Government Decree on Landfills
(331/2013; amendments up to 960/2016 included)

By decision of the Government, the following is enacted in accordance with the Waste Act (646/2011) and under sections 11, 12 and 16 of the Environmental Protection Act (86/2000), as amended in the Environmental Protection Act by section 12 of Act 253/2010 and Act 647/2011, and in section 16 of Act 252/2005

Chapter 1
General provisions

Section 1
Purpose

The purpose of this Decree is to prevent the pollution of surface water, groundwater, soil and air, and to combat climate change and other comparable large-scale adverse environmental impacts by directing the planning, establishment, construction, operation, management, closure and aftercare of landfills, and the depositing of wastes in them in such a way that they will not, even over a long period of time, endanger or cause harm to human health or the environment.

Section 2
Scope of application

(1) This Decree applies to landfill sites and the depositing of wastes in them.

(2) This Decree does not apply to a site in which only unpolluted soil waste or waste falling under the scope of application of the Government Decree on Extractive Waste (190/2013) is deposited. Nor does the Decree apply to the disposal of dredging spoil classified as non-hazardous waste in a surface water body or at sea or on the seabed or in the subsoil, or to the depositing of unpolluted dredging waste on the ground or in the ground near the waterway from which it was removed.
Section 3
Definitions

For the purposes of this Decree:

1) landfill means a waste disposal site where waste is deposited above ground or in the ground, including:
   a) a site that is part of a production facility, where the producer of waste deposits its own waste;
   b) a mine or another site located deep within the bedrock where waste is deposited (underground disposal site); and
   c) a site in use for at least a year, for temporary storage of waste;

 however, the following are not considered a landfill:
   a) a site where waste is unloaded, sorted, combined or prepared in some other way for transfer elsewhere for pretreatment, disposal or recovery;
   b) the storage of waste for less than three years before its recovery or pretreatment; nor
   c) the storage of waste for less than one year before its disposal;

2) non-hazardous waste means waste which is not classified as hazardous waste;

3) inert waste means waste;
   a) that will not dissolve, burn, or otherwise physically or chemically react, or biodegrade or react with other substances that endanger human health or the environment;
   b) that does not undergo any significant physical, chemical or biological transformations, even after a long period of time;
   c) where the total leachability and pollutant content of harmful substances contained in it and the ecotoxicity of landfill leachate and other contaminated water are insignificant; and
   d) that does not have adverse effects on the quality of surface water or groundwater;

4) biodegradable waste means food, garden, paper, cardboard and wood waste, and waste from crop and livestock production, the forest industry, municipal wastewater treatment plants and wastewater treatment in the food processing industry, and other waste that is capable of undergoing anaerobic or aerobic decomposition;

5) liquid waste means wastewater and other waste in liquid form, though not sludge;
6) *regularly generated waste* means specified waste, of which the essential characteristics are consistent and which is regularly generated by the same process, provided that:

   a) the installation and the process are generally known;

   b) the materials used in the process and the process itself have been specified in detail;

   c) all the necessary information on the installation has been provided and other changes to the materials and the process are reported to the landfill operator;

   d) the waste comes from a single installation, or from similar processes in several installations, if the waste can be identified as a single waste stream with common characteristics within known boundaries; and

   e) there are no substantial changes to the process where the waste is generated;

7) *stable non-reactive hazardous waste* means hazardous waste in which the solubility properties do not undergo adverse long-term changes under normal operating conditions of a landfill, nor in the event of foreseeable accidents:

   a) because of biodegradation or another cause attributable to the waste itself;

   b) as a result of water, air, temperature or a mechanical effect, or an effect of other long-term environmental conditions; or

   c) from the effects of other wastes, or landfill leachate or other contaminated water, or landfill gas;

8) *landfill leachate and other contaminated water* means liquid that becomes contaminated from percolating through waste deposited in a landfill or that becomes contaminated in the landfill through other means;

9) *landfill gas* means gas generated by waste deposited in a landfill;

10) *pretreatment* means sorting and other physical, chemical, biological or thermal processes through which the properties of waste are changed to reduce its volume or hazardous properties, or to facilitate its disposal or to make its recovery more effective;

11) *landfill operator* means the natural or legal person responsible for a landfill at any time;

12) *landfill aftercare* means action taken to monitor or prevent the environmental impact of a closed landfill or one to be closed.
Chapter 2  
General requirements set for a landfill and its location

Section 4  
Location of a landfill

(1) A landfill shall not be located:

1) in a groundwater area which is important or otherwise suitable for water supply or in such a way that the adverse effects of the landfill may extend to such a groundwater area, unless it can be ascertained that the quality of groundwater in such areas will not become threatened;

2) in a surface water body or at sea or in the immediate vicinity of another water body designated for water supply or intended for recreational use or requiring special protection;

3) in an area designated as a nature reserve, a landscape conservation area or recreation area, or an area protected for the preservation of the natural heritage or national cultural heritage, or in the immediate vicinity of these areas;

4) in a mire, drainage divide, or on land at risk of flooding, landslides or avalanches, or in a fractured zone of bedrock, if the collection and treatment of landfill leachate and other contaminated water is technically difficult to implement during the operation or aftercare of the landfill;

5) in a weak soil area, if the landfill may cause harmful settlement or settlement may damage landfill structures.

(2) When selecting the landfill site it shall be ensured that:

1) the location of the landfill does not cause harm to the landscape;

2) the area is served by good transport connections;

3) the site used for landfill operations is located at a sufficient distance from residential, agricultural or urban areas and public roads; and

4) the geological and hydrogeological features of the site have been taken into account.

(3) Provisions on taking into consideration the principle of self-sufficiency and the proximity principle in the establishment and siting of landfills are laid down in section 19 of the Waste Act (646/2011). (103/2015)
Section 5
Management and treatment of landfill leachate and other contaminated water

(1) The landfill shall be maintained in such a way that the volume of landfill leachate and other contaminated water to be conducted offsite and the resulting pollution load are minimised.

(2) Landfill leachate and other contaminated water shall be collected by means of coordinated subsurface drainage, pumping, or another applicable technical method. The leachate and other contaminated water that has been collected shall be treated effectively at the landfill site or conducted elsewhere for treatment. If the landfill leachate and other contaminated water are conducted elsewhere for treatment, care must be taken that these do not hamper the operation of the wastewater treatment plant or worsen the quality of the sludge generated in it.

(3) Clean surface water within the landfill site and external runoff shall be kept separate from the waste and landfill leachate and other contaminated water. Similarly, landfilled waste shall be prevented from coming into contact with groundwater.

(4) The requirements for the management and treatment of the landfill leachate and other contaminated water specified in subsections 1–3 above do not apply to a landfill for inert waste.

Section 6
Structural components of the bottom of a landfill

(1) The ground underlying the landfill shall provide a firm base and it shall meet the permeability requirements specified in Annex 1, point 1.

(2) If the permeability of the ground underlying the landfill does not naturally fulfil the requirements laid down in subsection 1, it shall be reinforced by constructing an impermeable layer to give equivalent protection. This impermeable layer shall be no less than 0.5 metres thick in landfills for non-hazardous waste and inert waste and no less than 1.0 metre thick in landfills for hazardous waste.

