Guidelines on the Application of the Waste Catalogue Ordinance

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety hereby gives notice of the guidelines for the application of the Waste Catalogue Ordinance (Abfallverzeichnis-Verordnung - AVV) of 10 December 2001 (Federal Law Gazette I p. 3379), last amended by Article 2 of the Ordinance of 24 July 2002 (Federal Law Gazette 2833):

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1 Area of application

The Waste Catalogue Ordinance (German designation: AVV) [1] specifies the designation of waste and the classification of wastes as requiring or not requiring particular monitoring according to the risks they pose.
These guidelines contain explanations for the interpretation of the term ‘hazardous type of waste’ and the associated assignment of waste with hazardous properties according to the AVV. This is particularly true for the assignment of hazardous properties in the case of ‘mirror entries’.

In this regard, the guidelines provide instructions for the assignment of waste, on the basis of specific properties, to types of waste regarded as hazardous or non-hazardous. The guidelines explain the hazardous properties H1 to H14, and a system for the assignment of these properties.

The directions shall be used to assist the producers or owners of waste responsible for designation and classification. They are particularly relevant with regard to

- the classification of a waste product as requiring particular monitoring pursuant to Section 41(1) and (3) of the Closed Substance Cycle and Waste Management Act (German designation KrW-/AbfG) [2] in conjunction with the AVV.
- general monitoring measures pursuant to Section 40 of the KrW-/AbfG
- carrying out procedures for providing proof pursuant to Sections 42-47 of the KrW-/AbfG
- approval procedures for plant under the 4th Ordinance implementing the Federal Immission Control Act (German designation: 4. BImSchV) [3] and for application documents under the 9th Ordinance implementing the Federal Immission Control Act (German designation: 9. BImSchV) [4]
- hand-over and transfer obligations under Section 13 of the KrW -/AbfG.

The guidelines do not contain any stipulations regarding the processing, recycling and disposal of waste

2 General provisions

2.1 Waste Catalogue Ordinance

The Waste Catalogue Ordinance (AVV) contains the entire list of waste types, covering both hazardous and non-hazardous types of waste. It comprises 839 types of waste, of which 405 are classified as hazardous. These are marked with an asterisk (*), and, in accordance with Section 3(1) sentence 1 AVV, are waste requiring particular monitoring under Section 41(1) sentence 1 and (3) sentence 1 of the Closed Substance Cycle and Waste Management Act . It is assumed that, in the case of waste assigned to these types of waste, at least one of the hazardous properties referred to in Directive 91/689/EEC on hazardous waste [5] (referred to below as the Directive on hazardous waste) is present.

For ease of reference, Annex I of the guidelines lists the types of waste in the case of which the designation as hazardous can only be deviated from pursuant to Section 3(3) AVV. This list comprises 232 types of waste in total. The remaining 173 types of waste classified as hazardous take the form of "mirror entries", which compare hazardous with non-hazardous types of waste. These mirror entries are listed in Annex II. Each hazardous mirror entry is compared with at least one type of waste that is classified as non-hazardous.

Not all hazardous properties are specified in the Waste Catalogue Ordinance (only H3 to H8, H10 and H11). In the interests of a uniform application, explanations are given in these guidelines for the other non-specified properties, which allow easily identifiable classifications to be made.

The basic provisions regarding assignment of a waste product to a waste type and regarding classification as hazardous waste are laid down in the Annex to Section 2(1) AVV.

2.2 European Community requirements for the list of wastes

Enactment of the AVV transposed 2000/532/EC: Commission Decision of 3 May 2000 [6], as amended by the amending Decisions.

To define the hazardous properties H3 to H8, H10 and H11, Article 2 of the Decision refers to

European substance law (Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances [7] (referred to below as the Substances Directive), Directive 88/379/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations [8] (referred to below as the Preparations Directive) and the amending directives enacted in that regard). These Directives have been transposed into German law in the Hazardous Substances Ordinance (German designation GefStoffV) [9]. Subsequent amendments are continually transposed into the GefStoffV by means of flexible references.
The values specified for the properties in Section 3(2) AVV are laid down definitively. In accordance with footnote 1 to Article 2 of Decision 2000/532/EC, they were taken definitively from Directive 88/379/EEC. The successor Directive 1999/45/EC [10] and other relevant hazardous substance directives can also be applied in defining the hazardous properties H1, H2, H9 and H12 to H14.

2.3 Federal Water Act (German designation WHG)

The provisions in Section 19g WHG [11] and thus classification in water hazard classes are not affected by the AVV.

3 Hazardous properties and categories of danger

3.1 Hazardous properties in accordance with the Directive on hazardous waste

The Directive on hazardous waste defines the hazardous properties on which classification of waste as hazardous is based. It is assumed that this waste exhibits one or more of the properties in Annex III to the Directive. Decision 2000/532/EC also uses the non-defined hazardous properties as a basis for classifying waste as hazardous. These properties must be taken into consideration without exception when classifying waste.
Table 1 lists these properties.

Table 1

Hazardous properties of waste in accordance with the Directive on hazardous waste

Property	Designation	Notes
H1	**explosive**	substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene;
H2	**oxidising**	substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances;
H3-A	**highly flammable**	- liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or - substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or - solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or - gaseous substances and preparations which are flammable in air at normal pressure, or - substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities;
H3-B	**flammable**	liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C;
H4	**irritant**	non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation;
H5	**harmful**	substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks;
H6	**toxic**	substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death;
H7	**carcinogenic**	substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence;
H8	**corrosive**	substances and preparations which may destroy living tissue on contact;
H9	**infectious**	substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms;
H10	**teratogenic***	substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence;

H11	**mutagenic****	substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence;
H12	**--**	substances and preparations which release toxic or very toxic gases in contact with water, air or an acid;
H13	**--**	substances and preparations capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above;
H14	**ecotoxic**	substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.

* In Council Directive 92/32/EEC amending for the seventh time Directive 67/548/EEC [12], the term "toxic for reproduction" was introduced. This replaced the term "teratogenic" and has a more precise definition, without changing the concept. It is therefore the equivalent of H10 in Annex III to Directive 91/689/EEC.
** synonym: gene altering

3.2 Categories of danger

With regard to the categories to be assigned to the hazardous properties, the AVV refers to the stipulations of the Substances Directive, which has been transposed in the GefStoffV. The categories of danger, the R phrases and the associated hazardous properties under the Directive on hazardous waste are indicated in Table 2. Combinations of the listed R phrases shall also be taken into consideration when assigning hazardous properties.

Table 2

Categories of danger with associated R phrases in accordance with Annex VI to the Substances Directive and hazardous properties of the waste

Categories of danger	**R phrases**	**Hazardous properties**
Explosive	R2, R3	H1
Oxidising	R7, R8, R9	H2
Extremely flammable	R12	H3-A
Highly flammable	R11, R15, R17	H3-A
Flammable	R10	H3-B
Very toxic	R26, R27, R28, R39/$^{+}$	H6
Toxic	R23, R24, R25, R39/$^{+}$, R48/$^{+}$	H6
Harmful	R20, R21, R22, R48/$^{+}$, R68/$^{+}$ R65	H5
Corrosive	R34, R35	H8
Irritant	R36, R37, R38, R41	H4
Sensitising	R42, R43	-

Carcinogenic	R45, R49, R40[#]	H7
Toxic for reproduction	R60, R61, R62, R63	H10
Mutagenic	R46, R68[#]	H11
Dangerous for the environment	R50, R51, R52, R53, R54, R55, R56, R57, R58, R59	H14

[#] In Directive 2001/60/EC [13], R phrase R40 was amended to R68, and a new wording was laid down for R40 for application to Category 3 carcinogenic substances; the corresponding references shall be taken into account when applying the AVV: R40 Possible risk of cancer and R68 Possible risks of irreversible effects.

[+] R39/, R48/, R68/ = combinations of phrases

Section 3(2) AVV defines the categories of danger for properties H4 to H8, H10 and H11 by providing concentration limits. With regard to property H3, a distinction need not be made between H3-A and H3-B. Waste shall be classified as hazardous if the flash point is ≤ 55 °C[1]. See Table 3.

Table 3

Categories under Section 3(2) AVV and associated concentrations and flash points

Categories under Section 3(2) AVV		**Flash point/ Concentration limits**	**Property**
1.	Flammable	Flash point ≤ 55 °C	H3
2.	Very toxic	Total concentration of ≥ 0.1% of one or more substances	H6
3.	Toxic	Total concentration of ≥ 3% of one or more substances	H6
4.	Harmful	Total concentration of ≥ 25% of one or more substances	H5
5.	Corrosive (R35)	Total concentration of ≥ 1% of one or more substances	H8
6.	Corrosive (R34)	Total concentration of ≥ 5% of one or more substances	H8
7.	Irritant (R41)	Total concentration of ≥ 10% of one or more substances	H4
8.	Irritant (R36, R37, R38)	Total concentration of ≥ 20% of one or more substances	H4
9.	Carcinogenic (Cat. 1 or 2)	Concentration of ≥ 0.1% of one substance	H7

[1] It has emerged in practice that a preparation with a flash point of at least 21 °C and less than or equal to 55 °C need not be classified as flammable if it does not sustain the combustion in any way and if the possibility of danger to anyone from handling this preparation can be excluded (for example, a 12% alcoholic solution such as wine has a flash point of < 49 °C, but this does not mean that such a solution is combustible).

