**NB: Unofficial translation, legally binding texts are those in Finnish and Swedish**

**Ministry of the Environment, Finland**

# Government Decree

**591/2006**

**concerning the recovery of certain wastes in earth construction**

Issued in Helsinki 28 June 2006

In accordance with the Government decision made on a submission by the Ministry of the Environment, the following has been enacted on the basis of section 12, paragraph 4 and section 30, subsection 1 of the Environmental Protection Act (86/2000), issued on 4 February 2000; and section 18, subsection 1: 1—3, and section 6, subsection 2 of the Waste Act, issued on 3 December 1993 (1072/1993):

Section 1

*Objective*

The objective of this Decree is to promote the recovery of wastes by determining the preconditions as the result of which, if met, no environmental permit in accordance with the Environmental Protection Act (86/2000) will be needed for use in earth construction from waste referred to in this Decree.

Section 2

*Scope of application*

This Decree is applicable to institutional or commercial recovery of wastes, as referred to in Annex 1, for the following earth construction purposes:

1) public roads, streets, bicycle lanes, pavements and areas directly connected to these, necessary for road maintenance or traffic, excluding noise barriers;

2) parking areas;

3) sports grounds and routes in recreational and sports areas;

4) railway yards as well as storage fields and roads in industrial areas, waste processing areas and air traffic areas.

The Decree shall only apply to earth construction as referred to in Section 1, if such earth construction is implemented in accordance with a street plan, plan for implementing a public area, a permit or notification as referred to in the Land Use and Building Act (132/1999), or in accordance with a road plan as referred to in the Law on Public Roads (243/1954) or the Highways Act (503/2005).

The Decree shall not apply in important or other groundwater areas suitable for water supply.

Section 3

*Definitions*

For the purposes of this Decree, the term:

1) *proprietor of the recovery site* refers to a natural person or legal person who, on the basis of a proprietary right or lease, possesses

the site where waste is utilised for earthworks;

2) *covering* refers to protecting a structure containing waste with a layer of natural rock, the minimum thickness of which is 10 cm, to prevent the spread of waste;

3) *paving* refers to protecting a structure containing waste with asphalt with a maximum void of 5 per cent, or another material with which a corresponding level of protection can be achieved, in order to reduce the seepage of rainwater.

Section 4

*Exception to the requirement to obtain an environmental permit*

Waste recovery is permitted without an environmental permit as referred to in section 28, subsection 2, paragraph 4 of the Environmental Protection Act, if waste quality control and recovery is arranged and notification is made of the activities in order to facilitate entry in an environmental protection database, in accordance with this Decree.

Section 5

*Requirements concerning the recovery of waste*

In addition to the provisions laid down in the Environmental Protection Act and Waste Act (1072/1993) and pursuant to these Acts, the following shall be ensured as in the recovery of waste:

1) the content and leaching of harmful substances in waste, determined in accordance with Annex 2, shall not exceed the limit values provided in Annex 1, nor does the waste contain, as pollutants, any other harmful substances in such a way that its recovery might cause a danger or hazard to health or the environment:

2) when mixing together wastes as referred to in Annex 1 in order to improve technical characteristics, or when adding lime, cement or similar binders to waste, there shall be no increase due to such mixing in dissolved harmful substances and other emissions from the waste which are harmful to the environment;

3) only the necessary quantity of waste shall be used for the purpose of levelling the soil structure and enhancing its bearing capacity and durability, such that the maximum thickness of the structure containing waste is 150 cm;

4) the structure containing waste shall not be in contact with groundwater as referred to in Chapter 1, section 4 of the Water Act (264/1961);

5) the minimum distance of a structure containing waste from a well or spring intended for use as drinking water shall be 30 m;

6) the structure containing waste shall be covered or paved;

7) temporary storage of waste and any other activities at the recovery site shall be arranged so that any waste is prevented from entering the environment and the activities cause no other danger or harm to health or the environment;

8) storage of waste at the recovery site shall begin no earlier than four weeks, or if the stored waste is protected, ten months before recovery.