(3) For the purpose of collecting landfill leachate and other contaminated water in landfills for hazardous waste and non-hazardous waste, a sealing liner shall be installed on the ground underlying the landfill or on the impermeable layer, and above this a drainage layer shall be installed, which shall be no less than 0.5 metres thick.

Section 7
Structural components of the surface cover of a landfill

At hazardous waste and non-hazardous waste landfills, where the fill area has reached capacity, the landfill shall be capped with a surface cover consisting of the layers specified in Annex 1, point 2.
Section 8

(Control of landfill gas)

(1) Landfill gas shall be collected and, if possible, put to use. If the gas that has been collected cannot be recovered, it must be flared.

(2) The accumulation and migration of landfill gas shall be monitored and controlled in accordance with Chapter 7.

Section 9

(Derogations from the requirements for structural components of the bottom and of the surface cover of a landfill and for the collection of landfill leachate and other contaminated water and landfill gas)

(1) The permit authority may issue a decision to ease the requirements referred to in sections 5–8 concerning the collection and treatment of landfill leachate and other contaminated water, the structural components of the bottom and of the surface cover of the landfill, or the control of landfill gas, if the landfill operator, on the basis of an overall assessment of the impact of the landfill on human health and the environment, can show convincingly that the landfill and the depositing of waste will not, even after a long period of time, endanger or cause harm to human health or the environment, referred to in the Waste Act or the Environmental Protection Act (527/2014), nor cause a breach of the soil contamination prohibition referred to in section 16 of the Environmental Protection Act or the groundwater pollution prohibition referred to in section 17. The technology used at the landfill and the procedure for preventing hazards to human health and the environment shall nevertheless conform to the provisions of section 13(3) of the Waste Act. (103/2015)

(2) The requirements laid down in sections 6–8 above do not apply to the depositing of waste in an underground disposal site.

Section 10

(Temporary storage of metallic mercury)

The following requirements shall apply to the temporary storage of metallic mercury for more than one year in an underground or above-ground disposal site:

1) metallic mercury shall be stored separately from other waste;

2) containers shall be stored in collecting basins suitably coated so as to be free of cracks and gaps and impervious to metallic mercury with a containment volume adequate for the quantity of mercury stored;

3) the storage site shall be provided with sufficiently engineered or natural barriers so as to protect the environment against mercury emissions and its containment volume shall be adequate for the total quantity of mercury stored;

4) the storage site floors shall be covered with mercury-resistant sealants and the site shall have a collection sump and a sloped floor;

5) the storage site shall be equipped with a fire protection system;

6) the storage shall be arranged so as to ensure easy access to the containers.
Section 11
Prevention of nuisances and hazards

(1) Planned measures shall be taken at the landfill to prevent and control the following nuisances and hazards:

1) slippage and such settlement that are damaging to structural components, and insufficient stability of the mass of waste;

2) littering of the surrounding environment;

3) littering of public roads;

4) nuisance caused by noise and traffic;

5) nuisance caused by animals;

6) nuisance caused by odour, dust and aerosols;

7) fires;

8) damage to the structural components of the landfill caused by ground frost;

9) other equivalent nuisances and hazards.

(2) Unauthorized access and unlawful depositing of waste in a landfill shall be prevented by taking control measures or by fencing around the site, or by other structural and technical means. The landfill gates shall be kept locked outside opening hours.

Section 12
Other general requirements for landfills

(1) Waste shall be weighed before being deposited in a landfill.

(2) Section 12 of the Government Decree on Waste (179/2012) shall be followed when recovering waste for the structures of a landfill.

(3) Provisions on the person in charge of waste treatment sites are laid down in section 141 of the Waste Act. The supervisory authority shall be informed of who the person in charge is.
Chapter 3
General restrictions on the acceptance of waste at a landfill

Section 13
Landfill classes and the waste accepted at different landfills

(1) Landfills are classified as those for hazardous waste, non-hazardous waste and inert waste.

(2) Only wastes of the appropriate class may be deposited in the landfill. However, this does not apply to:

1) the recovery and use of suitable inert non-hazardous waste for construction at a landfill;

2) the recovery and use of other suitable non-hazardous waste in the surface cover of a landfill for inert waste, or in the impermeable layer of the surface cover or in other structures above it at a landfill for hazardous waste; nor to

3) the cases referred to in sections 30 or 31.

Section 14
Waste not acceptable at landfills

(1) The following are not accepted at a landfill:

1) liquid waste;

2) waste which, in the conditions of a landfill, is explosive, corrosive, oxidising or flammable, in accordance with the provisions laid down in Commission Regulation (EU) No 1357/2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives; (103/2015)

3) waste arising from medical or veterinary establishments, or from equivalent operations, which is infectious in accordance with the provisions laid down in the Commission Regulation specified in paragraph 2; (103/2015)

4) discarded chemical substances arising from research and development or teaching activities which cannot be identified or whose effects are not known;

5) discarded tyres of a car, machine or other motor vehicle, whole or shredded; this ban does not, however, apply to the recovery of shredded tyres for use as engineering material above the impermeable layer of the surface cover of a landfill;

6) waste which does not meet the acceptance criteria laid down in Chapter 5.

(2) The provision laid down in subsection 1(1) does not, however, apply to metallic mercury where the storage and depositing of it are accepted under Regulation (EC) No 1102/2008 of the European Parliament and of the Council on the banning of exports of metallic mercury and certain mercury compounds and mixtures and the safe storage of metallic mercury, from here on the Mercury Regulation.

(3) Waste may not be diluted or mixed with other waste or materials merely in order to meet the acceptance criteria for landfill waste.
Section 15

Obligation to pretreat waste

Only waste that has been pretreated is accepted at a landfill. This requirement does not concern inert waste where pretreatment is not technically feasible nor other waste if pretreatment does not contribute to achieving the objective laid down in section 1 by reducing the volume or hazardousness of waste or the hazards or harm which it poses to human health or the environment.

Chapter 4

Assessment procedure for acceptance at a landfill

Section 16

General requirements for assessment

(1) The following three-level assessment procedure shall be applied to the assessment of waste for acceptance at a landfill:

1) basic characterisation of waste, which involves using standardised methods to analyse the properties of the waste accurately enough to demonstrate that the waste to be deposited in a landfill meets the acceptance criteria specified for each landfill class, and that depositing the waste in the landfill is safe, even over a long period of time;

2) compliance testing of waste, which involves measuring the typical properties of the waste identified in the basic characterisation with standard, short-term regular methods, in order to ensure that the waste complies with the permit requirements;

3) onsite verification of waste at the landfill, carried out to ensure that the waste is in compliance with the documentation presented.

(2) The assessment of waste for acceptance at a landfill shall be based on reliable information on the origin and properties of the waste. The following criteria are used in the assessment of the properties:

1) composition of the waste;

2) quantity and degradability of organic materials in the waste;

3) quantity and solubility properties of harmful substances in the waste;

4) ecotoxicological properties of the waste and the leachate and other contaminated water arising from it.

