

Translation from Finnish

Legally binding only in Finnish and Swedish

Ministry of the Environment, Finland

Government Decree on End-of-Waste Criteria for Crushed Concrete

(466/2022)

By decision of the Government, the following is enacted under section 5b, subsection 2 and section 10 of the Waste Act (646/2011) as well as under section 9 of the Environmental Protection Act (527/2014), section 5b, subsection 2 of the Waste Act as amended by Act 714/2021 and section 10 of the Waste Act as amended in part by Act 714/2021, and section 9 of the Environmental Protection Act as amended by Act 1166/2018:

Section 1

Scope of application

This Decree applies to a producer that holds an environmental permit referred to in section 27 of the Environmental Protection Act (527/2014) for concrete waste crushing activity or in whose activity concrete waste is crushed under the Government Decree on Concrete Plants and Concrete Products Plants (858/2018).

Section 2

Definitions

For the purposes of this Decree:

- 1) *input* means concrete waste used as feedstock in the production of crushed concrete referred to in this Decree;
- 2) *recovery operation* means technical and other measures relating to the reception, pre-processing and recovery of inputs by means of which crushed concrete is produced from concrete waste;

- 3) *end-of-waste criteria* means the criteria referred to in section 3 employed to assess when crushed concrete ceases to be classified as waste;
- 4) *producer* means any natural person or legal person that takes the end-of-waste criteria into use;
- 5) *building construction* means the construction of buildings, structures or constructions or facility buildings or structures intended for housing, work, storage or some other use that are fixed or intended to remain in one place;
- 6) *earth construction* means the construction of traffic routes, fields and embankments and other corresponding infrastructure as well as foundation construction for buildings;
- 7) *landscaping* means the construction and maintenance of parks, ornamental gardens and curtilages as well as other planted green spaces;
- 8) *AVCP class* means a class of performance in accordance with a system for assessment and verification of constancy of performance under Regulation (EU) No 305/2011 of the European Parliament and of the Council laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.

Section 3

End-of-waste criteria for crushed concrete

The classification of concrete waste referred to in Annex 1, table 1 as waste ceases when the following requirements are fulfilled in the placing on the market of crushed concrete:

- 1) the input has undergone a recovery operation that fulfils the requirements laid down in sections 8 and 9;
- 2) the crushed concrete fulfils the requirements laid down in section 12;
- 3) an intended use specified in section 14 has been defined for the crushed concrete.

Section 4

Producer's quality assurance system

The producer shall have a quality assurance system for the continuous verification of the compliance of the recovery operation, and of the crushed concrete that has undergone the recovery operation, with the requirements concerning quality assurance.

The producer shall designate the persons in charge of the quality assurance system and ensure that the persons in charge and those participating in conducting quality assurance receive induction training in and sufficient information on the activity. The names of the persons in charge shall be provided in the quality assurance system.

The quality assurance system shall have an assessment and audit plan.

The conformity of the quality assurance system shall be confirmed by an independent party. The independent party shall have accreditation for performing this role granted by FINAS Finnish Accreditation Service of the Finnish Safety and Chemicals Agency.

Section 5

Reception inspection of concrete waste

The producer shall determine, either by means of conditions for reception or an agreement concluded with the supplier of concrete waste, the requirements for concrete waste received so that crushed concrete that meets the end-of-waste criteria can be produced from the received concrete waste.

Concrete waste from unused concrete products or from used concrete shall be inspected on a batch-by-batch basis when receiving waste and prior to its pre-processing.

It shall be ensured when receiving concrete waste and by means of related instructions that:

- 1) any concrete waste from demolition in accordance with Annex 1, table 1, paragraph 3, subparagraph a is suitable in terms of its quality and purity for the production of crushed concrete and that the demolition has been carried out by means of deconstruction, as a result of which the concrete waste does not contain any other wastes;
- 2) the concrete waste has been stored and transported so that different kinds of batches have not been mixed together;
- 3) no impurities have entered the concrete waste during storage or transport;

4) a transfer document has been drawn up for any batch of concrete waste from the demolition of buildings, structures or constructions, or from construction.

