Point of End-of-Waste

### Question 8:

Do you agree that the point of EoW should be set after a recycling operation is completed and the material has reached the form of an aggregate?

- Yes  
 No

Please elaborate on your decision for choosing a different point of EoW other than recycled aggregates? Please consider in your answer that the choice on the point of EoW will have an impact on shipment, market and traceability:

A structural AND environmental analyses are a prerequisite for the end of waste; as a rule, the building /infrastructural material requires a CE-mark and a declaration of performance in accordance with the Construction Products Regulation (CPR)

## 1.3 Intended use of recycled aggregates

### Question 9:

The JRC proposes that EoW can only be achieved if the output material (recycled aggregate) of a recycling operation is used again as construction material for buildings and other infrastructure (e.g. architectural concrete products, precast concrete, ready mix concrete, asphalt products, structural (unbound) use and track ballast). Backfilling is not considered as intended use to achieve EoW.

Do you agree with the intended use for recycled aggregates to achieve EoW?

- Yes  
 No

## 2. Standards, technical specification, existing national EoW criteria and product legislation

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### Question 10:

Are you aware of additional national and EU-wide technical specification or standards (waste- and product status) to be considered than those listed below?

- Yes  
 No

If yes, please provide relevant information and references:

EQAR got some information from member BRV/Austria:

AT OENORM B 3140 "Recycled aggregates for unbound and hydraulically bound applications as well as for concrete", 2020-11-01

AT OENORM B 3141 "Production of recycled building materials from excavated materials - requirements", 2024-05-01

AT "Guideline for recycled construction material", Austrian Construction Material Association for Recycling, [www.brv.at](http://www.brv.at)

AT "Guideline for recycled construction material - excavated soil", Austrian Construction Material Association for Recycling, [www.brv.at](http://www.brv.at)

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 - Part 4: One stage batch test at a liquid to solid ratio of 10 l/kg for materials with particle size below 10 mm (without or with size reduction).
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

#### Question 11:

Are you aware of additional European product legislation to be considered other than those listed below?

- Yes  
 No

If yes, please provide relevant information and references:

REACH is in discussion in the EU for recycling-aggregates. This discussion was also led in 2008 - it was recognized, that recycled aggregates are articles and therefore not under REACH. Now the discussion is recently started: Recycling aggregates are and will be articles and excluded from REACH!!! REACH is not in use for recycling materials in the moment. Please take the Regulation (EC) No1907/2006 from the list, recycling aggregates are determined by shape and physical properties and not by chemical one. Recycling aggregates are and will be articles and excluded from REACH!!!

Product legislation	Abbr.	Legislation
Construction Product Regulation	CPR	Regulation (EU) No 305/2011
European Technical Assessment	ETA	-
CE Marking	CE	Part of the EU harmonisation legislation
Classification, Labelling and Packaging of substances and mixtures	CLP	Regulation (EC) No 1272/2008
Registration, Evaluation, Authorisation and Restriction of Chemicals	REACH	Regulation (EC) No 1907/2006
Regulation concerning Persistent Organic Pollutants	POP	Regulation (EC) No 2019/1021

### Question 12:

Are you aware of additional national (or regional) EoW criteria other than those listed below?

- Yes  
 No

If yes, please provide relevant information and references:

In EQAR-memberstate AT there will be EoW for  
. plasterboards/gypsum (see uploaded file)  
. excavated soil (draft from Sept. 24, "Excavated soil ordinance")  
Both regulations exists as draft, both should be in force with 2025.

Please upload your file(s)

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Member State	Targeted waste	Status
Austria	Recycled building materials.	<b>Implemented:</b> Recycling Building Materials Ordinance BGBl. II Nr. 181/2015)
Germany	Proposal	<b>Planned:</b> Ministerial key issues paper on the End-of-Waste Ordinance for certain mineral substitute building materials has been developed.
Finland	Crushed concrete	<b>Implemented:</b> Government Decree on End-of-Waste Criteria for Crushed Concrete (466/2022)
France	Aggregates produced from construction and public works to be used in road building	<b>Implemented:</b> Order No 2010-1579 of 17 December 2010 based on the WFD definition and supplemented by Decree No 2012-602 of 30 April 2012.
Ireland	Recycled aggregates <sup>1</sup>	<b>Implemented (national EoW criteria):</b> Decision EoW-N001/2023 of 12th September 2023 establishing criteria determining when recycled aggregate ceases to be waste
	Concrete (17 01 01 concrete from CDW) Various codes <sup>2</sup>  Concrete and soil and stone: 17 01 01 concrete (from CDW)) 17 05 04 soil and stone other than those mentioned in 17 05 03, (non-hazardous)  17 01 01 concrete (from CDW)	<b>Implemented (case-by-case decisions):</b>  Art28-0034: Decision on EoW Criteria relating to Recycled Aggregates from Crushed Demolition Concrete (2019)  Art28-0035: Decision on EoW Criteria relating to Recycled Aggregates from Construction and Demolition Waste (2019)  Art28-0056: Decision on EoW Criteria relating for recycled aggregate (2022)  Art28-0059: Decision on EoW Criteria relating for recycled aggregate (2023)
Italy	Inert CDW and other waste aggregates of mineral origin	<b>Implemented:</b> Regulation governing the end of waste status of inert construction and demolition waste and other inert waste of mineral origin. Decree 152 of 27 settembre 2022.
The Netherlands	Recycled aggregates	<b>Implemented:</b> Regulation on Recycling Aggregates from stony waste. Regulation No IENM / BSK-2015/18222 of February 5, 2015.