(3) Besides these, the assessment shall be based on the following information concerning the landfill:

1) the characteristics and quality of the landfill and the protection of the surrounding environment;

2) the quality of environmental protection measures and the safeguarding of these;

3) how the stability of the landfill body is ensured;

4) protection against hazards to human health.
Section 17
Determining the basic characterisation

(1) Basic characterisation shall be done for waste to be accepted at a landfill. The characterisation shall be determined per waste consignment. Regularly generated waste shall also be subject to the basic characterisation before acceptance of the first waste consignment at the landfill, after this a compliance test that is based on the basic characterisation is sufficient.

(2) Basic characterisation includes:

1) the acquisition and compiling of relevant information on the waste and its transformation in the landfill;
2) an analysis of the need for pretreatment of the waste, and of the prerequisites and options for pretreatment;
3) an assessment of the waste based on the acceptance criteria laid down in Chapter 5;
4) an analysis of the typical properties of the waste.

(3) The waste producer or other waste holder shall ensure the accuracy of the information used in the basic characterisation.

(4) The landfill operator shall keep the relevant documentation related to the basic characterisation for a minimum of three years after it has been received.
Section 18

*Information required for the basic characterisation*

(1) The following information on the waste shall be available for the basic characterisation:

1) the name of the waste producer or other waste holder and the location and address of their office;

2) a description of the process in which the waste was generated;

3) an account of the pretreatment of the waste in accordance with section 15, or an explanation of why pretreatment was not considered feasible or necessary;

4) the composition of the waste and, where relevant, the leaching properties;

5) odour, colour, physical state and other similar properties of the waste;

6) the waste entry in accordance with the list of waste referred to in section 4 of the Government Decree on Waste, from here on *list of waste*;

7) the primary hazardous properties of hazardous waste, in accordance with the provisions laid down in the Commission Regulation specified in section 14(1)(2); (103/2015)

8) information indicating that the depositing of the waste is not contrary to sections 14 and 15 or prohibited in any other way;

9) the landfill class at which the waste can be accepted;

10) the transformation of the waste in the landfill and possible additional precautions related to this;

11) the potential for recycling or other waste recovery.

(2) The following additional information is required for the basic characterisation of regularly generated waste:

1) compositional range of the wastes and variability limits;

2) variability of the characteristic properties of the waste and variability limits;

3) if required, the leaching properties of the waste determined by a percolation test, a batch leaching test, a pH dependence test, or a combination of these;

4) key variables needed for compliance testing, and the information needed for determining the scope and frequency of the tests;

5) information concerning the compliance assessment that is based on a sufficient number of specifications of the characteristic properties of the waste and that allows for their variability to be determined in cases of wastes arising from similar processes in different facilities.
Section 19

Testing as part of the basic characterisation

(1) Waste shall be tested as part of the basic characterisation to determine the necessary information on its composition and leaching properties, subject to sections 25(1) or 27(3).

(2) The basic characterisation may be carried out without testing by a decision of the permit authority, provided that:

1) all the information on the waste required for the basic characterisation is available and has been appropriately verified; or

2) documented justification is provided that shows the testing of the waste is impractical or practically impossible, or that shows there are no applicable testing methods or acceptable criteria available for the waste, supplemented with other necessary information and justification for the acceptance of waste at the landfill class in question.

(3) Testing as part of the basic characterisation is not required for each batch of regularly generated waste, but instead the batches of waste may be tested in accordance with section 20.

Section 20

Compliance testing

(1) Regularly generated waste shall be subject to compliance testing. However, compliance testing is not required if the waste is exempt from testing requirements for basic characterisation in accordance with sections 19(2)(2), 25(1) or 27(3), and if it can be sufficiently shown that the waste is in compliance with other basic characterisation information.

(2) Compliance testing shall be carried out within the scope determined in the basic characterisation, and shall be repeated at least once a year. The test methods specified in the basic characterisation shall be used for testing.

(3) The testing shall include

1) testing of the key variables identified in the basic characterisation, for the purpose of demonstrating that the waste meets the limit values set for those variables;

2) one or more batch leaching tests;

3) other tests that are needed to demonstrate that the waste complies with the basic characterisation information and the acceptance criteria laid down in Chapter 5.

(4) The landfill operator shall keep the relevant documentation related to the compliance tests for a minimum of three years after it has been received.
Section 21  
*Inspection of waste at a landfill*

Each batch of waste shall be inspected upon delivery of the waste at the landfill. Wastes and waste loads shall be inspected with appropriate rapid determination methods based on inspection samples, or with sensory assessments based on the odour, colour or appearance of the waste.

Section 22  
*Sampling and testing*

(1) Independent and qualified persons or institutions shall see to the sampling and testing that is part of the basic characterisation and compliance testing. The laboratory in charge of the tasks shall have experience and evidence of testing and analysing waste, along with an effective and functional quality assurance programme.

(2) The waste producer or other waste holder or the landfill operator may be in charge of the sampling and testing, provided that:

1) the appropriateness of the assessment of acceptability is ensured through sufficient monitoring performed by independent and qualified persons or institutions;

2) there is an appropriate sampling and testing quality assurance programme in place, including regular, independent inspections.

Section 23  
*Sampling and testing methods*

Standards and technical specifications that have been approved and published by a European standardisation body and that are referred to in Annex 2 shall be used for the sampling and testing of waste.

**Chapter 5**  
**Criteria for acceptance of waste at a landfill**

Section 24  
*Application of the acceptance criteria for waste*

Waste accepted at a landfill shall meet the acceptance criteria for that landfill class, as laid down in this chapter. If the limit values or other acceptance criteria have not been defined, or if the requirements need to be specified further, such decisions shall be made on a case-by-case basis, based on the provisions on assessment laid down in Chapter 4.
Section 25
Acceptance of waste at a landfill for inert waste without testing

(1) Annex 3, Table 1, lists the wastes that can be accepted at a landfill for inert waste without testing. The waste shall be a discrete waste stream of a single waste type and shall originate from one location. The wastes listed in the table may also be accepted together, if they come from the same location.

(2) However, waste shall be tested in accordance with Chapter 4 if there is reason to believe that the waste has been contaminated, or if it cannot be ascertained that the waste is inert waste that meets the acceptance criteria laid down in section 26. Waste may not be accepted at a landfill for inert waste if the tests indicate that the waste has been contaminated or includes metals, asbestos, plastic, chemicals or other materials or substances so as to justify the depositing of the waste in a landfill of a different class, because of an increase in the risk caused by these substances.

Section 26
Criteria for acceptance of waste at a landfill for inert waste

The limit values for leaching properties specified in Annex 3, Table 2, and for the content of organic material specified in Table 3 apply to the acceptance of waste at a landfill for inert waste not referred to in section 25(1).

Section 27
Acceptance of waste at a landfill for non-hazardous waste based on limited testing or without testing

(1) The municipal wastes specified as non-hazardous waste in Chapter 20 of the list of waste may be accepted at a landfill for non-hazardous waste based on limited testing, provided that

1) the waste has been pretreated in accordance with section 15;

2) the waste has not been contaminated so as to justify its treatment in other ways because of an increase in the environmental risk; and

3) the waste is not deposited in a cell of a landfill where gypsum-based waste or stable, non-reactive hazardous waste is deposited.