A batch of concrete waste that, based on an inspection, is suspected or detected to contain asbestos or any other impurities impairing occupational safety, or such impurities that cannot be sufficiently removed in pre-processing and processing, shall not be used as an input.

Section 6

Instructions for reception inspections of concrete waste

The producer shall draw up written instructions for reception inspections of concrete waste concerning:

- 1) the inspection of the origin and purity of a received batch of concrete waste;
- 2) the estimation of the quantities of the constituents of a received batch of concrete waste;
- 3) the identification and rejection of any waste batches that are unacceptable for the recovery operation.

The instructions for reception inspections shall be recorded in the quality assurance system.

Section 7

Reception records of concrete waste

The producer shall keep records of the concrete waste received as inputs or rejected by the producer. The reception records shall contain, for each batch of concrete waste received, the time of receipt, the site of generation, the producer and transferor of the waste, the type of the concrete waste itemised in accordance with Annex 1, table 1 and the quantity of the concrete waste, an estimate of the quantities of the constituents and reference to the reception inspection.

For any waste batches not accepted, the time of rejection, the site of generation, the producer and transferor of the waste, the type of the waste and estimates of the quantities of the waste and the constituents as well as the grounds for rejection shall be recorded.

The original List of Wastes code and transferor shall, in addition, be recorded for any pre-processed concrete waste from mechanical treatment of wastes received under List of Wastes code 19 12 12. The origin of pre-processed concrete waste received under List of Wastes code 19 12 12 shall be documented and traceable to the point of generation of the non-pre-processed concrete waste.

The producer shall record the instructions concerning the reception records in the quality assurance system.

Section 8

Pre-processing of concrete waste

Any concrete waste from unused concrete products and from used concrete shall be pre-processed to remove any impurities contained in the concrete waste before using it as an input for a recovery operation.

Any insulation material attached to concrete shall be removed carefully from sandwich panels consisting of concrete and insulation material.

Section 9

Recovery of concrete waste

Concrete waste shall be processed to a nominal granular size in line with the intended use but not, however, exceeding 90 millimetres.

Any impurities shall be removed in conjunction with recovery from inputs containing concrete waste from used concrete so that the crushed concrete that has undergone the recovery operation meets the acceptability requirements laid down in section 12.

There shall be clear instructions in the quality assurance system for the use and maintenance of equipment used in the production of crushed concrete and for the activities relating to the production process.

Section 10

Sampling

Composite samples shall be taken from crushed concrete that has undergone a recovery operation to determine its material distribution and environmental acceptability. Each composite sample may represent no more than 10,000 tonnes of crushed concrete obtained from a recovery operation or, where the mass of the crushed concrete is less than 10,000 tonnes, one crushing batch. Partial samples shall be taken so that the composite sample formed by them represents the entire waste batch under study. Each composite sample shall be made up of at least 20 partial samples taken regularly from a continuous stream of crushed concrete.

To study environmental acceptability, at least two composite samples of the crushed concrete shall be taken, with the solubilities and contents of harmful substances determined from one of these and the material distribution and other impurities determined from the other. The material distribution and other impurities need not, however, be determined from crushed concrete the input used for which consisted exclusively of concrete waste from unused concrete.

Section 11

Analysis of samples

In determinations of harmful substances contained in and soluble from crushed concrete as well as of the material distribution, impurities and floating impurities, the standardised methods of analysis presented in Annex 2, table 1 or other methods that have been found to be adequate in terms of their analytical sensitivity, accuracy and repeatability shall be used.

In the determination of the solubilities of harmful substances, the up-flow percolation test in accordance with the CEN/TS 14405 standard, the two-stage batch test in accordance with the SFS-EN 12457-3 standard or a corresponding method shall be used.

The determinations of harmful substances shall be carried out at an accredited laboratory whose scope of accreditation covers the analysis methods used. The laboratory shall be accredited by an accreditation body that has been found to be competent in peer evaluation processes under international recognition arrangements in accordance with harmonised international criteria.