Section 6

*Notification to environmental protection database*

The proprietor of the recovery site must submit a notification to a regional environment centre as referred to in section 65, subsection 1 of the Environmental Protection Act in order that an entry on the activities be made in an environmental protection database. The notification must include:

1) the name and contact details of the proprietor of the recovery site;

2) information on the location of the recovery site and on any nearby groundwater areas and their classes as well as on water supply sources and watercourses;

3) information on a plan, notification or permit concerning earth construction in

accordance with the Land Use and Building Act, the Law on Public Roads or the Highway Act;

4) the name and contact details of the deliverer of waste;

5) the code of the waste and a statement indicating that the limit values provided in Annex 1 are not exceeded;

6) the quantity of waste;

7) a description of the structure containing waste, of the material used for covering or paving, of storage and any other activities at the recovery site alongside any necessary protective measures connected with these;

8) the date when the recovery begins and ends during the earth construction.

Section 7

*Delivery of waste and the commencement of recovery*

Pursuant to section 15, subsection 1, paragraph 3 of the Waste Act, waste can be delivered to the proprietor of the recovery site once the operations have been entered in the environmental protection database.

Section 8

*Supervision*

The supervisory authorities for activities referred to in this Decree are the regional environment centre and the municipal environmental protection authority.

The regional environment centre must, without delay, examine the notification made for entry in the environmental protection database and inform the proprietor of the recovery site, the deliverer of waste and the municipal environmental protection authority thereof.

Pursuant to the provisions of Chapter 13 of the Environmental Protection Act, the supervisory authority may prohibit recovery of waste if the activity of which notification is made does not comply with the provisions laid down in the Waste Act or Environmental Protection Act or on the basis of these acts, or if recovery commences prior to the entry of the activity in the environmental protection database.

Section 9

*Entry into force*

This Decree will enter into force on 15 July 2006.

Any measures necessary for the implementation of the present Decree can be taken before its entry into force.

Helsinki, 28 June 2006

*Annex 1*

## WASTES INCLUDED IN THE SCOPE OF THE DECREE

The wastes included in the scope of this Decree and the limits on the content and leaching (solubility) of any harmful substances they contain are determined in this Annex.

### 1. Concrete chippings (codes of waste[1] 10 13 14, 17 01 01 and 19 12 12)

Concrete chippings refer to waste made of dismantled concrete structures or concrete waste from new buildings and the concrete industry by crushing the material into grains with a maximum diameter of 150 mm.

| **Harmful substance** | **Limit value, mg/kg dry substance** Basic characterisations [1] | | | **Limit value, mg/kg dry substance** Quality control investigations[1] | | |
|---|---|---|---|---|---|---|
| | Content | Leaching (L/S = 10 l/kg) Covered structure | Leaching (L/S = 10 l/kg) Paved structure | Content | Leaching (L/S = 10 l/kg) Covered structure | Leaching (L/S = 10 l/kg) Paved structure |
| PCB[2] | 1,0 | | | 1,0 | | |
| PAH[3] | 20 | | | | | |
| TOC[4] | 30000 | | | | | |
| DOC[5] | | 500 | 500 | | | |
| Antimony (Sb) | | 0,06 | 0,06 | | | |
| Arsenic (As) | 50 | 0.5 | 0,5 | 50 | | |
| Barium (Ba) | | 20 | 20 | | | |
| Cadmium (Cd) | 10 | 0,02 | 0,02 | 10 | 0,02 | 0,02 |
| Chrome (Cr) | 400 | 0,5 | 0,5 | 400 | 0,5 | 0,5 |
| Copper (Cu) | 400 | 2,0 | 2,0 | 400 | 2,0 | 2,0 |
| Mercury (Hg) | | 0,01 | 0,01 | | | |
| Lead (Pb) | 300 | 0,5 | 0,5 | 300 | 0,5 | 0,5 |
| Molybdenum (Mo) | | 0,5 | 0,5 | | | |
| Nickel (Ni) | | 0,4 | 0,4 | | | |
| Vanadium (V) | | 2,0 | 2,0 | | | |
| Zinc (Zn) | 700 | 4,0 | 4,0 | 700 | | |
| Selenium (Se) | | 0,1 | 0,1 | | | |
| Fluoride ($F^-$) | | 10 | 10 | | | |
| Sulphate ($SO_4^{2-}$) | | 1 000 | 3 000 | | 1 000 | 3 000 |
| Chloride ($Cl^-$) | | 800 | 800 | | | |

[1] Cf. Section 2 in Annex 2.

[2] Polychlorinated biphenyls, total quantity of congenerics 28, 52, 101, 118, 138, 153 and 180.