10.	Carcinogenic (Cat. 3)	Concentration of ≥ 1% of one substance	H7
11.	Toxic for reproduction (Cat. 1 or 2, R60 or 61)	Concentration of ≥ 0.5% of one substance	H10
12.	Toxic for reproduction (Cat. 3, R62 or R63)	Concentration of ≥ 5% of one substance	H10
13.	Mutagenic (Cat. 1 or 2, R46)	Concentration of ≥ 0.1% of one substance	H11
14.	Mutagenic (Cat. 3, R40[#])	Concentration of ≥ 1% of one substance	H11

[#] In Directive 2001/60/EC [13], R phrase R40 was amended to R68, and a new wording was laid down for R40 for application to Category 3 carcinogenic substances; the corresponding references shall be taken into account when applying the AVV: R40 Possible risk of cancer and R68 Possible risks of irreversible effects. See also Table 2.

3.3 Notes on the definition of hazardous properties H1, H2, H9, H12, H13 and H14

There are no EU-wide stipulations regarding the assignment of categories of danger to these hazardous properties. The specifications set out below constitute one possible way of defining them.

These guidelines describe the hazardous nature of a waste product with property H1, H2, H9 or H12 by means of constituents that present the risks described in certain R phrases. In contrast to the properties already defined in Section 3(2) AVV, however, it is not possible to define concentration limits that can be determined analytically for these constituents. No R phrases are assigned to property H13[2]. Hazardous property H14 is defined by means of concentration limits.

- **H1 and H2**

If the relevant constituents are present, the properties shall be tested for directly on the waste in accordance with the relevant procedures (see Section 5). In analogous application of the regulation in Directive 1999/45/EC (Article 5(2), 1st indent), it is not necessary to determine hazardous properties H1 and H2 if, on the basis of the information available, the waste is unlikely to possess hazardous properties of this kind.

- **H9**

Property H9 essentially applies to Chapter 18 of the Catalogue.

H9 is deemed to apply to the following waste:

[2] R phrases R15, R29, R31 and R32, which could apply here, have already been assigned to hazardous properties H3-A and H12.

- waste contaminated with hazardous pathogens under Section 17 of the Protection against Infections Act[14],
- waste containing pathogens (infectious substances) of the animal diseases mentioned in the Ordinance on notifiable animal epidemics [14a] and in Annex 1 to the Ordinance on notifiable animal diseases [15].

The assignment of the collected waste to the waste types in Groups 18 01 and, analogously, 18 02 can be taken from Chapter 2.1.1 of the LAGA Guideline on the proper disposal of waste from health-care establishments [16].
The existence of the hazardous property in the waste should, in cases of doubt, be established by a competent expert body.

- **H12**

In order to characterise waste with regard to property H12 and to classify it as hazardous or non-hazardous within the meaning of the AVV, the R phrases referred to under "other toxicological properties" in the Substances Directive (Annex VI, No 3.2.8) may be used. According to this, waste shall be classified as hazardous if the R phrases

R29 Contact with water liberates toxic gas,

R31 Contact with acids liberates toxic gas,

R32 Contact with water liberates very toxic gas

apply.

By analogy with the procedure for labelling with R15 (hazardous property H3-A, Annex V to the Substances Directive, Method A-12), in the case of the above-mentioned R phrases a minimum quantity of 1 l/kg·h of toxic or very toxic gas released may be used to classify the waste as hazardous.

Examples of constituents to which property H12 may apply include:

- aluminium nitride, aluminium phosphide, phosphorus(V) sulphide (R29),
- sodium hypochlorite, chlorinated lime, alkali and alkaline earth sulphides and polysulphides, sodium dithionite (R31),
- salts of hydrocyanic acid, sodium azide (R32).

- **H13**

R phrases describing risks from the formation of eluates with hazardous properties are not included in the Substances Directive. Property H13 therefore cannot be assigned any

categories of danger. The applicability of this property shall be tested, as with the other hazardous properties, independently of the proposed method of disposal – i.e. independently of whether the waste is to be recycled or destroyed.

These guidelines do not contain a comprehensive specification of all the circumstances that may lead to waste being classified as hazardous pursuant to the definition of hazardous property H13. The following presents an approach for establishing the existence of hazardous properties in a leachate. The starting point for the approach chosen towards laying down permissible eluate concentrations is the protection of health from contamination of groundwater. Requirements pertaining to "water intended for human consumption" (Drinking Water Ordinance (German designation TrinkwV 2001) [17] and Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption [18]), which were laid down with the aim of protecting human health, formed the basis at EU level for deriving assignment values for the disposal of waste at the various types of landfill. Section 2.3.1 of Decision 2003/33/EC [19] lays down values for accepting hazardous waste at a landfill for non-hazardous waste, as an exemption regulation with regard to tolerable leaching. These acceptance values can be used to test for the presence of hazardous property H13. The criteria mentioned in Annex III may be used to distinguish hazardous and non-hazardous waste under H13.

- **H14**

Property H14, "ecotoxic", corresponds to the category of danger "dangerous for the environment" pursuant to the Substances Directive.

Under the Substances Directive, substances/preparations with the following R phrases are classified and labelled as dangerous for the environment.

Table 4

Assignment of R phrases to the category of danger "dangerous for the environment"

R-phrase	Designation
R50-53	very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R50	very toxic to aquatic organisms

R51-53	toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52-53	harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52	harmful to aquatic organisms
R53	may cause long-term adverse effects in the aquatic environment
R54[+]	toxic to flora
R55[+]	toxic to fauna
R56[+]	toxic to soil organisms
R57[+]	toxic to bees
R58[+]	may cause long-term adverse effects in the environ
R59	dangerous for the ozone layer

[+] no more precise criteria have yet been drawn up by the European Commission for these R phrases. As soon as such criteria are available, they may also be used for the determination.

Annex III, Part B, to Directive 1999/45/EC contains "concentration limits to be used for the evaluation of environmental hazards", and relates to acute aquatic toxicity and long-term adverse effects (Table 1 of Annex III, Part B) and to hazards for the ozone layer (Table 5 of Annex III, Part B).

With regard to hazardous property H14 these guidelines therefore only contain a proposal for the classification of wastes in relation to the environmental areas aquatic environment and ozone layer.

Waste accordingly exhibits property H14 and shall be classified as hazardous if it has the following characteristics:

Table 5

Concentration limits for H14

• total concentration of ≥ 0.25% of one or more substances classified as dangerous for the environment with R phrases R50-53.
• total concentration of ≥ 2.5% of one or more substances classified as dangerous for the environment with R phrases R51-53.
• total concentration of ≥ 25% of one or more substances classified as dangerous for the environment with R phrases R52-53.
• total concentration of ≥ 0.1% of one or more substances classified as dangerous for the environment with R phrase R59.

4 Assigning hazardous properties

4.1 System of assignment

The procedure for assigning a waste product to one of the types of waste listed in the 20 chapters of the waste catalogue is described in the Annex to Section 2(1) AVV. The additional process steps result from this assignment:

- for waste assigned to a type of waste in Annex I or to a non-hazardous waste type, there is no need to determine hazardous properties, provided there are no serious doubts about the validity of the classification in the specific case.
For types of waste in Annex I, it shall generally be assumed that at least one hazardous property is present. Such waste can be regarded as non-hazardous only if an appropriate official decision within the meaning of Section 3(3) sentence 1 AVV is issued.
If waste assigned to a non-hazardous waste type has hazardous properties, Section 3(3) sentence 2 AVV shall apply. In accordance with Section 3(3) sentence 3 AVV, an official decision of this kind must also be notified by the competent *Land* via the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety to the EU Commission.

- If the waste were assigned to a type of waste that is part of a mirror entry, it shall be necessary to determine the hazardous properties.
In this connection, the hazardous properties (Table 1) are tested using the relevant categories of danger (Table 2). If at least one of these properties applies, then the waste is hazardous and must be assigned to the hazardous mirror entry. Otherwise, the non-hazardous waste type specified in the mirror entry shall be selected.
This test may be carried out on the basis of the description of origin or formation and details of the substance's characteristics (e.g. safety data sheets). If such a description does not lead to a result, an analysis specific to the waste must be performed on the constituents relevant to the assignment. In many cases, information relating to the origin allows the scope of the analysis to be limited (e.g. mineral waste in Chapter 17 AVV).

Knowledge of production processes and manufacturing or processing methods can enable statements to be made regarding the materials, auxiliary materials or raw materials used. In most cases, the newly formed intermediate products or the products themselves are also known. Documented waste analyses may also be used. This information and, if appropriate, details of hazardous and non-hazardous constituents from safety data sheets can be used to

test the substances in the waste and their reaction properties with regard to hazards. This can then lead to assignment to the hazardous or non-hazardous type of waste in a mirror entry. This is without prejudice to the producer or owner of the waste's ability to classify waste as hazardous if he cannot rule out the presence of hazardous properties.
Annex IV contains a flowchart for the assignment of hazardous properties for waste.

In the case of the mirror entries, a distinction must be made between:

1. Alternative entries where the assignment of the waste to the corresponding waste type depends on whether or not the waste contains "dangerous substances".
Example.:
16 01 14* Antifreeze fluids containing dangerous substances
16 01 15 Antifreeze fluids other than those mentioned in 16 01 14,

2. Alternative entries, where the assignment of the waste to the corresponding waste type depends on whether or not the waste contains specific hazardous constituents specified in the waste designation.

Example:
16 01 11* brake pads containing asbestos
16 01 12 brake pads other than those mentioned in 16 01 11,

3. Entries containing a multiple reference to several corresponding types of waste; assignment depends on the origin of the specific waste or certain waste characteristics, and on the dangerous substances contained.

Example:
06 03 11* solid salts and solutions containing cyanides
06 03 13* solid salts and solutions containing heavy metals
06 03 14 Solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13.

Annex II contains a list of the mirror entries with notes on classification.