### 3. Specific questions for all stakeholders but in particular for recyclers to cover the set of EoW criteria

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#### 3.1 Input materials

##### Question 13:

Which input material(s) are used as feedstock in the recycling facility you operate? Please define the CDW material (e.g. source separated concrete, mix of mineral CDW) and source (e.g. buildings, other infrastructure). If possible, please provide photos that can be reproduced.

- source separated concrete
- source separated fired clay bricks and tiles
- source separated ceramics
- stones and boulders (e.g. armour stones)
- mixture of the mentioned CDW fractions above (concrete, fired clay bricks and tiles and ceramics)
- mixed CDW fractions (mineral CDW mixed with other CDW fractions such as plastics, wood, metals, etc.).
- other please specify:

If other, please specify:

- asphalt: bitumenous asphalt derives mainly from streets/infrastructure; the amount is in some memberstates similar to the amount of concrete waste. In many European countries asphalt is treated in hot asphalt plants - but good part is used for "cold" uses, like recycling aggregates for street-layers. A EoW is necessary.
- excavated soil/earth: is needed as an improvement of other minerals (concrete, asphalt, boulders, mixtures of them) AND as source for recycling aggregates (comparable with track ballast). Excavated soil/earth is in many EQAR-memberstates waste, therefore an EoW is needed to get a market for these recycling aggregates.
- track ballast: comparable with aggregates derived from street-layers exists track ballast from railways. A EoW is necessary.

Please upload your file(s)

**Question 14:**

Which input material(s) do you exclude in the recycling facility you operate?

- source separated concrete
- source separated fired clay bricks and tiles
- source separated ceramics
- stones and boulders (e.g. armour stones)
- non-mineral CDW fractions such as plastics, wood, metals, etc.
- other please specify:

If other, please specify:

contaminated mineral waste (contaminated masonry, contaminated concrete, tar-asphalt, ...)

**Question 15:**

Do you treat mineral CDW with hazardous properties (e.g. due to cross-contamination of adhering hazardous CDW, mineral CDW that was in contact with hazardous substances)?

- Yes
- No

Please upload your file(s)

**Question 16:**

What are the quality parameters/specifications on the input materials in the recycling facility you operate?

technical parameters are in the European standards, like EN 13242, EN 12620, EN 13043; for the environmental test there are national requirements defined (f.e. Austria, Germany, Czech Republic, Italy, ..)

**Question 17:**

Do you have a process in place to monitor the quality of the input material?

- Yes
- No



If yes, how do you monitor the input material (e.g. visual inspection, sampling plan and analysis)?

in most EQAR-memberstates the input material is monitored: visual inspection, sampling plan, documentation-check

If yes, what are the criteria (e.g. standards, EoW criteria) or limit values?

### 3.2 Treatment processes and techniques

#### Question 18:

How are the input materials stored (e.g. separate storage of different input material qualities, combined storage of different input material qualities)?

in most EQAR-memberstates the storage must be separated between the different kinds of recycled aggregates (asphalt, concrete, ..), the different technical quality (f.e. grain size, frost resistance classes, ..) and the environmental classes

#### Question 19:

Please list and describe any sorting or pre-treatment processes that are applied before the main recycling process:

in some EQAR-memberstates pre-audit of construction sites (excluding hazardous waste before deconstruction), exclusion of non mineral substances (f.e. glass, organic substances, cables, metals, ..); input control at the recycling plant (visual, organoleptic, accompanying papers of deconstruction); sorted storage of input material (concrete/asphalt/bricks/masonry/track ballast/excavated earth); controlled treatment with magnetic separator and pre-screening; testing in technical manner (e.g. EN 13242) and environmental testing; documentation

#### Question 20:

Please describe the recycling technology used in the facility you operate. Please provide detailed information on the recycling process/steps and provide flow-charts if available (attach).

input control system  
pre-screening  
in few plants: hand-sorting of disturbing materials (f.e. from building waste)  
braking with crushers  
magnetic separators  
screening  
separate storing  
electronical documentation

Please upload your file(s)

#### Question 21:

How are the output materials from a recycling process stored (e.g. separate storage of different output material qualities, combined storage of different output material qualities)?

separate storage of different output material qualities on an even and stable ground (plane asphalt, concrete), storage places

### 3.3 Output materials

**Question 22:**

What are the output materials of the recycling process you operate (e.g. aggregates with different particle sizes, sediments, light materials)?

aggregates with different particle sizes, made from asphalt, concrete, masonry, bricks

**Question 23:**

What are the quality parameters or market/industry/customer specifications for the output materials in the recycling facility you operate?

recycled materials are usually produced in accordance with EN 13242 and EN 12620; stored separately

**Question 24:**

Please describe the process for the sampling of the output material (e.g. how many samples, how are samples taken, how often) until the final result of the desired quality (e.g. what parameters are analysed)?

in different countries different sample methods are in use

Please provide analysis of the output material (total content, leachable content; e.g. particle size (distribution), impurities such as wood or plastics, leachable salts, metals, heavy metals, hazardous substances, POPs):

Please upload your file(s)

**Question 25:**

What is the legal status assigned to the output materials in the recycling facility you operate?