Section 12

Acceptability requirements for crushed concrete

In crushed concrete that has undergone a recovery operation, the solubilities and contents of any harmful substances shall not exceed the values listed in Annex 3, table 1 and any impurities shall not exceed the values listed in Annex 3, table 2.

Section 13

Documentation of sampling, preparation and analysis of samples as well as results

The producer shall draw up instructions for sampling and for the preparation and testing of samples and record the instructions in the quality assurance system. The instructions shall contain information on:

- 1) the sampler and the sampler's qualifications, the sampling location, the sampling method and the sampling time;
- 2) the quantity and quality of the partial and composite samples;
- 3) the composition and preparation of composite samples;
- 4) any impurities and other non-conformities observed in sampling;
- 5) the use, calibration and maintenance of the sampling, measurement or testing equipment used by the producer.

The methods and equipment used in preparing and analysing samples and the results of analyses shall be documented as part of the quality assurance system. The documents shall contain information on:

- 1) the preparation of samples;
- 2) the performers of the determinations carried out on the samples and the analysis methods used;
- 3) the results of the determinations carried out on the samples;

- 4) any quality non-conformities detected;
- 5) the measures taken due to non-conformities;
- 6) the calibration and maintenance of the sampling, measurement or testing equipment used by the producer.

The quality assurance documents referred to in subsection 2 shall be retained for ten years from the date on which the document was drawn up.

Section 14

Permitted intended uses for crushed concrete that has undergone a recovery operation

Crushed concrete the input for which consisted exclusively of concrete waste from unused concrete may be used:

- 1) as aggregate in building construction and earth construction as well as landscaping when its AVCP class is 2+ and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1;
- 2) as aggregate in the manufacture of ready-mixed concrete and concrete products when its AVCP class is 2+ and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1;
- 3) as a fertiliser, liming material, soil improver or growing medium when it meets the requirements laid down in fertiliser legislation and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1.

Crushed concrete the input for which consisted exclusively of concrete waste from unused concrete products may be used:

- 1) as aggregate in building construction and earth construction as well as landscaping when its AVCP class is 2+ and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1 and any impurities in it do not exceed the values listed in Annex 3, table 2;

- 2) as aggregate in the manufacture of ready-mixed concrete and concrete products when its AVCP class is 2+ and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1 and any impurities in it do not exceed the values listed in Annex 3, table 2;
- 3) as a fertiliser, liming material, soil improver or growing medium referred to in section 4 of the Fertiliser Product Act (539/2006) when the concrete waste used as an input for it does not contain any materials other than raw materials used in the production of fresh concrete and reinforcing bars, and when it meets the requirements laid down in the Fertiliser Product Act and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1 and any impurities in it do not exceed the values listed in Annex 3, table 2.

Crushed concrete the input for which contains concrete waste from used concrete may be used:

- 1) as aggregate in building construction and earth construction when its AVCP class is 2+ and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1 and any impurities in it do not exceed the values listed in Annex 3, table 2;
- 2) as aggregate in the manufacture of ready-mixed concrete and concrete products when its AVCP class is 2+ and the solubilities and contents of any harmful substances in it do not exceed the values listed in Annex 3, table 1 and any impurities in it do not exceed the values listed in Annex 3, table 2.

Section 15

Storage of crushed concrete that has undergone a recovery operation

Crushed concrete intended for different uses shall be stored separately from each other.

Crushed concrete shall be stored and handled so that its quality will not deteriorate. Where there is reason to suspect that the quality of crushed concrete has deteriorated during storage so that it no longer fulfils the end-of-waste criteria, its quality shall be investigated and the suitability of the crushed concrete for the intended use shall be assessed. Crushed

concrete that does not fulfil the end-of-waste criteria shall be returned to treatment as waste.

Section 16

Producer's statement of conformity

The producer shall issue a statement of conformity for the crushed concrete produced and placed on the market by it. The statement of conformity shall be submitted to the recipient of the crushed concrete with each batch of crushed concrete. The statement of conformity may also be in electronic form.