4.2 Assessment of waste on the basis of relevant hazardous constituents

To assess the hazards of waste using waste analysis, the analysis results shall be compared with the details of the hazardous properties.
The hazardous properties H4, H5, H6, H8 and H14 are deemed to apply if the total concentration of all substances in the corresponding category of danger does not fall below the quantity specified for each property. When determining the hazardous properties H7, H10 and H11, substances must also be taken into consideration which, while not included in Annex I of the Substance Directive, have nevertheless already been assessed according to the criteria of Annex VI of the Substance Directive and classified as carcinogenic, damaging for reproduction and mutagenic. When determining the property H7, substances of which the carcinogenic property has been declared in the TRGS 905 and the MAK (max. workplace concentrations) values list (carcinogenic category 1 to 3) must also be taken into account. The properties H7, H19 and H11 are deemed to apply if the individual concentration of a correspondingly classified substance does not fall below a certain value.
The analysis result shall be assessed for each property in relation to the limit defined therein. The manner in which a constituent should be taken into consideration in assigning a hazardous property will emerge from the substance categorisation.
As the concentration limits are derived from the Preparations Directive, the analysis results shall apply to the waste to be classified itself (original substance).
If the relevance of certain hazardous properties can be excluded due to the nature, origin or composition of the waste, analyses to determine these properties shall not be necessary.

4.2.1 Hazards of organic constituents

The concentrations of certain compounds in a substance group shall be determined using the organic group parameters customary in waste analysis.

Selected parameters of relevance to waste management are described below.

- PAHs

The analysis parameter PAHs (polycyclic aromatic hydrocarbons) is usually used in waste analysis to measure 16 selected single compounds.

PAH content in waste is not related to the use of the above-mentioned substances individually, but rather to the use of products from the pyrolysis of organic materials[3], such as coal tar, creosotes or coal tar pitch. The Substances Directive classifies these mixtures as carcinogenic on the basis of their PAH content. The concentration limit for these mixtures in waste is therefore 0.1%.

It is not customary to measure the tar content in waste analysis. Instead, and more simply, benzo(*a*)pyrene is measured as the leading parameter for carcinogenic constituents in the mixture. Property H7 shall be assigned to the waste if the content does not fall below 50 mg/kg.

- BTX

The analysis parameter BTX measures the individual substances benzene, toluene and xylene, ethylbenzene and, if appropriate, other alkylbenzenes. Benzene is the only compound in this group with carcinogenic properties and thus has a concentration limit of 0.1%. All the other compounds are classified as harmful, irritant or dangerous for the environment and therefore have higher concentration limits. When assessing the analysis parameter BTX, the benzene content shall therefore be the primary determining factor.

- Highly volatile halogenated hydrocarbons

Highly volatile halogenated hydrocarbons include compounds with a wide variety of classifications. Those classified as carcinogenic (cat. 1 or 2) or ozone-depleting have concentration limits of 0.1%.
Other compounds in this group of substances are merely harmful to the health, and lead to classification as hazardous waste only above a concentration limit of 25%. The analysis parameter 'highly volatile halogenated hydrocarbons' must therefore be assessed separately for each compound. Table 6 lists examples of compounds with concentration limits of 0.1%.

- PCBs

For PCBs (polychlorinated biphenyls), the AVV refers to the definition in Council Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) [21]. Within the meaning of that Directive, the term PCB refers to:
- polychlorinated biphenyls,

[3] Materials covered by the term "pyrolysis products from organic materials", such as coal tar, coal tar pitch or carbolineum, shall be taken from Section 1(3) of the TRGS 551 [20]

- polychlorinated terphenyls,
- monomethyl-tetrachlorodiphenyl methane, monomethyl-dichloro-diphenyl methane, monomethyl-dibromo-diphenyl methane,
- any mixture containing any of the abovementioned substances in a total of more than 0.005% by weight.

It therefore follows that the analysis parameter PCB has a concentration limit of 0.005%[4].

The concentration limits for the organic analysis parameters are summarised in Table 6.

Table 6

Concentration limits for organic substances

Analysis parameter		**Concentration limit in %**
PAHs		
	Substance mixtures such as tar or creosote	0.1
	Benzo(*a*)pyrene	0.005
BTX		
	Benzene	0.1
Highly volatile halogenated hydrocarbons		
	1,1,1-Trichloroethane	0.1 per substance or total value 0.1
	Trichloroethylene	
	Carbon tetrachloride (tetrachloromethane)	
	1,2-Dichloroethane	
	Bromomethane	
	1,2-Dibromoethane	
	1,1,2,2-Tetrabromoethane	
	1,1-Dichloro-1-fluoroethane	
	1,2-Dibromo-3-chloropropane	
	1,1,2,2-Tetrachloroethane	
	3-Chloropropene	
PCBs		0.005

- Hydrocarbons

No concentration limits are given for hydrocarbons in Table 6. The great majority of the petroleum products listed in the Substances Directive are classified as carcinogenic (H7) due

to contaminants from the processing stage, such as aromatic compounds, PAHs etc. The petroleum products listed in the Substances Directive therefore have notes regarding the measurement of the carcinogenic constituents. These substances have a concentration limit of 0.1%.

Decision 2000/532/EC essentially assigns waste containing mineral oil to the hazardous types of waste without mirror entries (see Annex I). In individual cases, a different classification may be appropriate on the basis of the notes to the entries in the Substances Directive. These notes generally state that classification as carcinogenic is not necessary if the hydrocarbon mixture in question does not contain any carcinogenic constituents, e.g. benzene or PAHs, in a concentration > 0.1%. In this case, hazardous property H13 is fulfilled if the concentration limit of 0.8% is exceeded (see Annex III).

4.2.2 Hazards of metal compounds

When determining the hazards of metal compounds in waste, a distinction shall be made between waste containing known metal compounds and those in which only the element contents could be determined analytically.

- If the compound contents are known, the concentration limits are derived directly from the classification of the substance in conjunction with Tables 3 and 5 of these guidelines[5].

The classification of the metal compounds shall be taken from the Substances Directive. Annex V contains a list of selected compounds and their substance classifications (column 3), the corresponding hazardous properties (column 4) and the concentration limits (column 5). It contains heavy metals within the meaning of the AVV and other metals and compounds thereof that are classified as hazardous.

With regard to the concentration limits, a number of notes must be observed pursuant to the Substances Directive. Note 1 is listed in Annex V (column 7), and states that the concentrations indicated shall be understood to mean % by weight of the metal, relative to the total weight of the preparation.

[4] The concentration limit applies to the total PCB content in the waste. In accordance with the LAGA Convention, this shall be calculated from the investigation results for the 6 Ballschmiter congeners by multiplying by 5.

[5] Annex III shall be used to test hazardous property H13.

As a rule, only element contents are determined in waste analysis. If the metal compounds in the waste are known, the element content can be used to calculate the concentration of the metal compound (e.g. oxides and sulphates in ashes and slags).
The final column of Annex V (column 8) contains the factors for converting element contents to compound contents.

- In cases where it is not possible to draw conclusions as to the metal compounds contained in the waste, the hazards of the waste can be estimated using the element content. For this purpose, an element limit value is derived from the various compound limit values. The concentration limits for elements are given in Annex V, column 6 “generalised limit value”. For each hazardous property, the respective lowest concentration limit for compounds is generally selected.

The assessment process for waste for which only the element content is known can be found in Table 7. For each element, the hazardous properties corresponding to the generalised limit value are marked with a cross. The bottom row of Table 7 contains the concentration limits above which the hazardous property is deemed to apply. In this connection, concentration limits shall be taken into account for hazardous properties H4, H5, H6, H8 and H14, and individual concentrations for H7, H10 and H11.
When assessing waste following this process, it is expedient to begin by testing for the hazardous property H6, very toxic. This property has the lowest concentration limit, 0.1%. If the sum of individual concentrations here exceeds 0.1%, the waste shall also be classified as hazardous. There is then no need to test for the other properties.
Hazardous properties that relate to only a very few compounds of the element are marked with a note in Table 7.
When assessing the content of the element chromium, it must be borne in mind that only chromium(VI) compounds are considered hazardous. If it is plausibly demonstrated that only Chromium (III) compounds are present, the value need not be taken into account when classifying the waste. As note 1 is not assigned in the Substances Directive, a factor of at least 2.3 (conversion of chromium to chromate) must be applied.
If the analysis for soluble chromate is carried out in accordance with note 3 to the Substances Directive from the aqueous solution, no factor shall be applied when stating the analysis result as chromate.

The provisions of Section 3(2) AVV do not apply to pure metal alloys, unless they have been contaminated by dangerous substances.

4.2.3 Hazards of substances which damage the ozone layer (e.g. CFCs or halons)

Partially and fully halogenated chlorofluorocarbons and halons and other substances which damage the ozone layer, as well as equipment containing them, belong to the hazardous types of waste without mirror entries in Annex I to these guidelines for application. The compounds included here are determined by Annex I to Regulation (EC) No 2037/2000 [22]. This lists the substances that lead to depletion of the ozone layer and quantifies their ozone-depleting potential. The hazardous property is H14. To determine the hazards of waste containing these substances, a concentration limit of 0.1% in accordance with Table 5 should be used, regardless of the classification of the individual compounds in the Substances Directive.

4.2.4 Hazards of asbestos and artificial mineral fibres

In accordance with the Substances Directive, asbestos is classified as carcinogenic (Cat. 1, R45). When dealing with asbestos-containing waste, it shall be assumed that waste contains asbestos if the general concentration limit of 0.1% [23] is exceeded.
With regard to the classification of artificial mineral fibres, reference is made to Guideline No 17 “Artificial Mineral Fibres” from the *Länder* Committee on industrial health and safety and safety engineering (LASI) [24] and in particular to Section 5 thereof.