[3] Polyaromatic hydrocarbons, total amount of compounds (anthracene, acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, phenanthrene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, pyrene, chrysene).

[4] Total quantity of organic carbon.

[5] Dissolved organic carbon.

[1] Code of the waste in accordance with Ministry of the Environment Decree on the list of the most common wastes and of hazardous wastes (1129/2001).

## 2. Fly ashes (codes of waste[1] 10 01 02, 10 01 03 and 10 01 17) and bottom ashes (codes of waste[1] 10 01 01, 10 01 15) from combustion of coal, peat and wood-based material

Fly and bottom ashes from the combustion of coal refer to waste separated mechanically or electrically from flue gases created in the combustion of coal, and extracted from the bottom of the combustion chamber of a coal combustion plant.

Fly and bottom ashes from the combustion of peat and wood-based material refer to waste separated mechanically or electrically from flue gases created in the combustion of peat, wood chips, bark residue, primary fibre pulp production, vegetable waste including fibre material created in connection with the production of paper from pulp, unprocessed wood waste or any other comparable wood-based material or a mixture thereof, or extracted from the bottom of the combustion plant's combustion chamber.

| **Harmful substance** | **Limit value, mg/kg dry matter** Basic characterisations[1] | | | **Limit value, mg/kg dry matter** Quality control investigations[1] | | |
|---|---|---|---|---|---|---|
| | Content | Leaching (L/S = 10 l/kg) Covered structure | Leaching (L/S = 10 l/kg) Paved structure | Content | Leaching (L/S = 10 l/kg) Covered structure | Leaching (L/S = 10 l/kg) Paved structure |
| PCB[2] | 1.0 | | | | | |
| PAH[3] | 20/40[4] | | | | | |
| DOC[5] | | 500 | 500 | | | |
| Antimony (Sb) | | 0,06 | 0,18 | | | |
| Arsenic (As) | 50 | 0,5 | 1,5 | 50 | | |
| Barium (Ba) | 3 000 | 20 | 60 | 3 000 | | |
| Cadmium (Cd) | 15 | 0,04 | 0,04 | 15 | | |
| Chrome (Cr) | 400 | 0,5 | 3,0 | 400 | 0,5 | 3,0 |
| Copper (Cu) | 400 | 2,0 | 6,0 | 400 | | |
| Mercury (Hg) | | 0,01 | 0,01 | | | |
| Lead (Pb) | 300 | 0,5 | 1,5 | 300 | 0,5 | 1,5 |
| Molybdenum (Mo) | 50 | 0,5 | 6,0 | 50 | 0,5 | 6,0 |
| Nickel (Ni) | | 0,4 | 1,2 | | | |
| Vanadium (V) | 400 | 2,0 | 3,0 | 400 | 2,0 | 3,0 |
| Zinc (Zn) | 2 000 | 4,0 | 12 | 2 000 | | |
| Selenium (Se) | | 0,1 | 0,5 | | 0,1 | 0,5 |
| Fluoride ($F^-$) | | 10 | 50 | | 10 | 50 |
| Sulphate ($SO_4^{2-}$) | | 1 000 | 10 000 | | 1 000 | 10 000 |
| Chloride ($Cl^-$) | | 800 | 2 400 | | 800 | 2 400 |

[1] Cf. Section 2 in Annex 2.

[2] Polychlorinated biphenyls, total quantity of congenerics 28, 52, 101, 118, 138, 153 and 180.

[3] Polyaromatic hydrocarbons, total amount of compounds (anthracene, acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, phenanthrene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, pyrene, chrysene).

[4] Covered structure/paved structure.

[5] Dissolved organic carbon.

*Annex 2*

**WASTE QUALITY CONTROL**

This Annex defines the general principles for waste quality control required for waste recovery in compliance with this Decree.

**1. Quality Assurance System**

The waste deliverer shall apply a quality assurance system, entailing the following measures at a minimum:

1) Quality control investigations

- a sampling plan, an estimate of the representativeness of sampling and instructions for sampling, preparation of samples and delivery of samples for analysis
- the investigation and determination methods, harmful substances to be monitored and other characteristics to be monitored alongside frequencies of monitoring
- the limit values for harmful substances investigated
- processing of quality deviations and acceptable deviations
- quality assurance of sampling and investigations
- quality control monitoring documents and reporting instructions

2) Persons in charge and their qualifications

3) Instructions for the acceptance of waste (particularly if the waste to be processed so as to be fit for recovery is delivered from several sources), storage, processing and delivery to the recovery site

4) Quality assurance system evaluation and auditing plan

5) If necessary, special requirements on purity, such as the proportion of matter not inherent in the waste.