The producer shall retain a copy of the statement of conformity for ten years after its date of issue.

Section 17

Content requirements for the statement of conformity

The statement of conformity shall contain the following information concerning the crushed concrete:

- 1) the producer's name, contact details, declaration that the end-of-waste criteria are fulfilled, and signature;
- 2) the category and key definitions and characteristics in accordance with the industry specifications or standard;
- 3) the quantity of the consignment;
- 4) the intended use laid down in section 14.

The statement of conformity of crushed concrete intended for use as a fertiliser, liming agent, soil improver or growing medium shall contain, in addition to the information provided in subsection 1, the type designation, product category or corresponding description in accordance with fertiliser legislation.

The statement of conformity of crushed concrete intended for use as aggregate in earth construction, building construction or landscaping shall, in addition of the information provided in subsection 1, provide the following information:

- 1) the crushed concrete may not be placed below the groundwater table;
- 2) when using the crushed concrete in a groundwater basin that is important for water supply or in a groundwater basin suitable for other water supply use, the distance to the groundwater table shall permanently be at least 2 metres;
- 3) the pH of water seeping or leaching through the crushed concrete is approximately 11, which must be taken into account when using the crushed concrete in the immediate vicinity of other structures that are susceptible to corrosion, or of surface waters;
- 4) the suitability of the crushed concrete for the planned construction project must be assessed specifically for each use.

Section 18

Notification and reporting obligation

The producer shall notify the taking into use of the end-of-waste criteria in writing to the competent supervisory authority referred to in section 23, subsection 1 of the Environmental Protection Act. The notification shall contain an account of the producer's quality assurance system. The notification shall be made at least 30 days prior to taking the end-of-waste criteria into use.

The producer shall submit to the supervisory authority annually at the time provided in the environmental permit or, secondarily, by the end of February:

- 1) information on the wastes used in the recovery operation and their quantities, specified by the types of waste and List of Wastes codes listed in Annex 1, table 1;
- 2) an account of any alterations to the producer's quality assurance system;

- 3) a compilation of the solubilities and contents of any harmful substances and the quantities of any impurities listed in Annex 3, tables 1 and 2, for the preceding 12 months concerning the crushed concrete that has undergone a recovery operation;
- 4) information on the quantities of crushed concrete that has been produced and that fulfils the end-of-waste criteria, specified by intended use laid down in section 14.

If the establishment receives concrete waste for input use, the producer shall, in addition, submit annually to the supervisory authority information on the quantities of wastes listed in Annex 1, table 1 received by type of waste and information on the quantities, further processing and delivery sites of any materials removed from inputs in pre-processing and processing.

The producer shall notify the supervisory authority in writing of the use of the end-of-waste criteria ending.

Section 19

Entry into force

This Decree enters into force on 1 September 2022.

INPUTS PERMITTED IN RECOVERY OPERATIONS

Table 1. Types of concrete waste permitted as inputs and their List of Wastes codes

Type of concrete waste	List of Wastes code
1. Concrete waste from unused concrete*	
a) concrete washout water and surplus concrete from production of ready-mixed concrete	10 13 14
b) slurry from sawing or sanding hardened concrete at a concrete products plant	10 13 14
c) ready-mixed concrete intended for construction that has been returned unused	10 13 14
d) unused concrete that is from construction and that does not contain any other materials than materials used in the production of fresh concrete	17 01 01 19 12 12
e) concrete waste from unused concrete referred to in subparagraphs a–d and included in List of Wastes code 10 13 14 or 17 01 01 that has undergone pre-processing through mechanical treatment of waste	
2. Concrete waste from unused concrete products	
a) concrete products that come from production plants manufacturing them or from construction and that do not contain any other materials than materials used in the production of fresh concrete and reinforcing bars	16 03 04
b) concrete products that come from production plants manufacturing them or from construction and that contain materials other than materials used in the production of fresh concrete and reinforcing bars	16 03 04
c) concrete waste from unused concrete products referred to in subparagraphs a and b and included in List of Wastes code 16 03 04 that has undergone pre-processing through mechanical treatment of waste	19 12 12
3. Concrete waste from used concrete	
a) concrete waste from the demolition of buildings, structures or constructions	17 01 01
b) concrete waste from construction that contains or may contain other materials or impurities in addition to materials used in the production of fresh concrete	17 01 07
c) concrete waste referred to in subparagraphs a and b and included in List of Wastes code 17 01 01 or 17 01 07 that has undergone pre-processing through mechanical treatment of waste	19 12 12