Table 7

Concentration limits for metal compounds

Properties	H4		H5	H6		H8		H14				H7, H11		H10	
	R41	R36, R37, R38		very toxic	toxic	R35	R34	R50-53	R51-53	R52-53	R59	Cat. 1/2	Cat. 3	Cat. 1/2	Cat. 3
As				X			X[1]	X				X[+]			
Cd			X	X				X				X[1]		X[7]	
Cr VI	X[1]	X	X	X		X[1]		X				X			
Cu	X[1]	X[1]	X					X[1]							
Hg		X[1]	X[1]	X			X[1]	X							
Ni			X	X[2]				X[1]				X[+]		X[2]	
Pb			X	X[1]				X				X[1,+]	X[+]	X	
Sb			X		X		X[1]		X				X[3,+]		
Se					X			X							
Sn[4]	X[1]		X	X[1]			X[1]	X		X[5]			X[1,+]		X[1]
Tl		X[1]		X					X						
Zn		X	X[1]	X[6]			X[1]	X					X[1,++]		
Concentration limits in %	**Σ**>10	**Σ**>20	**Σ**>25	**Σ**>0.1	**Σ**>3	**Σ**>1	**Σ**>5	**Σ**>0.25	**Σ**>2.5	**Σ**>25	**Σ**>0.1	I>0.1	I>1	I>0.5	I>5

Σ = total value

I = individual value

[+] H7 only; [++] H11 only

[1] specific compounds only, see Substances Directive

[2] tetracarbonyl nickel only

[3] Sb_2O_3 only

[4] except zinc tetrachloride, only zinc organic compounds

[5] zinc tetrachloride only

[6] trizinc diphosphide only

[7] cadmium fluoride only

5. Analysis requirements

Demonstrating the hazardous properties mentioned in the Directive on hazardous waste requires a variety of analysis approaches and methods:

The applicability of properties H1 to H3 and H12 shall be tested in accordance with the test method specified in Annex V to the Substances Directive[6].

To test for the presence of properties H4, H5, H6, H7, H8, H10 and H11, the constituents regarded as relevant on the basis of the nature, origin or typical composition of the waste and classifiable in accordance with the Substances Directive[7] shall be measured. The list of mirror entries in Annex II provides reference points.
For determination of the presence of hazardous properties H9 and H12, reference is made to the explanations in Section 3.3.

If a chemical analysis is needed to assign the waste, it must take account of all the constituents and parameters relevant to the waste in question. All the relevant information must be used to assess the waste, in particular chemical analyses. The nature and origin of the waste and any contamination that may result from it shall also be taken into account. If the assessment relates to waste produced regularly by a defined process, variations in waste quality typical of the process must be taken into consideration in the assessment.
In principle, the waste shall be classified in accordance with Section 3(2) AVV as hazardous or non-hazardous if the concentration limits for the relevant hazardous property are exceeded or complied with, respectively. If results are obtained during control analyses that would result in a different classification, the results can be assessed analogously to the requirements in Annex 4 No 3.1 to the Ordinance on the landfilling of waste (German designation: AbfAblV) [27].
Annex VI contains the requirements for analysing waste.

[6] Part 2 (Classification) of Annex A to the European Agreement of 30 September 1957 concerning the international carriage of dangerous goods by road (ADR) [25] and the associated manual of tests and criteria [26] also contain these regulations.
[7] The complete Annex I to the Substances Directive can be found at www.baua.de/prax/ags/rl67-548anhang1

6. References

[1] Waste Catalogue Ordinance: Ordinance on the European Catalogue of wastes (Waste List Ordinance- German designation AVV) of 10 December 2001 (Federal Law Gazette I p. 3379), last amended by Article 2 of the Ordinance of 24 July 2002 (Federal Law Gazette I p. 2833)

[2] Closed Substance Cycle and Waste Management Act: Act for promoting closed substance cycle waste management and ensuring environmentally compatible waste disposal (Waste Closed Substance Cycle and Waste Management Act – German designation KrW-/AbfG) of 27 September 1994 (Federal Law Gazette I p. 2705), most last by Article 3 of the Act of 22 December 2004 (Federal Law Gazette I p. 3704)

[3] 4th Ordinance on the implementation of the Federal Immission Control Act: Fourth Ordinance implementing the Federal Immission Control Act (Ordinance on Installations subject to Licensing – German designation 4. BImSchV) in the version published on 14 March 1997 (Federal Law Gazette I p. 504), last amended by Article 5 of the Ordinance of 23 December 2004 (Federal Law Gazette I p. 3758)

[4] 9th Ordinance on the implementation of the Federal Immission Control Act: Ninth Ordinance implementing the Federal Immission Control Act (Ordinance on the Licensing Procedure – German designation 9. BImSchV) in the version published on 29 May 1992 (Federal Law Gazette I p. 1001), last amended by Article 2 of the Ordinance of 14 August 2003 (Federal Law Gazette I p. 1614)

[5] Directive 91/689/EEC: Council Directive of 12 December 1991 on hazardous waste (91/689/EEC), OJ L 377, 1991, p. 20

[6] Decision 2000/532/EC: Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (2000/532/EC), OJ L 226, 2000, p. 3

[7] Directive 67/548/EEC: Council Directive of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (67/548/EEC), OJ 196, 1967, p. 1 in the current version

[8] Directive 88/379/EEC: Council Directive of 7 June 1988 on the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (88/379/EEC), OJ L 187, 1988, p. 14

[9] Hazardous Substances Ordinance: Ordinance on protection from hazardous substances (Hazardous Substances Ordinance – German designation GefStoffV) of 23 December 2004, (Federal Law Gazette I p. 3758, 3759), amended by Article 2 of the Ordinance of 23 December 2004 (Federal Law Gazette I p. 3855)

[10] Directive 1999/45/EC: Directive of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of

dangerous preparations (1999/45/EC), OJ L 200, 1999, p. 1, most recently amended on 7 August 2001, OJ L 226 p. 5

[11] Federal Water Act: Act on the regulation of matters pertaining to water (Federal Water Act - German designation WHG) in the version published on 19 August 2002 (Federal Law Gazette I p. 3245), amended by Article 6 of the Act published on 6 January 2004 (Federal Law Gazette I p. 2)

[12] Directive 92/32/EEC: Council Directive amending for the seventh time Council Directive 67/548/EEC of 27 June 1967 on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances, OJ L 154, p. 1

[13] Directive 2001/60/EC: Commission Directive of 7 August 2001 adapting to technical progress Directive 1999/45/EC of the European Parliament and of the Council concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (2001/60/EC), OJ L 226, 2001, p. 5

[14] Protection against Infection Act: Act on the prevention and control of infectious diseases in man (Protection against Infection Act – German designation IfSG) of 20 July 2000 (Federal Law Gazette I p. 1045), most recently amended by Article 12 of the Act of 24 December 2003 (Federal Law Gazette I p. 2954)

[**14a] Ordinance on Notifiable Animal Epidemics**: Ordinance on notifiable animal epidemics (Verordnung über anzeigepflichtige Tierseuchen) in the version published on 3 November 2004 (Federal Law Gazette I p. 2764)

[15] Ordinance on Notifiable Animal Diseases: Ordinance on notifiable animal diseases (Verordnung über meldepflichtige Tierkrankheiten) in the version published on 11 April 2001 (Federal Law Gazette I p. 540), amended by Article 362 of the Ordinance of 29 October 2001 (Federal Law Gazette I p. 2785)

[16] Guideline on the proper disposal of waste from health-care establishments: Communication No 18 of the Joint Working Group of the Federal States on Waste (LAGA) on the proper disposal of waste from health-care establishments, 2nd revised edition, Erich Schmidt Verlag, 2002, ISBN 3 503 07036 2

[17] Drinking Water Ordinance: Ordinance on the quality of water intended for human consumption (Drinking Water Ordinance – German designation TrinkwV 2001) of 21 May 2001 (Federal Law Gazette I, p. 959), amended by Article 263 of the Ordinance of 25 November 2003 (Federal Law Gazette I, p. 2304)

[18] Directive 98/83/EC: Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption (OJ L 330 p. 32)

[19] Decision 2003/33/EC: Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC (2003/33/EC), OJ L 11, 2003, p. 27

[20] Technical rules for hazardous substances: [German designation TRGS 551] – Tar and other pyrolysis products from organic materials (Federal Labour Gazette 8/1999, p. 39)

[21] Directive 96/59/EC: Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT), OJ L 243/31 of 24 September 1996

[22] Regulation (EC) No 2037/2000: Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer, OJ L 244 of 29 September 2000, p. 1, most recently amended by Regulation (EC) No 2039/2000 of the European Parliament and of the Council of 28 September 2000, OJ L 244, p. 26

[23] Publication of suitable analytical methods for taking samples of and testing the substances and substance groups listed in the Annex to the Order banning certain chemicals: Federal Gazette p. 14627; the table can be consulted at http://www.bmu.de/de/800/js/sachthemen/chemiekaliensicherheit/bekanntmachung_analytischer_verfahren/?id=66&nav_id=11505&page=1.

[24] Guideline "Artificial Mineral Fibres": Guide for assessing and handling mineral fibre products, Committee of the Länder on industrial health and safety and safety engineering (LASI) (published May 1999); the guideline can be viewed on the Internet at http://lasi.osha.de/publications.