6) Monitoring and reporting

- Quality control protocol on each round of sampling and investigation
- Quality deviations identified and the consequent measures taken
- The quantity and quality of waste delivered for recovery and the places of delivery.

**2. Investigations**

The quality of waste must be examined through basic characterisations and quality control investigations. All measurements, tests, reports and investigations shall be conducted in compliance with section 108 of the Environmental Protection Act, i.e. competently, reliably and by suitable means.

Basic characterisations are conducted to prove that the waste in question falls within the scope of this Decree. Basic characterisations shall, by means of standardised analysis and testing

methods, examine at least the composition of the waste in question and leaching of harmful substances. At a minimum interval of five years, or, should any changes occur in the activities generating waste that might substantially influence the quality of waste, sufficient additional investigations shall be conducted to ensure that the waste still complies with the basic characterisations. Simultaneously, the quality assurance system shall be examined and revised, if necessary.

Waste quality shall be monitored through quality control investigations for an adequate period in compliance with the quality assurance system. The minimum requirement shall be five consecutive investigation rounds in compliance with the sampling plan. If the quality of waste has not been monitored for an adequate period, the acceptability of waste for use in compliance with this Decree can be assessed on the basis of basic characterisations conducted per batch of waste.

As regards the results of quality control, the limit value's being exceeded by a maximum of 30 per cent may be acceptable, if the average value of determinations performed over the past two years does not exceed the limit value set. If quality control results over the past two years are not available on the waste in question, an average value shall be calculated for the duration of quality control, for five consecutive analysis rounds at a minimum.

Sampling must be conducted in accordance with paragraph 2.1 and determinations of harmful substances in accordance with paragraph 2.2. Pursuant to the principle of mutual recognition, methods based on standards or technical specifications applied in another member state of the European Union, Turkey or an EFTA state party to the EEA agreement, and complying with the key requirements of methods referred to in paragraphs 2.1 and 2.2, can also be used.

**2.1 Sampling**

The sampling and preparation of samples shall be conducted in accordance with standards SFS-EN 932-1 and SFS-EN 932-2 as well as the draft standard prEN 14899. Samples shall primarily be taken from a continuous flow of waste. The person taking the samples shall have sufficient qualifications as required for the task. It is possible to deviate from the sampling requirements under the standard and draft standard if the taking of samples in compliance therewith is not technically or financially feasible due to the quality of the waste.

**2.2 Methods of determination**

The determination of harmful substances included in the waste and leaching from it shall be conducted, in the first instance, by using standardised and, secondarily, other methods found adequate in terms of sensitivity of detection, accuracy and repeatability.

*Content of harmful substances in waste*

Methods to be used in the preprocessing of samples for the determination of metals shall be acid digestion and microwave assisted digestion in compliance with standard SFS-EN 13656 or digestion with *aqua regia* in compliance with standard SFS-EN 13657.

Standardised methods (ICP-MS, ICP-AES or AAS) shall be applied in the determination of metals. Other methods can be used instead, if the equivalence of their results with those of the methods mentioned is known.

For the determination of total organic carbon (TOC), the method to be used shall comply with standard SFS-EN 13137.

For the determination of polychlorinated biphenyls (PCB), the method to be used shall comply with draft standard prEN 15308.

*Leaching of harmful substances from waste*

For determining the leaching of harmful substances, the up-flow percolation test shall be used in compliance with draft standard prCEN/TS 14405. For quality control purposes, the two-stage batch test in compliance with standard SFS-EN 12457-3 can also be used.

The concentration of harmful substances in eluates shall be determined in accordance with standards SFS-EN 12506 (pH, As, Ba, Cd, $Cl^-$, Co, Cr, CrVI, Cu, Mo, Ni, $NO_2^-$ , Pb, total S, $SO_4^{2-}$ ,V and Zn) and SFS-EN 13370 (ammonium, AOX, conductivity, Hg, phenol index, TOC, easily liberatable $CN^-$ and $F^-$).