(2) The limited testing shall determine the content of biodegradable and other organic material associated with the waste, for the purpose of showing that the depositing of the waste in the landfill is not prohibited under section 28.

(3) Construction and demolition waste that includes asbestos and other applicable asbestos waste may be accepted at a landfill for non-hazardous waste without testing if the special requirements on asbestos waste laid down in section 31 are followed in the depositing of the waste.
Section 28
General criteria for acceptance of non-hazardous waste at a landfill for non-hazardous waste

Only non-hazardous waste where the content of biodegradable and other organic material does not exceed 10 per cent, determined as the total organic carbon content or loss on ignition, shall be accepted in the landfill body or in the structural components below the impermeable layer of the surface cover of a landfill for non-hazardous waste. This does not apply to the following waste:

1) fly ash and bottom ash generated by energy production or incineration of waste if the content of dissolved organic carbon is less than 800 milligrams per one kilogram, determined as a liquid to solid ratio of 10 litres per one kilogram of dry mass, either with the pH of the waste itself or with a pH of 7.5–8;

2) contaminated soil waste, contaminated dredging waste, or asbestos waste when the waste is deposited separately from other waste;

3) animal by-products specified in the Animal By-Products Regulation, referred to in section 3(1)(6) of the Waste Act, if the burial of them in the ground is approved in the regulation or the implementing rules of the regulation, or other wastes under special circumstances if the depositing of them in a landfill is necessary for the prevention of animal disease;

4) green liquor sludge from pulp production in the forest industry or de-inking sludge from paper recycling;

5) waste referred to in sections 29–31.

Section 29
Criteria for acceptance of non-hazardous waste together with gypsum-based waste at a landfill for non-hazardous waste

(1) Gypsum-based wastes classified as non-hazardous waste are accepted only in a cell of a landfill for non-hazardous waste where no biodegradable waste is deposited.

(2) The limit values specified in Annex 3, Table 4, apply to non-hazardous waste deposited in a landfill together with gypsum-based wastes.

Section 30
Criteria for acceptance of non-hazardous waste and stable non-reactive hazardous waste together at a landfill for non-hazardous waste

(1) Stable non-reactive hazardous waste is accepted only in a cell of a landfill for non-hazardous waste where no biodegradable waste is deposited.

(2) The limit values for leachability properties specified in Annex 3, Table 5, and other requirements in Table 6 apply to non-hazardous waste and stable non-reactive hazardous waste that are deposited together in a landfill.

(3) The potential compression of waste from compaction or other similar operations and the resulting effects shall be taken into account in the assessment of the physical stability of the waste.
Section 31

Requirements for the acceptance of certain asbestos wastes at a landfill for non-hazardous waste

The acceptance criteria laid down in section 30(2) above do not apply to the deposit of construction and demolition waste containing asbestos and classified as stable non-reactive hazardous waste or other applicable asbestos waste in a landfill for non-hazardous waste or a separate cell of the landfill, if the following procedures and requirements are complied with:

1) the waste contains no other hazardous substances besides bound asbestos, including fibres bound by a binding agent or packed in plastic;

2) the landfill or the separate cell accepts only construction and demolition waste containing asbestos and other suitable asbestos waste;

3) the zone of deposit of asbestos waste shall be covered daily and before each compacting operation with appropriate material;

4) if the asbestos waste is not packed, it shall be regularly sprinkled with water when it is deposited;

5) the landfill or the separate cell shall be permanently capped with a top cover to prevent the dispersion of asbestos fibres;

6) no drilling of holes or other works that could lead to a release of fibres shall be carried out in the zone;

7) the location at the landfill where asbestos waste is accepted shall be recorded in accordance with section 39(1)(6);

8) appropriate measures shall be taken to limit the use of the land after the closure of the landfill in order to avoid human contact with the waste.

Section 32

Criteria for acceptance of waste at a landfill for hazardous waste

(1) The limit values for leaching properties specified in Annex 3, Table 7, and other requirements in Table 8 apply to waste acceptable at a landfill for hazardous waste.

(2) The potential compression of waste from compaction or other similar operations and the resulting effects shall be taken into account in the assessment of the physical stability of the waste.
Section 33
Criteria for acceptance of waste at an underground disposal site

(1) Waste may only be accepted for underground disposal on the basis of a safety assessment carried out at the disposal site. The assessment shall follow the requirements on underground storage laid down in Appendix A of Council Decision (2003/33/EC) establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC, from here on Council Decision 2003/33/EC. Waste shall also be subject to an assessment in accordance with Chapter 4.

(2) Only waste that meets the requirements laid down in sections 25 and 26 may be accepted at an underground disposal site for inert waste, and only waste that meets the requirements laid down in sections 27 to 31 may be accepted at an underground disposal site for non-hazardous waste.

(3) The acceptance criteria laid down in section 32 do not apply to waste deposited in an underground disposal site for hazardous waste.

Section 34
Raising certain limit values

The permit authority may, in view of the properties of the landfill and its surrounding environment, decide on a case-by-case basis that the limit values laid down in sections 26, 29, 30 and 32 may be at a maximum tripled, subject to the exemptions laid down in Annex 3, point 4, if the landfill operator, on the basis of an overall assessment of the impact of the landfill on human health and the environment, convincingly shows that the higher limit values do not lead to greater hazards or harm to human health or the environment from the landfill leachate or other contaminated water or from other emissions.

Section 35
Granting exemptions in certain cases

The permit authority may decide that the restriction on waste that includes biodegradable and other organic material, referred to in section 28, does not apply to waste that is pretreated in accordance with section 15, if it can be convincingly shown that because of its properties the waste is not suitable for other treatment than disposal in a landfill. Furthermore, an exemption from the restriction may be granted by the permit authority for a definite period up to a maximum of one year at a time, if it can be convincingly shown that the replacement treatment capacity can be in place within the deadline that will be set.

Section 36 (960/2016)
Special requirements for the acceptance of waste that includes persistent organic pollutants

Provisions on the right of the permit authority to accept the deposit of waste that contains or is contaminated with persistent organic pollutants in a landfill for hazardous waste or in an underground disposal site under exceptional circumstances are laid down in Article 7(4)(b) of Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants and amending Directive 79/117/EEC.
Section 37
Special requirements for the acceptance of metallic mercury for temporary storage

(1) Provisions on the obligation to prepare a safety assessment for temporary storage of metallic mercury for more than one year underground or in an above-ground disposal site, as defined in Appendix A of Council Decision 2003/33/EC, are laid down in Article 4 of the Mercury Regulation. Exemptions from the application of the acceptance criteria for metallic mercury stored above ground, referred to in section 32, are laid down in Article 3 of the Mercury Regulation.

(2) The requirements laid down in Annex 4 shall also apply to the acceptance of metallic mercury for temporary storage that lasts for over a year.