[25] Annex A to the European Agreement of 30 September 1957 concerning the international carriage of dangerous goods by road (ADR): Annex A to the European Agreement of 30 September 1957 concerning the international carriage of dangerous goods by road (ADR) – General provisions and provisions concerning dangerous substances and articles – of 15 June 2001 (Federal Law Gazette II No 20, p. 654)

[26] Manual of Tests and Criteria[8]: Recommendations on the transport of dangerous goods. Manual of Tests and Criteria, Official Gazette of the Federal Institute for Materials Research and Testing (German designation: BAM), special volume 1/2002, Wissenschaftsverlag NW, Bremerhaven, ISBN 3-89701-823-3

[27] Waste Storage Ordinance: Ordinance on the environmentally compatible storage of waste from human settlements (Waste Storage Ordinance – German designation AbfAblV) of 20 February 2001 (Federal Law Gazette I, p. 305), amended by Article 2 of the Ordinance of 24 July 2002 (Federal Law Gazette I p. 2807)

[28] Waste Wood Ordinance: Ordinance on the requirements pertaining to the recycling and disposal of waste wood (Waste Wood Ordinance – German designation AltholzV) of 15 August 2002 (Federal Law Gazette I, p. 3302)

[29] PCB/PCT Waste Ordinance: Ordinance on the disposal of polychlorinated biphenyls, polychlorinated terphenyls and halogenated monomethyl biphenyl methanes (PCB/PCT Waste Ordinance – German designation PCBAbfallV) of 26 June 2000 (Federal Law Gazette I, p. 932), amended by Article 3 of the Ordinance of 16 April 2002 (Federal Law Gazette I, p. 1360)

[8] German translation of the UN Recommendation (Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Third revised edition) for the transport of dangerous goods "Manual of Tests and Criteria" in the version ST/SG/AC.10/11/Rev. 3

[30] Guideline PN 98: Communication of the Joint Working Group of the Federal States on Waste (LAGA 32);LAGA PN 98 – Guideline for procedures for physical, chemical and biological testing in connection with the recovery/disposal of waste (LAGA PN 98) Erich Schmidt Verlag 2002, ISBN 3 503 07037 0

Annex I

List of hazardous waste types without mirror entries

Waste code	Waste designation
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD
03 02	**Wastes from wood preservation**
03 02 01*	Non-halogenated organic wood preservatives
03 02 02*	Organochlorinated wood preservatives
03 02 03*	Organometallic wood preservatives
03 02 04*	inorganic wood preservatives
03 02 05*	Other wood preservatives containing dangerous substances
04	WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES
04 01	**Wastes from the leather and fur industry**
04 01 03*	Degreasing wastes containing solvents without a liquid phase
05	WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL
05 01	**Wastes from petroleum refining**
05 01 02*	Desalter sludges
05 01 03*	Tank bottom sludges
05 01 04*	Acid alkyl sludges
05 01 05*	Oil spills
05 01 06*	Oily sludges from maintenance operations of the plant or equipment
05 01 07*	Acid tars
05 01 08*	Other tars
05 01 11*	Wastes from cleaning of fuels with bases
05 01 12*	Oil containing acids
05 01 15*	Spent filter clays
05 06	**Wastes from the pyrolytic treatment of coal**
05 06 01*	Acid tars
05 06 03*	Other tars
05 07	**Wastes from natural gas purification and transportation**
05 07 01*	Wastes containing mercury
06	WASTES FROM INORGANIC CHEMICAL PROCESSES
06 01	**Wastes from the manufacture, formulation, supply and use (MFSU) of acids**
06 01 01*	Sulphuric acid and sulphurous acid
06 01 02*	Hydrochloric acid
06 01 03*	Hydrofluoric acid
06 01 04*	Phosphoric and phosphorous acid
06 01 05*	Nitric acid and nitrous acid
06 01 06*	Other acids
06 02	**Wastes from the MFSU of bases**
06 02 01*	Calcium hydroxide
06 02 03*	Ammonium hydroxide

Waste code	Waste designation
06 02 04*	Sodium and potassium hydroxide
06 02 05*	Other bases
06 04	**Metal-containing wastes other than those mentioned in 06 03**
06 04 03*	Wastes containing arsenic
06 04 04*	Wastes containing mercury
06 04 05*	Wastes containing other heavy metals
06 07	**Wastes from the MFSU of halogens and halogen chemical processes**
06 07 01*	Wastes containing asbestos from electrolysis
06 07 02*	Activated carbon from chlorine production
06 07 03*	Barium sulphate sludge containing mercury
06 07 04*	Solutions and acids, e.g. contact acid
06 13	**Wastes from inorganic chemical processes not otherwise specified**
06 13 01*	Inorganic plant protection products, wood-preserving agents and other biocides
06 13 02*	Spent activated carbon (except 06 07 02)
06 13 04*	Wastes from asbestos processing
06 13 05*	Soot
07	WASTES FROM ORGANIC CHEMICAL PROCESSES
07 01	**Wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
07 01 01*	Aqueous washing liquids and mother liquors
07 01 03*	Organic halogenated solvents, washing liquids and mother liquors
07 01 04*	Other organic halogenated solvents, washing liquids and mother liquors
07 01 07*	Halogenated still bottoms and reaction residues
07 01 08*	Other still bottoms and reaction residues
07 01 09*	Halogenated filter cakes and spent absorbents
07 01 10*	Other filter cakes and spent absorbents
07 02	**Wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 01*	Aqueous washing liquids and mother liquors
07 02 03*	Organic halogenated solvents, washing liquids and mother liquors
07 02 04*	Other organic solvents, washing liquids and mother liquors
07 02 07*	Halogenated still bottoms and reaction residues
07 02 08*	Other still bottoms and reaction residues
07 02 09*	Halogenated filter cakes and spent absorbents
07 02 10*	Other filter cakes and spent absorbents
07 03	**Wastes from the MFSU of organic dyes and pigments (except 06 11)**
07 03 01*	Aqueous washing liquids and mother liquors
07 03 03*	Organic halogenated solvents, washing liquids and mother liquors
07 03 04*	Other organic halogenated solvents, washing liquids and mother liquors
07 03 07*	Halogenated still bottoms and reaction residues
07 03 08*	Other still bottoms and reaction residues
07 03 09*	Halogenated filter cakes and spent absorbents
07 03 10*	Other filter cakes and spent absorbents
07 04	**Wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 01*	Aqueous washing liquids and mother liquors
07 04 03*	Organic halogenated solvents, washing liquids and mother liquors
07 04 04*	Other organic solvents, washing liquids and mother liquors

Waste code	Waste designation
07 04 07*	Halogenated still bottoms and reaction residues
07 04 08*	Other still bottoms and reaction residues
07 04 09*	Halogenated filter cakes and spent absorbents
07 04 10*	Other filter cakes and spent absorbents
07 05	**Wastes from the MFSU of pharmaceuticals**
07 05 01*	Aqueous washing liquids and mother liquors
07 05 03*	Organic halogenated solvents, washing liquids and mother liquors
07 05 04*	Other organic solvents, washing liquids and mother liquors
07 05 07*	Halogenated still bottoms and reaction residues
07 05 08*	Other still bottoms and reaction residues
07 05 09*	Halogenated filter cakes and spent absorbents
07 05 10*	Other filter cakes and spent absorbents
07 06	**Wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 01*	Aqueous washing liquids and mother liquors
07 06 03*	Organic halogenated solvents, washing liquids and mother liquors
07 06 04*	Other organic solvents, washing liquids and mother liquors
07 06 07*	Halogenated still bottoms and reaction residues
07 06 08*	Other still bottoms and reaction residues
07 06 09*	Halogenated filter cakes and spent absorbents
07 06 10*	Other filter cakes and spent absorbents
07 07	**Wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 01*	Aqueous washing liquids and mother liquors
07 07 03*	Organic halogenated solvents, washing liquids and mother liquors
07 07 04*	Other organic solvents, washing liquids and mother liquors
07 07 07*	Halogenated still bottoms and reaction residues
07 07 08*	Other still bottoms and reaction residues
07 07 09*	Halogenated filter cakes and spent absorbents
07 07 10*	Other filter cakes and spent absorbents
08	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS
08 01	**Wastes from MFSU and removal of paint and varnish**
08 01 21*	Waste paint or varnish remover
08 03	**Wastes from the MFSU of printing inks**
08 03 16*	Waste etching solutions
08 03 19*	Disperse oil
08 04	**Wastes from the MFSU of adhesives and sealants (including waterproofing products)**
08 04 17*	Rosin oil
08 05	**Wastes not otherwise specified in 08**
08 05 01*	Waste isocyanates
09	WASTES FROM THE PHOTOGRAPHIC INDUSTRY
09 01	**Wastes from the photographic industry**
09 01 01*	Water-based developer and activator solutions
09 01 02*	Water-based offset plate developer solutions
09 01 03*	solvent-based developer solutions

Waste code	Waste designation
09 01 04*	Fixer solutions
09 01 05*	Bleach solutions and bleach fixer solutions
09 01 06*	Wastes containing silver from on-site treatment of photographic wastes
09 01 13*	Aqueous liquid waste from on-site reclamation of silver other than those mentioned in 09 01 06
10	WASTES FROM THERMAL PROCESSES
10 01	**Wastes from power stations and other combustion plants (except 19)**
10 01 04*	Oil fly ash and boiler dust
10 01 09*	Sulphuric acid
10 01 13*	Fly ash from emulsified hydrocarbons used as fuel
10 03	**Wastes from aluminium thermal metallurgy**
10 03 04*	Primary production slags
10 03 08*	Salt slags from secondary production
10 03 09*	Black drosses from secondary production
10 04	**Wastes from lead thermal metallurgy**
10 04 01*	Slags from primary and secondary production
10 04 02*	Dross and skimmings from primary and secondary production
10 04 03*	Calcium arsenate
10 04 04*	Flue-gas dust
10 04 05*	Other particulates and dust
10 04 06*	Solid wastes from gas treatment
10 04 07*	Sludges and filter cakes from gas treatment
10 05	**Wastes from zinc thermal metallurgy**
10 05 03*	Flue-gas dust
10 05 05*	Solid waste from gas treatment
10 05 06*	Sludges and filter cakes from gas treatment
10 06	**Wastes from copper thermal metallurgy**
10 06 03*	Flue-gas dust
10 06 06*	Solid wastes from gas treatment
10 06 07*	Sludges and filter cakes from gas treatment
10 08	**Wastes from other non-ferrous thermal metallurgy**
10 08 08*	Salt slag from primary and secondary production
10 14	**Waste from crematoria**
10 14 01*	Waste from gas cleaning containing mercury
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDROMETALLURGY
11 01	**Wastes from chemical surface treatment and coating of metals and other materials (e.g. galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)**
11 01 05*	Pickling acids
11 01 06*	Acids not otherwise specified
11 01 07*	Pickling bases
11 01 08*	Phosphatising sludges
11 01 15*	Eluate and sludges from membrane systems or ion exchange systems containing dangerous substances
11 01 16*	Saturated or spent ion exchange resins
11 01 98*	Other wastes containing dangerous substances
11 02	**Wastes from non-ferrous hydrometallurgical processes**