- waste
- product

If product, under which legal status was the EoW status achieved (e.g. national/regional EoW, case-by-case EoW decision, self-declaration)? Please specify

only in very few countries the product status is achieved: f.e. Austria, Germany (in progress), Czech Rep., Italy

**Question 26:**

Which waste or product code (harmonised system code) is used for shipping the output materials to the next holder?

**Question 27:**

What is the intended use for the recycled aggregates?

**Question 28:**

Are the recycled aggregates exported?

- Yes
- No

### 3.4 Quality management system (QMS)

**Question 29:**

Is there a quality management system in place in the recycling facility you operate?

- Yes
- No

If yes, what set of documented procedures are included in the quality management system implemented in the recycling facility you operate (e.g. monitoring of processes, product quality, acceptance control, training of staff)? Please list them:

**Question 30:**

If you have implemented a QMS, is this certified by a third party (other organisation)?

- Yes
- No

If yes, please provide further details:

**Question 31:**

What body certifies and verifies your QMS?

### 3.5 Provision of information

**Question 32:**

Do you need to fulfil specific requirements on provision of information (e.g. statement of conformity, declaration of origin) when shipping the output materials from a recycling plant to the next holder?

- Yes
- No

If yes, please provide details on the procedure:

statement of conformity with EN 13242 or EN 12620 or .... (CE-mark); statement of conformity with national requirements, declaration of origin

**Question 33:**

What elements does the statement of conformity contain?

all information which is written in EN 13242, EN 12620 and the CPR (declaration of performance)

If a template is available, please upload this template:

## 4. Market and economics

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**Question 34:**

What are the market prices of recycled aggregates (average values and ranges where possible, in €/t)?

The prices vary from country and country: for Austria we have prices:  
Concrete aggregates: 6 – 13 €/to  
Asphalt aggregates: 5 – 13 €/to  
Masonry/mixed mineral aggregates from bricks, concrete: 3 – 8 €/to

**Question 35:**

In case you have experience working under a national/regional EoW regime for CDW, what are the additional costs or the savings for EoW compliance (indicate e.g. €/tonne output material)?

There are only few countries with an EoW. If they are working in connection with EN's, like EN 13242, EN 12620, ... the mainly costs are in connection with these testings. The supplement-costs for documentation for EoW are few and in accordance with national standards. In Austria this administrative effort amounts to approximately 10-20c/ton

**Question 36:**

How relevant is this work on EoW criteria for mineral CDW for the business model of recyclers and market demand?

The EoW criterion is essential - without it there is no market, as only waste collectors are allowed to act as buyers due to EU waste legislation. This extremely restricts both the private and the public market. Comparability with primary raw materials is ONLY possible with the EoW criterion. It is therefore essential.

**Question 37:**

How likely is that the markets will change with EU-wide EoW criteria for CDW, and how (e.g. foreseen prices of recycled aggregates with EoW status)?

EoW is essential! The comparability with primary raw-materials is only given, if the recycled aggregates are no waste furthermore. The market for recycled aggregates get bigger.

## 5. Additional comments and acknowledgement

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### Question 38:

Please provide any additional comments not covered by the questions above as well as reports and documents that you consider relevant for the development of EU-wide EoW criteria for mineral CDW:

In Countries with own Recycling Association for C&D-waste the market situation is better. Very important is the exchange of information with other european countries, f.e. over the European Quality Association for Recycling (EQAR), [www.eqar.info](http://www.eqar.info). EQAR has an quality seal for mineral recycling-materials. Furthermore it is important, that a framework-legislation is supporting a high-quality system: Taxes on natural raw-material or on depositing supports the existing of a recycling-market. F.e. Austria has a steering levy: if a C&D-waste is not recycled in accordance with the Recycling Building Material Ordinance, BGBl. 181 /2015, 10,6 €/ton has to be paid to the ministry of finance like a tax (so it has to be paid if it is deposit or if it is used without chemical testing and so on).

Please upload your file(s)

### Question 39:

The stakeholder consultation will feed the final report on technical proposals for EoW criteria for CDW. Please indicate if you would like your feedback to be acknowledged in the final report:

- Yes  
 No

## 6. Upload Word template for direct background paper feedback

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Please name the file as follows: **JRC\_CDW-EoW Template\_Feedback\_XX** where XX stands for your organisations name

Please upload your file(s)

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