Chapter 6
Delivery of waste to a landfill

Section 38
Information to be provided on waste

(1) In delivering waste to be deposited in a landfill, the waste holder or other party delivering the waste shall provide the landfill operator with the following:

1) information on the origin of the waste;
2) classification of the waste in accordance with the list of waste;
3) the shipping document concerning the waste, referred to in section 121 of the Waste Act;
4) in the case of waste shipped from another country, the documents required under Regulation (EC) No 1013/2006 of the European Parliament and of the Council on shipments of waste;
5) a copy of the relevant documents concerning the basic characterisation of waste, in accordance with sections 17–19.

(2) For regularly generated waste, it is enough for the information and documents referred to in subsection 1(5) to be submitted before the first waste consignment is delivered.

(3) The waste holder shall monitor the quality of the waste using the compliance test referred to in section 20, and shall provide the landfill operator with the information at least once a year.

(4) The landfill operator shall hold the applicable information and documents referred to in this section, even if all the waste deposited in the landfill originates from the operator’s own activities.
Section 39  
Reception of waste at a landfill

When waste is received at a landfill, the landfill operator shall see to it that:

1) the information and documents on the waste, referred to in section 38(1), are checked and it is verified that the deposit of the waste in the landfill has been approved in the permit decision;

2) the waste is checked in accordance with section 21 when the waste load is received and unloaded to ensure that the waste conforms to the information and documents presented on it, and that samples of the waste necessary for any inspection tests are taken and preserved for at least one month;

3) the waste carrier is given a written certificate on the waste accepted at the landfill;

4) the supervisory authority is immediately notified of the non-acceptance of waste;

5) a record is kept, in accordance with section 22 of the Government Decree on Waste, of the type, quality, quantity, origin, delivery date and producer of the waste, or waste carrier in the case of municipal waste, of the acceptance of the waste at the landfill and the depositing of it;

6) a record is kept of the precise location in the landfill where hazardous waste is deposited.

Chapter 7  
Landfill monitoring and control

Section 40  
General requirements for monitoring and control

(1) The landfill operator shall carry out monitoring and control of the landfill and its surrounding environment during its operation and aftercare in order to determine that:

1) the waste in question has been accepted for landfilling in accordance with the criteria for that specific class of landfill;

2) the processes within the landfill proceed as desired;

3) the environmental protection systems in the landfill are functioning fully as intended;

4) the permit regulations for the landfill are complied with;

5) the permit and supervisory authorities can be provided with the information and reports required in the environmental permit.

(2) Monitoring and control shall be carried out as planned. The necessary samples must be representative.

(3) Any significant adverse impacts on human health or the environment that are detected shall be reported immediately to the supervisory authority.
Section 41
Baseline report

(1) Before beginning landfill operations or the monitoring and control referred to in this Decree, or before the closure of a landfill, a baseline report on the surface water and groundwater of the landfill site and on the state of decomposition and gas emissions from the landfill body during operations shall be prepared.

(2) For the baseline report, surface water samples shall be taken twice during the high flow period at an interval of at least one month, and at least once during the low flow period. Groundwater samples shall be taken from at least three places.

Section 42
Monitoring of the landfill body

(1) The landfill body and the settlement of it shall be monitored regularly during the landfilling and aftercare phases.

(2) The following information shall be obtained for the monitoring of the landfill body:

1) the surface area, volume, composition and settlement of the landfill body;

2) the water level and temperature, and other internal properties of the landfill body;

3) the method of deposit;

4) the landfill cell in use at any given time;

5) calculation of the remaining volume of the landfill site.

Section 43
Monitoring of landfill gas

(1) The monitoring of the accumulation and migration of landfill gas shall be carried out in a way that provides reliable information on the generation of gas in all parts of the landfill.

(2) The gas volume and pressure and the methane, carbon dioxide and oxygen components of the gas shall be determined every month during the operational phase and every six months during the aftercare phase. If it is demonstrated that measurements taken at longer intervals provide sufficiently reliable information, the measurements may be adjusted. Provisions on the analysis of other landfill gases are given in the environmental permit as necessary, according to the waste deposited in the landfill.

(3) The condition of the gas collection system shall be inspected regularly.
Section 44

Monitoring of landfill leachate and other contaminated water

(1) The quantity and quality of landfill leachate and other contaminated water shall be monitored separately at each point where these liquids are conducted away from the landfill site. In addition, the treatment of landfill leachate and other contaminated water and the discharge from treatment shall be monitored in such a way that the effectiveness of the treatment and the pollution load caused by the landfill can be assessed reliably.

(2) During the operational phase, the quantity and conductivity of landfill leachate and other contaminated water shall be monitored through weekly measurements, and also during high flow periods with measurements taken every day of operation. During the aftercare phase, the quantity and conductivity of landfill leachate and other contaminated water shall be measured at six-month intervals. The quality of landfill leachate and other contaminated water shall be analysed at three-month intervals during the operational phase and at six-month intervals during the aftercare phase. If it is demonstrated that measurements taken at longer intervals provide sufficiently reliable information, all the measurements referred to above may be adjusted.

(3) Provisions on the substances and properties to be analysed in the samples taken of landfill leachate and other contaminated water are given in the environmental permit according to the type of waste deposited in the landfill.

Section 45

Surface water monitoring

(1) The quality and quantity of surface water shall be analysed by taking samples from at least two observation points. One of these shall be upstream from the landfill relative to the direction of surface water flow. The other point shall demonstrate the effect of the landfill on the surface water.

(2) The measurements shall be made at three-month intervals during the operational phase of the landfill and at six-month intervals during the aftercare phase. The measurements may be adjusted on the basis of individual landfill properties.

Section 46

Groundwater monitoring

(1) The monitoring of groundwater shall be based on samples and measurements taken from at least two observation points below and one point above the landfill site relative to the direction of groundwater flow. In the area potentially affected by the landfill site, water quality in wells for household use shall also be monitored.

(2) The groundwater level and internal water level at the landfill site shall be monitored every six months. If the groundwater level varies on the site, the monitoring shall be more frequent.

(3) Provisions on sampling for determining groundwater composition and for analysing substances and properties are given in the environmental permit, according to the assessed quality of the landfill leachate and other contaminated water generated by the waste and the assessed quality of the groundwater at the landfill site. The groundwater flow rate in the area shall also be taken into account. The measurements shall enable rapid detection of changes in water quality.
(4) If deterioration in groundwater quality is observed or if the threshold level of harmful substances set for it in the permit decision is exceeded, the supervisory authorities shall be informed without delay. In such a case, the plan for incident preparedness and emergency response approved in the environmental permit or provided in the permit regulation shall be followed.

(5) Observations regarding groundwater quality shall be recorded and the information compiled in a table which indicates clearly any changes occurring in quality.

Section 47
Plan for monitoring and control

Besides the provisions laid down in section 120 of the Waste Act and section 25 of the Government Decree on Waste, the monitoring and control plan drawn up by the landfill operator shall include information on the following measures:

1) implementation of the general restrictions on the acceptance of waste at a landfill, as laid down in Chapter 3, and the monitoring and control of the reception of waste acceptable at a landfill in other respects;

2) organisation of the monitoring of the landfill body, landfill gas, landfill leachate and other contaminated water, surface water and groundwater.