Waste code	Waste designation
11 02 02*	Sludges from zinc hydrometallurgy (inc. jarosite, goethite)
11 02 07*	Other wastes containing dangerous substances
11 03	**Sludges and solids from tempering processes**
11 03 01*	Wastes containing cyanide
11 03 02*	Other wastes
11 05	**Wastes from hot galvanising processes**
11 05 03*	Solid wastes from gas treatment
11 05 04*	spent flux
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS
12 01	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 06*	Mineral-based machining oils containing halogens (except emulsions and solutions)
12 01 07*	Mineral-based machining oils free of halogens (except emulsions and solutions)
12 01 08*	Machining emulsions and solutions containing halogens
12 01 09*	Machining emulsions and solutions free of halogens
12 01 10*	Synthetic machining oils
12 01 12*	Spent waxes and fats
12 01 18*	Metal sludge (grinding, honing and lapping sludge) containing oil
12 01 19*	Readily biodegradable machining oil
12 03	**Wastes from water and steam degreasing processes (except 11)**
12 03 01*	Aqueous washing liquids
12 03 02*	Steam degreasing wastes
13	OIL WASTES AND WASTES OF LIQUID FUELS (EXCEPT EDIBLE OILS, AND THOSE IN CHAPTERS 05, 12 AND 19)
13 01	**Waste hydraulic oils**
13 01 01*	Hydraulic oils containing PCBs[9]
13 01 04*	Chlorinated emulsions
13 01 05*	Non-chlorinated emulsions
13 01 09*	Mineral-based chlorinated hydraulic oils
13 01 10*	Mineral-based non-chlorinated hydraulic oils
13 01 11*	Synthetic hydraulic oils
13 01 12*	Readily biodegradable hydraulic oils
13 01 13*	Other hydraulic oils
13 02	**Waste engine, gear and lubricating oils**
13 02 04*	Mineral-based chlorinated engine, gear and lubricating oils
13 02 05*	Mineral-based non-chlorinated engine, gear and lubricating oils
13 02 06*	Synthetic engine, gear and lubricating oils
13 02 07*	Readily biodegradable engine, gear and lubricating oils
13 02 08*	Other engine, gear and lubricating oils
13 03	**Waste insulating and heat transmission oils**
13 03 01*	Insulating or heat transmission oils containing PCBs
13 03 06*	Mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01

[9] For the purpose of this list of wastes, PCBs will be defined as in Directive 96/59/EC

Waste code	Waste designation
13 03 07*	Mineral-based non-chlorinated insulating and heat transmission oils
13 03 08*	Synthetic insulating and heat transmission oils
13 03 09*	Readily biodegradable insulating and heat transmission oils
13 03 10*	Other insulating and heat transmission oils
13 04	**Bilge oils**
13 04 01*	Bilge oils from inland navigation
13 04 02*	Bilge oils from jetty sewers
13 04 03*	Bilge oils from other navigation
13 05	**Oil/water separator contents**
13 05 01*	Solids from grit chambers and oil/water separators
13 05 02*	Sludges from oil/water separators
13 05 03*	Interceptor sludges
13 05 06*	Oils from oil/water separators
13 05 07*	Oily water from oil/water separators
13 05 08*	Mixtures of wastes from grit chambers and oil/water separators
13 07	**Wastes of liquid fuels**
13 07 01*	Fuel oil and diesel
13 07 02*	Petrol
13 07 03*	Other fuels (including mixtures)
13 08	**Oil wastes not otherwise specified**
13 08 01*	Desalter sludges or emulsions
13 08 02*	Other emulsions
13 08 99*	Wastes not otherwise specified
14	WASTE ORGANIC SOLVENTS, REFRIGERANTS AND PROPELLANTS (EXCEPT 07 AND 08)
14 06	**Waste organic solvents, refrigerants and foam/aerosol propellants**
14 06 01*	Chlorofluorocarbons, HCFC, HFC
14 06 02*	Other halogenated solvents and solvent mixtures
14 06 03*	Other solvents and solvent mixtures
14 06 04*	Sludges or solid wastes containing halogenated solvents
14 06 05*	Sludges or solid wastes containing other solvents
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 11*	Metallic packaging containing a dangerous solid porous matrix (e.g. asbestos), including empty pressure containers
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01	**End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 07*	Oil filters
16 01 08*	Components containing mercury
16 01 09*	Components containing PCBs
16 01 10*	Explosive components (e.g. airbags)
16 01 13*	Brake fluids
16 01 21*	Hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14
16 04	**Waste explosives**

Waste code	Waste designation
16 04 01*	Waste ammunition
16 04 02*	Fireworks wastes
16 04 03*	Other waste explosives
16 06	**Batteries and accumulators**
16 06 01*	Lead batteries
16 06 02*	Ni-Cd batteries
16 06 03*	Mercury-containing batteries
16 06 06*	Separately collected electrolytes from batteries and accumulators
16 07	**Wastes from transport tank, storage tank and barrel cleaning (except 05 and 13)**
16 07 08*	Wastes containing oil
16 07 09*	Wastes containing other dangerous substances
16 08	**Spent catalysts**
16 08 05*	Spent catalysts containing phosphoric acid
16 08 06*	Spent liquids used as catalysts
16 09	**Oxidising substances**
16 09 01*	Permanganates, e.g. potassium permanganate
16 09 02*	Chromates, e.g. potassium chromate, potassium or sodium dichromate
16 09 03*	Peroxides, e.g. hydrogen peroxide
16 09 04*	Oxidising substances, not otherwise specified
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)
17 03	**Bituminous mixtures, coal tar and tarred products**
17 03 03*	Coal tar and tarred products
17 04	**Metals (including their alloys)**
17 04 09*	Metal waste contaminated with dangerous substances
17 06	**Insulation materials and asbestos-containing construction materials**
17 06 05*	Construction materials containing asbestos
18	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH CARE)
18 01	**Wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 10*	Amalgam waste from dental care
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 01	**Wastes from incineration or pyrolysis of waste**
19 01 05*	Filter cake from gas treatment
19 01 06*	Aqueous liquid wastes from gas treatment and other aqueous liquid wastes
19 01 07*	Solid wastes from gas treatment
19 01 10*	Spent activated carbon from flue-gas treatment
19 02	**Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 04*	Premixed wastes composed of at least one hazardous waste
19 02 07*	Oil and concentrates from separation
19 02 11*	Other wastes containing dangerous substances

Waste code	Waste designation
19 04	**Vitrified waste and wastes from vitrification**
19 04 02*	Fly ash and other flue-gas treatment wastes
19 04 03*	Non-vitrified solid phase
19 08	**Wastes from waste water treatment plants not otherwise specified**
19 08 06*	Saturated or spent ion exchange resins
19 08 07*	Solutions and sludges from regeneration of ion exchangers
19 08 08*	Membrane system waste containing heavy metals
19 11	**Wastes from oil regeneration**
19 11 01*	Spent filter clays
19 11 02*	Acid tars
19 11 03*	Aqueous liquid wastes
19 11 04*	Wastes from cleaning of fuel with bases
19 11 07*	Wastes from flue-gas cleaning
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	**Separately collected fractions (except 15 01)**
20 01 13*	Solvents
20 01 14*	Acids
20 01 15*	Alkalines
20 01 17*	Photochemicals
20 01 19*	Pesticides

Annex II

List of mirror entries

01	**WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS**

01 03	**Wastes from physical and chemical processing of metalliferous minerals**
01 03 04*	Acid-generating tailings from processing of sulphide ore *Residues may form sulphuric acid (pyrite); property H8 (R35) shall be taken into account. Depending on the material processed, leachates, in particular heavy metals (H13), shall be taken into account (see Nos 3.3 and 4.2.2).*
01 03 05*	Other tailings containing dangerous substances *Depending on the material processed, leachates, in particular heavy metals (H13), shall be taken into account (see Nos 3.3 and 4.2.2).*
01 03 06	Tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 07*	Other wastes containing dangerous substances from physical and chemical processing of metalliferous minerals *Red mud may be strongly alkaline (sodium hydroxide); in this case, property H8 (R35) shall apply.* *Depending on the material processed, leachates, in particular heavy metals (H13), shall be taken into account (see Nos 3.3 and 4.2.2).*
01 03 08	Dusty and powdery wastes other than those mentioned in 01 03 07
01 03 09	Red mud from alumina production other than the wastes mentioned in 01 03 07

01 04	**Wastes from physical and chemical processing of non-metalliferous minerals**
01 04 07*	Wastes containing dangerous substances from physical and chemical processing of non-metalliferous minerals *Depending on the material processed, leachates, in particular heavy metals (H13), shall be taken into account (see Nos 3.3 and 4.2.2).* *No hazardous waste is known of from the processing of potash, rock salt or hard coal.*
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 10	Dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	Wastes from potash and rock-salt processing other than those mentioned in 01 04 07
01 04 12	Tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	Waste from stone cutting and sawing other than those mentioned in 01 04 07

01 05	**Drilling muds and other drilling wastes**
01 05 05*	Oil-containing drilling muds and wastes *A distinction needs to be drawn initially between oils from the exploration of mineral deposits and oils used as drilling aids:* *in the case of oils from mineral deposits, properties H3 and H7 (R45) must be considered;* *in the case of oil-containing drilling aids, a specific analysis for dangerous substances (see No 4.1) must be carried out.*
01 05 06*	Drilling muds and other drilling wastes containing dangerous substances *Depending on the exploration, heavy metals (see No 4.2.2), leachates (H13, see No 3.3) and the drilling aids used (other than oil, see above) shall be taken into account.*
01 05 07	Barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
01 05 08	Chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06