* Concrete waste from unused concrete that is used as an input shall correspond in terms of its chemical properties to the ready-mixed concrete or concrete products normally produced by the producer and may not contain any chemicals or components not belonging to these that cause contamination of concrete or any significant risk of these having ended up in the concrete waste.

Annex 2

ANALYTICAL STANDARDS AND TECHNICAL SPECIFICATIONS TO BE USED IN ANALYSIS OF SAMPLES

Table 1. Analytical standards or technical specifications to be used to determine any harmful substances and any other impurities contained in as well as the material distribution of crushed concrete

Parameter determined	Standard or technical specification
Sb, As, Ba, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se, V, Zn, F ⁻ , Cl ⁻ , SO ₄ ²⁻	SFS-EN 16192 or technical report CEN/TR 16192:2020:en
Petroleum hydrocarbons ≥ C10–C40	SFS-EN 14039
PCB compounds	SFS-EN 17322:2020:en
PAH compounds	SFS-EN 15527 or SFS-ISO 18287
Material distribution, impurities and floating impurities	EN 933-11

Annex 3

ACCEPTABILITY REQUIREMENTS FOR CRUSHED CONCRETE THAT HAS UNDERGONE A RECOVERY OPERATION

Table 1. Maximum permitted solubilities and contents of harmful substances in crushed concrete that has undergone a recovery operation

Harmful substance	Solubility mg/kg (L/S 10)	Total content (mg/kg)
Antimony (Sb)	0.2	
Arsenic (As)	0.1	
Barium (Ba)	5	
Cadmium (Cd)	0.02	
Chromium (Cr)	0.6	
Copper (Cu)	1	
Mercury (Hg)	0.01	
Molybdenum (Mo)	0.7	
Nickel (Ni)	0.3	
Lead (Pb)	0.1	
Selenium (Se)	0.2	
Vanadium (V)	0.3	
Zinc (Zn)	4	
Fluoride (F ⁻)	12	
Chloride (Cl ⁻)	200	
Sulphate (SO ₄ ²⁻)	300	
PAH compounds ¹		30
PCB compounds ¹		1
Petroleum hydrocarbons ≥ C10–C40 ¹		200

¹ Not determined for crushed concrete produced from concrete waste referred to in Annex 1, table 1, paragraph 1, subparagraphs a–e or Annex 1, table 1, paragraph 2, subparagraphs a–c.

Table 2. Maximum quantities of impurities in crushed concrete that has undergone a recovery operation

Types of materials and impurities¹	Quantity
Total aggregate quantity of bricks and brick slips, calcium silicate bricks and blocks, other fired bricks and aerated non-floating concrete ²	10% by weight
Total aggregate quantity of clay and other cohesive soil and soil materials, miscellaneous metals (ferrous and non-ferrous), non-floating wood, plastic and rubber as well as gypsum plaster ³	1% by weight
Total aggregate quantity of clay and other cohesive soil and soil materials, miscellaneous metals (ferrous and non-ferrous), non-floating wood, plastic and rubber, gypsum plaster as well as glass ⁴	1% by weight
Floating impurities ⁵	5 cm ³ /kg

¹ The results shall be stated in accordance with the EN 13242 or EN 12620 standard

² To be calculated on the basis of the material distribution

³ Applies to crushed concrete intended for use as aggregate in building construction, earth construction or landscaping

⁴ Applies to crushed concrete intended for use as aggregate in the production of concrete or concrete products

⁵ Materials lighter than water