Section 48
Special monitoring and control requirements for the temporary storage of metallic mercury

(1) The following special requirements for monitoring and control shall apply to the temporary storage of metallic mercury for more than one year in an underground storage site or an above-ground site:

1) a continuous mercury vapour monitoring system shall be installed in the storage site:
   a) with a sensitivity of at least 0.02 mg mercury/m$^3$;
   b) with sensors positioned at ground level and head level;
   c) with visual and acoustic alert devices;
   d) which shall be maintained annually;

2) the person in charge of the storage site shall visually inspect the site and the containers at least once per month;

3) if leaks are detected, the necessary measures shall be taken without delay to prevent emissions of mercury and to restore the safety of the storage site;

4) all leaks shall be reported to the supervisory authority without delay;

5) an emergency plan and adequate protective equipment suitable for handling metallic mercury shall be available on site.

(2) The operator of the storage site shall keep the documents containing the information referred to in subsection 1 and Annex 4 for at least three years after the storage period ends. Similarly, the information concerning the removal of metallic mercury from the storage, the delivery of the mercury after the temporary storage, the destination of the metallic mercury and the intended treatment shall be retained.
Section 49
Information to be provided on monitoring and control

The landfill operator shall submit the following information concerning monitoring and control over the last twelve months to the supervisory authority by the end of February of each year:

1) the quantity of organic waste and other waste deposited in the landfill per waste type;
2) the quantity of waste delivered to the landfill for other treatment per waste type;
3) a summary of the basic characterisation and compliance tests in accordance with Chapter 4;
4) a description of the landfill body;
5) a description of how the monitoring of the landfill body, landfill gas, landfill leachate and other contaminated water, surface water and groundwater is organised, and a summary of the monitoring results;
6) a report on the environmental load of the landfill and the measures taken to prevent environmental harm.
7) a description of any exceptional circumstances.

Chapter 8
Monitoring the implementation

Section 50 (103/2015)
Storing of information in the environmental protection database

(1) Provisions on the obligation of the state permit and supervisory authorities and municipal environmental protection authorities to store the information concerning the environmental permit for the landfill, including the decisions referred to under section 9 and sections 34 to 36, the monitoring and control information referred to in section 49, and other equivalent information concerning the landfill, in the environmental protection database are laid down in section 223 of the Environmental Protection Act.

(2) The permit authority shall also submit the information concerning the decisions referred to under section 9 and sections 34 to 36 to the Finnish Environment Institute.

Section 51
Information to be provided on implementation

Once every three years, the Finnish Environment Institute shall prepare a report on the implementation of Council Directive 1999/31/EC on the landfill of waste in Finland, in accordance with Article 5 of Council Directive 91/692/EEC standardizing and rationalizing reports on the implementation of certain Directives relating to the environment. The Finnish Environment Institute shall also ensure that the information on the exceptions referred to in section 36 and the information referred to in Article 5(1) of the Mercury Regulation are submitted to the European Commission. Information on the exceptions referred to in section 36 shall also be submitted to other European Union Member States.
Chapter 9
Miscellaneous provisions

Section 52
Environmental permits for landfills

(1) The Environmental Protection Act and the Environmental Protection Decree (169/2000) contain provisions on applications for environmental permits for landfills and the processing of such applications.

(2) The supervisory authority shall check that a landfill matches the description of what is stated in the permit application and the permit regulations before it is taken into use or closed.

Section 53
Entry into force and transitional provisions

(1) This Decree enters into force on 1 June 2013.

(2) This Decree repeals the Government Decision on Landfills (861/1997). However, section 4(1)(2) of that decree remains valid until 31 December 2015.

(3) Regulations laid down in sections 27 and 28 on the determination of and restriction on biodegradable and other organic matter apply from 1 January 2016, with the exception of waste generated by the sorting of construction and demolition waste and by other mechanical waste treatment, to which the Decree applies from 1 January 2020. However, the concentration of biodegradable matter and other organic matter in the latter type of waste referred to above, determined as the total organic carbon content or loss on ignition, may not exceed 15 per cent as of 1 January 2016.

(4) The obligation of the permit authority to record relevant information on the environmental permit for the landfill in the environmental protection database, referred to in section 50(1) of this decree, applies to permits granted on or after 1 January 2014.

(5) Section 4 of this Decree does not apply to landfills that were taken into use before 1 October 1997.

(6) This Decree does not apply to landfills that have been legally closed before 1 October 1997.

Helsinki, 2 May 2013

Ville Niinistö, Minister of the Environment

Klaus Pfister, Senior Environmental Adviser

Decree 103/2015 amending this Decree enters into force on 20 February 2015. However, the amendments to section 14(1)(2) and (3) and section 18(1)(7) enter into force on 1 June 2015.

Decree 960/2016 amending this Decree enters into force on 1 January 2017.
Annex 1

Structural components of the bottom and of the surface cover of the landfill site

1. Permeability requirements for the structural components of the bottom

The ground underlying the landfill (mineral soil or rock) shall fulfil water permeability (K) and thickness requirements for water-saturated soil so that the combined effect is at least equivalent to the following requirements:

1) landfill for hazardous waste: $K \leq 1.0 \times 10^{-9} \text{ m/s}$ and thickness $\geq 5 \text{ m}$;
2) landfill for non-hazardous waste: $K \leq 1.0 \times 10^{-9} \text{ m/s}$ and thickness $\geq 1 \text{ m}$;
3) landfill for inert waste: $K \leq 1.0 \times 10^{-7} \text{ m/s}$ and thickness $\geq 1 \text{ m}$.

2. Layers in the surface cover

<table>
<thead>
<tr>
<th>Layer</th>
<th>Landfill for non-hazardous waste</th>
<th>Landfill for hazardous waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top soil cover $\geq 1 \text{ m}$</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>Drainage layer $\geq 0.5 \text{ m}$</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>Impermeable layer $\geq 0.5 \text{ m}$</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td>Artificial sealing liner</td>
<td>Not required</td>
<td>Required</td>
</tr>
<tr>
<td>Gas drainage layer</td>
<td>Required</td>
<td>As necessary</td>
</tr>
</tbody>
</table>
Sampling and testing methods in the assessment of acceptability at a landfill

The standards (EN) and technical specifications (TS), along with their updated versions, of the European Committee for Standardization (CEN) shall be applied to the sampling and testing of waste, as follows:

1) samples shall be taken in accordance with a sampling plan based on standard SFS-EN 14899;

2) the basic characteristics of waste shall be specified in accordance with standards SFS-EN 13137 (total organic carbon), SFS-EN 14346 (calculation of dry matter), SFS-EN 15169 (loss on ignition), SFS-EN 15308 (PCB congeners) and SFS-EN 15527 (PAH compounds);

3) solubility shall be tested in accordance with technical specification CEN/TS 14405 (upflow percolation test) and standard SFS-EN 12457/3 (two-stage batch test);

4) acid neutralisation capacity (ACN) shall be determined in accordance with technical specification CEN/TS 15364 (alternatively, CEN/TS 14429 or CEN/TS 14997);

5) dissolved organic carbon (DOC) shall be determined in accordance with technical specification CEN/TS 14429 or CEN/TS 14997 with the specific pH;

6) the digestion of raw waste shall follow standards SFS-EN 13656 (microwave assisted digestion with acid mixture) and SFS-EN 13657 (digestion with aqua regia);

7) other chemical assays shall be carried out in accordance with standards SFS-EN 16192 (analysis of eluates), SFS-EN 15126 (total dissolved solids) and SFS-EN 14039 (hydrocarbons).