02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**

02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 08*	Agrochemical waste containing dangerous substances *Depending on the constituent, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1); this covers in particular plant protection products and disinfectants;* *with regard to packaging containing residues of this kind, cf. Group 15 01*
02 01 09	Agrochemical waste other than those mentioned in 02 01 08

03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PAPER, CARDBOARD, PULP, PANELS AND FURNITURE**

03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 04*	Sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances *Wood containing dangerous substances arises from treatment with wood preservatives. The following should be taken into particular account:* - *creosote with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *arsenic (CCA salts), chromate (CFB/CC/CCB/CCF salts), copper (chromium-free copper salts) (see No 4.2.2).* *Cf. Group 03 02 for determining the wood preservative*
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04

04	**WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**

04 02	**Wastes from the textile industry**
04 02 14*	Wastes from finishing containing organic solvents *The determining factor for classification is the nature of the solvent used; the flammability (H3) shall be taken into particular account.*
04 02 15	Wastes from finishing other than those mentioned in 04 02 14
04 02 16*	Dyestuffs and pigments containing dangerous substances *Consider specific properties of the relevant hazardous constituents; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1)*
04 02 17	Dyestuffs and pigments other than those mentioned in 04 02 16
04 02 19*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
04 02 20	Sludges from on-site effluent treatment other than those mentioned in 04 02 19

05	**WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL**

05 01	Wastes from petroleum refining
05 01 09*	Sludges from on-site effluent treatment containing dangerous substances *The following should be taken into particular account:* - *tars with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *mineral oils (mineral oil hydrocarbons) with property H7 (R45), (see No 4.2.1),* - *heavy metals originating from petroleum (in particular nickel and vanadium compounds), (see No 4.2.2).*
05 01 10	Sludges from on-site effluent treatment other than those mentioned in 05 01 09

06	WASTES FROM INORGANIC CHEMICAL PROCESSES

06 03	Wastes from the MFSU of salts and their solutions and metallic oxides
06 03 11*	Solid salts and solutions containing cyanides *Hazardous properties for cyanides are:* *H6 (R26/27/28), H12 (liberation of HCN under the action of acids, R32), H13 (see No 3.3) and H14 (R50-53).*
06 03 13*	Solid salts and solutions containing heavy metals *Heavy metals must be taken into account (see No 4.2.2); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances, in particular H13 (see No 3.3).*
06 03 14	Solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 15*	Metallic oxides containing heavy metals *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) must be taken into account; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
06 03 16	Metallic oxides other than those mentioned in 06 03 15

06 05	Sludge from on-site effluent treatment
06 05 02*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
06 05 03	Sludges from on-site effluent treatment other than those mentioned in 06 05 02

06 06	Wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes
06 06 02*	Wastes containing dangerous sulphides *The main hazards are the toxic (H6) and corrosive (H8) properties of sulphides, hydrogen sulphides, carbon disulphide and sulphur-halogen and sulphur-phosphorus compounds. Properties H3, H7, H10, H12 (H_2S liberation), H13 and H14 shall also be considered.*
06 06 03	Wastes containing sulphides other than those mentioned in 06 06 02.

06 08	Wastes from the MFSU of silicon and silicon derivatives
06 08 02*	Wastes containing dangerous chlorosilanes *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
06 08 99	Wastes not otherwise specified *This type of waste is regarded as a mirror entry, as Group 06 08 consists of just two entries – one hazardous and one non-hazardous; the features of a mirror entry are therefore present.*

06 09	**Wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**
06 09 03*	Calcium-based reaction wastes containing dangerous substances *The waste concerned is phosphogypsum from the manufacture of fertilisers. This may contain the dangerous substances Cd compounds, but at a concentration below that relevant for classification (see No 4.2.2).*
06 09 04	Calcium-based reaction wastes other than those mentioned in 06 09 03

06 10	**Wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and fertiliser manufacture**
06 10 02*	Wastes containing dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; if appropriate, consider property H12 (evolution of ammonia)*
06 10 99	Wastes not otherwise specified *This type of waste is regarded as a mirror entry, as Group 06 10 consists of just two entries – one hazardous and one non-hazardous; the features of a mirror entry are therefore present.*

07	**WASTES FROM ORGANIC CHEMICAL PROCESSES**

07 01	**Wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
07 01 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 01 12	Sludges from on-site effluent treatment other than those mentioned in 07 01 11

07 02	**Wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 02 12	Sludges from on-site effluent treatment other than those mentioned in 07 02 11
07 02 14*	Wastes from additives containing dangerous substances *Specific assessment of the constituents, e.g. antioxidants, softening agents, flame retardants; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances;*
07 02 15	Wastes from additives other than those mentioned in 07 02 14
07 02 16*	Wastes containing dangerous silicones *No dangerous silicones are known*
07 02 17	Waste containing silicones other than those mentioned in 07 02 16

07 03	**Wastes from the MFSU of organic dyes and pigments (except 06 11)**
07 03 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 03 12	Sludges from on-site effluent treatment other than those mentioned in 07 04 11

07 04	**Wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 04 12	Sludges from on-site effluent treatment other than those mentioned in 07 04 11
07 04 13*	Solid wastes containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 04 99	Wastes not otherwise specified

07 05	**Wastes from the MFSU of pharmaceuticals**
07 05 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 05 12	Sludges from on-site effluent treatment other than those mentioned in 07 05 11
07 05 13*	Solid wastes containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 05 14	Solid wastes other than those mentioned in 07 05 13

07 06	**Wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 06 12	Sludges from on-site effluent treatment other than those mentioned in 07 06 11

07 07	**Wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 11*	Sludges from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
07 07 12	Sludges from on-site effluent treatment other than those mentioned in 07 07 11

08	**WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS**

08 01	**Wastes from MFSU and removal of paint and varnish**
08 01 11*	Waste paint and varnish containing organic solvents or other dangerous substances *The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 01 12	Waste paint and varnish other than those mentioned in 08 01 11

08 01 13*	Sludges from paint or varnish containing organic solvents or other dangerous substances
	The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account. *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 01 14	Sludges from paint or varnish other than those mentioned in 08 01 13
08 01 15*	Aqueous sludges containing paint or varnish containing organic solvents or other dangerous substances
	The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account. *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 01 16	Aqueous sludges containing paint or varnish other than those mentioned in 08 01 15
08 01 17*	Wastes from paint or varnish removal containing organic solvents or other dangerous substances
	The determining factor for classification is usually the nature of the solvent used; the flammability (H3) and, if applicable, the corrosive (alkali) property H8 (R35) shall be taken into particular account. *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 01 18	Wastes from paint or varnish removal other than those mentioned in 08 01 17
08 01 19*	Aqueous suspensions containing paint or varnish containing organic solvents or other dangerous substances *The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 01 20	Aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19

08 03	**Wastes from MFSU of printing inks**
08 03 12*	Waste ink containing dangerous substances
	The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account. *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 03 13	Waste ink other than those mentioned in 08 03 12
08 03 14*	Ink sludges containing dangerous substances *The determining factor for classification is usually the nature of the solvent used (the flammability (H3) shall be taken into particular account).* *Other constituent- and product-specific hazardous properties shall be considered; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 03 15	Ink sludges other than those mentioned in 08 03 14

08 03 17*	Waste printing toner containing dangerous substances *Substance-specific consideration, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
08 03 18	Waste printing toner other than those mentioned in 08 03 17

08 04	**Wastes from MFSU of adhesives and sealants (including waterproofing products)**
08 04 09*	Waste adhesives and sealants containing organic solvents or other dangerous substances *The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).* *For sealants accumulated from demolition work when renovating buildings (particularly PCB-containing sealants) see Group 17 09.*
08 04 10	Waste adhesives and sealants other than those mentioned in 08 04 09
08 04 11*	Adhesive and sealant sludges containing organic solvents or other dangerous substances *The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 04 12	Adhesive and sealant sludges other than those mentioned in 08 04 11
08 04 13*	Aqueous sludges containing adhesives or sealants containing organic solvents or other dangerous substances *The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 04 14	Aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13
08 04 15*	Aqueous liquid waste containing adhesives or sealants containing organic solvents or other dangerous substances *The determining factor for classification is usually the nature of the solvent used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be taken into account; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
08 04 16	Aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15

09	**WASTES FROM THE PHOTOGRAPHIC INDUSTRY**

09 01	**Waste from the photographic industry**
09 01 11*	Single-use cameras using batteries included in 16 06 01, 16 06 02 or 16 06 03 *Hazardous if lead, Ni-Cd or mercury-containing batteries are present; self-explanatory from the designation (see Chapter 16, Group 16 06)*
09 01 12	Single-use cameras using batteries other than those mentioned in 09 01 11

10	WASTES FROM THERMAL PROCESSES

10 01	Wastes from power stations and other combustion plants (except 19)
10 01 14*	Bottom ash, slag and boiler dust from co-incineration containing dangerous substances *Depending on the material used, leachates (H13), in particular heavy metals, and property H14 should be considered (see Nos 3.3 and 4.2.2); usually to be taken into account in the co-incineration of hazardous wastes.*
10 01 15	Bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 16*	Fly ash from co-incineration containing dangerous substances *Depending on the material used, leachates (H13), in particular heavy metals, and property H14 should be considered (see Nos 3.3 and 4.2.2); usually hazardous*
10 01 17	Fly ash from co-incineration other than those mentioned in 10 01 16
10 01 05	Calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	Calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 18*	Wastes from gas cleaning containing dangerous substances *Consider process-specific hazardous constituents, in particular heavy metals (see No 4.2.2) and their leachates (H13, No 3.3) and corrosive properties (H8); usually hazardous*
10 01 19	Wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 20*	Sludges from on-site effluent treatment containing dangerous substances *Consider process-specific hazardous constituents; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1)*
10 01 21	Sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 22*	Aqueous sludges from boiler cleansing containing dangerous substances *Consider process-specific hazardous constituents; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1)*
10 01 23	Aqueous sludges from boiler cleansing other than those mentioned in 10 01 22