For other testing before the official CEN standard is available, the prEN version shall be used, or national standards or other procedures that have been approved by the permit authority shall be used.
Annex 3

Criteria for the acceptance of waste at a landfill

The limit values specified in the tables refer to the maximum content that may not be exceeded, subject to the provisions in section 34.

1. Landfill for inert waste

Table 1

<table>
<thead>
<tr>
<th>Waste code</th>
<th>Description</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 11 03</td>
<td>Waste glass-based fibrous materials</td>
<td>Only waste without organic binders</td>
</tr>
<tr>
<td>15 01 07</td>
<td>Glass packaging</td>
<td></td>
</tr>
<tr>
<td>17 01 01</td>
<td>Concrete</td>
<td>Only selected construction and demolition waste</td>
</tr>
<tr>
<td>17 02 02</td>
<td>Bricks</td>
<td>Only selected construction and demolition waste</td>
</tr>
<tr>
<td>17 01 03</td>
<td>Slabs and ceramics</td>
<td>Only selected construction and demolition waste</td>
</tr>
<tr>
<td>17 01 07</td>
<td>Mixtures of concrete, bricks, slabs and ceramics</td>
<td>Only selected construction and demolition waste</td>
</tr>
<tr>
<td>17 02 02</td>
<td>Glass</td>
<td></td>
</tr>
<tr>
<td>17 05 04</td>
<td>Soil and rock materials</td>
<td>Excluding topsoil and peat, and soil and rock from polluted areas</td>
</tr>
<tr>
<td>19 12 05</td>
<td>Glass</td>
<td></td>
</tr>
<tr>
<td>20 01 02</td>
<td>Glass</td>
<td>Only separately collected glass</td>
</tr>
<tr>
<td>20 02 02</td>
<td>Soil and rock materials</td>
<td>Only from garden and park waste, excluding topsoil and peat</td>
</tr>
</tbody>
</table>

1) Code for the waste entry in the list of waste.

2) Selected construction and demolition waste means waste with low contents of metals, plastic, organic matter, wood, rubber, or other similar substances, and where the origin is known; it does not mean waste arising from the construction and demolition of structures that

- are contaminated with inorganic or organic hazardous substances, because of processes in the construction, soil contamination, the storage or use of pesticides or other hazardous substances or another similar reason, unless it can be clearly shown that the demolished structure was not significantly contaminated;

- have been treated, protected or painted with materials containing hazardous substances in significant amounts.
Table 2

<table>
<thead>
<tr>
<th>Substance/variable</th>
<th>Limit value, mg/kg of dry mass (L/S = 10 l/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (As)</td>
<td>0.5</td>
</tr>
<tr>
<td>Barium (Ba)</td>
<td>20</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>0.04</td>
</tr>
<tr>
<td>Total chromium (Cr tot)</td>
<td>0.5</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>0.01</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>0.5</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>0.4</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>0.5</td>
</tr>
<tr>
<td>Antimony (Sb)</td>
<td>0.06</td>
</tr>
<tr>
<td>Selenium (Se)</td>
<td>0.1</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>4</td>
</tr>
<tr>
<td>Chloride (Cl\textsuperscript-\text{-})</td>
<td>800</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>10</td>
</tr>
<tr>
<td>Sulphate (SO\textsubscript{4}\textsuperscript{2-})</td>
<td>1,000\textsuperscript{1}\textsuperscript{1}</td>
</tr>
<tr>
<td>Phenol index</td>
<td>1</td>
</tr>
<tr>
<td>Dissolved organic carbon (DOC)\textsuperscript{2}\textsuperscript{2}</td>
<td>500</td>
</tr>
<tr>
<td>Total dissolved solids (TDS)\textsuperscript{3}\textsuperscript{3}</td>
<td>4,000</td>
</tr>
</tbody>
</table>

\textsuperscript{1} Waste is also considered as meeting the acceptance criteria if the sulphate content stays below the following values: 1,500 mg/l (the first extraction of the percolation test, extraction ratio L/S = 0.1 l/kg) and 6,000 mg/kg (extraction ratio L/S = 10 l/kg); the percolation test shall be used for the determination of content when the extraction ratio is L/S = 0.1 l/kg; the content may be determined by a shake test or percolation test when the extraction ratio is L/S = 10 l/kg.

\textsuperscript{2} If the limit value for dissolved organic carbon is exceeded at the pH of the waste, an extraction ratio of L/S = 10 l/kg, at a pH of 7.5–8.0, may also be used to test the waste; if the content is 500 mg/kg or less, the waste is considered to meet the acceptance criteria for dissolved organic carbon.

\textsuperscript{3} The limit value for total dissolved solids may be applied instead of the limit values for sulphate and chloride.
### Table 3

<table>
<thead>
<tr>
<th>Substance/variable</th>
<th>Limit value, mg/kg of dry mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total organic carbon (TOC)</td>
<td>30,000 (3%)</td>
</tr>
<tr>
<td>Benzene, toluene, ethylbenzene and xylenes (BTEX)</td>
<td>6</td>
</tr>
<tr>
<td>Polychlorinated biphenyls (PCBs)(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Mineral oil (C10–C40)</td>
<td>500</td>
</tr>
<tr>
<td>Polycyclic aromatic hydrocarbons (PAHs)(^2)</td>
<td>40</td>
</tr>
</tbody>
</table>

\(^1\) Total amount of congeners 28, 52, 101, 118, 138, 153 and 180.


### 2. Landfill for non-hazardous waste

#### Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>Limit value, mg/kg of dry mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total organic carbon (TOC)</td>
<td>50,000 (5%)</td>
</tr>
<tr>
<td>Dissolved organic carbon (DOC)</td>
<td>800(^1)</td>
</tr>
</tbody>
</table>

\(^1\) Extraction ratio L/S = 10 l/kg, either at the pH of the waste or a pH of 7.5–8.0.
### Table 5

<table>
<thead>
<tr>
<th>Substance/variable</th>
<th>Limit value, mg/kg of dry mass (L/S = 10 l/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (As)</td>
<td>2</td>
</tr>
<tr>
<td>Barium (Ba)</td>
<td>100</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>1</td>
</tr>
<tr>
<td>Total chromium (Cr$_{\text{tot}}$)</td>
<td>10</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>50</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>0.2</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>10</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>10</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>10</td>
</tr>
<tr>
<td>Antimony (Sb)</td>
<td>0.7</td>
</tr>
<tr>
<td>Selenium (Se)</td>
<td>0.5</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>50</td>
</tr>
<tr>
<td>Chloride (Cl$^-)$</td>
<td>15,000</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>150</td>
</tr>
<tr>
<td>Sulphate (SO$_4^{2-}$)</td>
<td>20,000</td>
</tr>
<tr>
<td>Dissolved organic carbon (DOC)$^{1)}$</td>
<td>800</td>
</tr>
<tr>
<td>Total dissolved solids (TDS)$^{2)}$</td>
<td>60,000</td>
</tr>
</tbody>
</table>

1) If the limit value for dissolved organic carbon is exceeded at the pH of the waste, an extraction ratio of L/S = 10 l/kg, at a pH of 7.5–8.0, may also be used to test the waste; if the content is 800 mg/kg or less, the waste is considered to meet the acceptance criteria for dissolved organic carbon.

2) The limit value for total dissolved solids may be applied instead of the limit values for sulphate and chloride.

### Table 6

<table>
<thead>
<tr>
<th>Variable</th>
<th>Limit value/other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total organic carbon (TOC)</td>
<td>5%$^{1)}$</td>
</tr>
<tr>
<td>pH</td>
<td>At least 6.0</td>
</tr>
<tr>
<td>Acid neutralisation capacity (ACN)</td>
<td>Always examined and assessed</td>
</tr>
</tbody>
</table>

1) Calculated per dry mass.
3. Landfill for hazardous waste

Table 7

<table>
<thead>
<tr>
<th>Substance/variable</th>
<th>Limit value, mg/kg of dry mass (L/S = 10 l/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (As)</td>
<td>25</td>
</tr>
<tr>
<td>Barium (Ba)</td>
<td>300</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>5</td>
</tr>
<tr>
<td>Total chromium (Cr_{tot})</td>
<td>70</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>100</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>2</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>30</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>40</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>50</td>
</tr>
<tr>
<td>Antimony (Sb)</td>
<td>5</td>
</tr>
<tr>
<td>Selenium (Se)</td>
<td>7</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>200</td>
</tr>
<tr>
<td>Chloride (Cl(^{-}))</td>
<td>25,000</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>500</td>
</tr>
<tr>
<td>Sulphate (SO(_4^{2-}))</td>
<td>50,000</td>
</tr>
<tr>
<td>Dissolved organic carbon (DOC)(^{1)}</td>
<td>1,000</td>
</tr>
<tr>
<td>Total dissolved solids (TDS)(^{2)}</td>
<td>100,000</td>
</tr>
</tbody>
</table>

1) If the limit value for dissolved organic carbon is exceeded at the pH of the waste, an extraction ratio of L/S = 10 l/kg, at a pH of 7.5–8.0, may also be used to test the waste; if the content is 1,000 mg/kg or less, the waste is considered to meet the acceptance criteria for dissolved organic carbon.

2) The limit value for total dissolved solids may be applied instead of the limit values for sulphate and chloride.

Table 8

<table>
<thead>
<tr>
<th>Variable</th>
<th>Limit value/ other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss on ignition (LOI)(^{1)}</td>
<td>10%(^{2)}</td>
</tr>
<tr>
<td>Total organic carbon (TOC)(^{1)}</td>
<td>6%(^{2)}</td>
</tr>
<tr>
<td>Acid neutralisation capacity (ACN)</td>
<td>Always examined and assessed</td>
</tr>
</tbody>
</table>

1) The limit value for loss on ignition or total organic carbon shall apply.

2) Calculated per dry mass.
4. Exceptions to the raising of certain limit values in accordance with section 34

The following apply to the limit values for total organic carbon specified in this Annex:

1) the limit value specified in Table 3 may be doubled: however, the limit value for waste soils may be tripled if the dissolved organic carbon content of the waste does not exceed 500 mg/kg when the extraction ratio is L/S = 10 l/kg, either at the pH of the waste or at a pH of 7.5-8.0;

2) the limit value specified in Tables 4 and 6 may be doubled only if the dissolved organic carbon content does not exceed 800 mg/kg when the extraction ratio is L/S = 10 l/kg, either at the pH of the waste or at a pH of 7.5-8.0;

3) the limit value specified in Table 8 may be tripled only if the dissolved organic carbon content of the waste does not exceed 1,000 mg/kg when the extraction ratio is L/S = 10 l/kg, either at the pH of the waste or at a pH of 7.5-8.0.

Exemptions may not be granted for the following limit values specified in this Annex:

1) the limit value for dissolved organic carbon specified in Tables 2, 5 and 7;

2) the limit value for benzene, toluene, ethylbenzene and xylene specified in Table 3;

3) the limit values for polychlorinated biphenyls, mineral oils and polycyclic aromatic hydrocarbons specified in Table 3;

4) the pH limit value specified in Table 6;

5) the loss on ignition limit value specified in Table 8.
Annex 4

Special requirements for the acceptance of metallic mercury for temporary storage

The following requirements shall apply to the acceptance of metallic mercury for temporary storage for more than one year:

1. Composition of the mercury

The metallic mercury shall meet the following requirements:

- mercury content greater than 99.9% per weight;
- no impurities capable of corroding carbon or stainless steel (e.g. nitric acid solution, chloride salts solutions).

2. Container

The container used for the storage of metallic mercury shall be corrosion- and shock-resistant. Welds shall therefore be avoided. The container shall meet, in particular, the following requirements:

- container material: carbon steel (ASTM A36 minimum) or stainless steel (AISI 304, 316L);
- the container shall be gas and liquid tight;
- the outer side of the container shall be resistant against the storage conditions;
- the design type of the container shall pass the drop test and the leakproofness tests as described in Chapters 6.1.5.3 and 6.1.5.4 of the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.

The maximum filling ratio of the container shall be 80% by volume to ensure that sufficient ullage is available and neither leakage nor permanent distortion of the container can occur as a result of an expansion of the liquid due to high temperature.

3. Acceptance for storage

A container that contains metallic mercury shall be accepted for storage only if it meets the requirements laid down in this part, and if a certificate, referred to in point 4 of this Annex, showing compliance with the requirements has been drawn up and made available by the producer of waste or the person in charge of the waste treatment of metallic mercury.
For acceptance, the following requirements shall be complied with:

- only metallic mercury that meets the requirements referred to in point 1 of this Annex shall be accepted;
- the container shall be visually inspected before storage; damaged, leaking or corroded containers shall not be accepted;
- the container shall bear a durable stamp (made by punching) indicating the identification number of the container, the material used in its manufacturing, the empty weight of the container, the reference of the manufacturer and the date of manufacturing;
- a plate bearing the identification number of the certificate referred to in point 4 of this Annex shall be permanently fixed to the container.

4. Certificate

The certificate shall contain the following information:

- name and address of the waste producer;
- name and address of the person responsible for the filling of the container;
- place and date of filling;
- quantity of the mercury;
- the purity of the mercury and, if relevant, a description of the impurities, including the analytical report;
- confirmation that the container has been used exclusively for the transport and storage of mercury;
- the identification number of the container;
- any specific comments.