10 02	Wastes from the iron and steel industry
10 02 07*	Solid wastes from gas treatment containing dangerous substances *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) must be taken into account; flu-gas dust is particularly hazardous.*
10 02 08	Solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 11*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered*
10 02 12	Wastes from cooling-water treatment other than those mentioned in 10 02 11
10 02 13*	Sludges and filter cakes from gas treatment containing dangerous substances *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) and, if appropriate, corrosive properties (H8) must be taken into account; flue sludge is particularly hazardous.*
10 02 14	Sludges and filter cakes from gas treatment other than those mentioned in 10 02 13

10 03	Wastes from aluminium thermal metallurgy
10 03 15*	Skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities *The matrix is alumina, which contains traces of reactive aluminium, carbides, nitrides and phosphides that may form the gases hydrogen, ethylene, ammonia and phosphine; the hazardous properties are H3 and H12.*
10 03 16	Skimmings other than those mentioned in 10 03 15

10 03 17*	Tar-containing wastes from anode manufacture *The following should be taken into account* - *tar with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1).*
10 03 18	Carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 19*	Flue-gas dust containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *cryolite with properties H5, H6 (R48/23/25), H14 (R51-53),* - *alumina, which contains traces of reactive aluminium, carbides, nitrides and phosphides that may form the gases hydrogen, ethylene, ammonia and phosphine; the hazardous properties are H3 and H12.* *usually hazardous*
10 03 20	Flue-gas dust other than those mentioned in 10 03 19
10 03 21*	Other particulates and dust (including ball-mill dust) containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *cryolite with properties H5, H6 (R48/23/25), H14 (R51-53),* - *alumina, which contains traces of reactive aluminium, carbides, nitrides and phosphides that may form the gases hydrogen, ethylene, ammonia and phosphine; the hazardous properties are H3 and H12.*
10 03 22	Other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 23*	Solid wastes from gas treatment containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *cryolite with properties H5, H6 (R48/23/25), H14 (R51-53),* - *alumina, which contains traces of reactive aluminium, carbides, nitrides and phosphides that may form the gases hydrogen, ethylene, ammonia and phosphine; the hazardous properties are H3 and H12.* *usually hazardous*
10 03 24	Solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 25*	Sludges and filter cakes from gas treatment containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* *cryolite with properties H5, H6 (R48/23/25), H14 (R51-53).*
10 03 26	Sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 27*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered*
10 03 28	Wastes from cooling-water treatment other than those mentioned in 10 03 27

10 03 29*	Wastes from treatment of salt slags and black drosses containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53),(see No 4.2.1),* - *cryolite with properties H5, H6 (R48/23/25), H14 (R51-53),* - *alumina, which contains traces of reactive aluminium, carbides, nitrides and phosphides that may form the gases hydrogen, ethylene, ammonia and phosphine; the hazardous properties are H3 and H12.*
10 03 30	Wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29

10 04	**Wastes from lead thermal metallurgy**
10 04 09*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered*
10 04 10	Wastes from cooling-water treatment other than those mentioned in 10 04 09

10 05	**Wastes from zinc thermal metallurgy**
10 05 08*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered*
10 05 09	Wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05 10*	Dross and skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities *The hazardous constituent is reactive zinc (R10), which forms hydrogen as a reaction product (R15); the hazardous property is H3.*
10 05 11	Dross and skimmings other than those mentioned in 10 05 10

10 06	**Wastes from copper thermal metallurgy**
10 06 09*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered*
10 06 10	Wastes from cooling-water treatment other than those mentioned in 10 06 09

10 07	**Wastes from silver, gold and platinum thermal metallurgy**
10 07 07*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered*
10 07 08	Wastes from cooling-water treatment other than those mentioned in 10 07 07

10 08	**Wastes from other non-ferrous thermal metallurgy**
10 08 10*	Dross and skimmings that are flammable or emit, upon contact with water, flammable gases in dangerous quantities *The hazardous constituent is the respective reactive metal (R10), which forms hydrogen as a reaction product (R15); the hazardous property is H3. In some cases, carbides, nitrides and phosphides that may form the gases hydrogen, ethylene, ammonia and phosphine should be considered; the hazardous property is H12.*
10 08 11	Dross and skimmings other than those mentioned in 10 08 10
10 08 12*	Tar-containing wastes from anode manufacture *The following should be taken into account:* - *Tar with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1).*
10 08 13	Carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12

10 08 15*	Flue-gas dust containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3).* *usually hazardous*
10 08 16	Flue-gas dust other than those mentioned in 10 08 15
10 08 17*	Sludges and filter cakes from flue-gas treatment containing dangerous substances *The following should be taken into account:* - *PAHs with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), see No 4.2.1,* *heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3).*
10 08 18	Sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 19*	Wastes from cooling-water treatment containing oil *The properties of the oils used in the process should be considered.*
10 08 20	Wastes from cooling-water treatment other than those mentioned in 10 08 19

10 09	**Wastes from casting of ferrous pieces**
10 09 05*	Casting cores and moulds which have not undergone pouring containing dangerous substances *Consider production-specific hazardous constituents; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).* *Typical constituents as components of the binder are phenols*
10 09 06	Casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 07*	Casting cores and moulds which have undergone pouring containing dangerous substances *Consider production-specific hazardous constituents; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1);* *Typical constituents as components of the binder are phenols*
10 09 08	Casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 09*	Flue-gas dust containing dangerous substances *Furnace dust from iron and steel foundries may have relevant lead contents, and furnace dust from stainless steel and non-ferrous metal foundries may also have relevant nickel contents.*
10 09 10	Flue-gas dust other than those mentioned in 10 09 09
10 09 11*	Other particulates containing dangerous substances *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) should be considered.*
10 09 12	Other particulates other than those mentioned in 10 09 11
10 09 13*	Waste binders containing dangerous substances *Consider production-specific hazardous constituents (in particular phenols), (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 09 14	Waste binders other than those mentioned in 10 09 13
10 09 15*	Waste crack-indicating agent containing dangerous substances *Substance-specific assessment (e.g. dyes from the dye penetrant method; metals from the magnetic particle method);* *usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
10 09 16	Waste crack-indicating agent other than those mentioned in 10 09 15

10 10	**Wastes from casting of non-ferrous pieces**
10 10 05*	Casting cores and moulds which have not undergone pouring containing dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; Typical constituents as components of the binder are phenols.*
10 10 06	Casting cores and moulds which have not undergone pouring other than those mentioned in 10 10 05
10 10 07*	Casting cores and moulds which have undergone pouring containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; Typical constituents as components of the binder are phenols.*
10 10 08	Casting cores and moulds which have undergone pouring other than those mentioned in 10 10 07
10 10 09*	Flue-gas dust containing dangerous substances *Furnace dust from iron and steel foundries may have relevant lead contents, and furnace dust from stainless steel and non-ferrous metal foundries may also have relevant nickel contents.*
10 10 10	Flue-gas dust other than those mentioned in 10 10 09
10 10 11*	Other particulates containing dangerous substances *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) should be considered.*
10 10 12	Other particulates other than those mentioned in 10 10 11
10 10 13*	Waste binders containing dangerous substances *Consider production-specific hazardous constituents (in particular phenols),(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 10 14	Waste binders other than those mentioned in 10 10 13
10 10 15*	Waste crack-indicating agent containing dangerous substances *Substance-specific consideration (e.g. dyes from the dye penetrant method; metals from the magnetic particle method); usually non-hazardous;* *usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
10 10 16	Waste crack-indicating agent other than those mentioned in 10 10 15

10 11	**Wastes from manufacture of glass and glass products**
10 11 09*	Waste preparation mixture before thermal processing containing dangerous substances *Consider production-specific hazardous constituents; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances;* *in particular heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3);* *preparation mixtures for the manufacture of plate glass and glass for containers and bottles are usually non-hazardous.*
10 11 10	Waste preparation mixture before thermal processing other than those mentioned in 10 11 09
10 11 11*	Waste glass in small particles and glass powder containing heavy metals (e.g. from cathode ray tubes) *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) should be considered.* *For example, waste glass from e.g. cathode ray tubes and television screens should be classified as hazardous.*
10 11 12	Waste glass other than those mentioned in 10 11 11
10 11 13*	Glass-polishing and –grinding sludge containing dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 11 14	Glass-polishing and –grinding sludge other than those mentioned in 10 11 13

10 11 15*	Solid wastes from flue-gas treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 11 16	Solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 17*	Sludges and filter cakes from flue-gas treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 11 18	Sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 11 19*	Solid wastes from on-site effluent treatment containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 11 20	Solid wastes from on-site effluent treatment other than those mentioned in 10 11 19

10 12	**Wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 09*	Solid wastes from gas treatment containing dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
10 12 10	Solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 11*	Wastes from glazing containing heavy metals *Heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) should be considered.*
10 12 12	Wastes from glazing other than those mentioned in 10 12 11

10 13	**Wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 09*	Wastes from asbestos-cement manufacture containing asbestos *The hazardous constituent is asbestos (see No 4.2.4); the hazardous property is H7 (R45). Manufacture banned;* *Waste now only from renovation work and demolition (see Chapter 17 in this respect).*
10 13 10	Wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	Wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 12*	Solid wastes from gas treatment containing dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
10 13 13	Solid wastes from gas treatment other than those mentioned in 10 13 12

11	**WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDROMETALLURGY**

11 01	**Wastes from chemical surface treatment and coating of metals and other materials (e.g. galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)**
11 01 09*	Sludges and filter cakes containing dangerous substances *Residues may be corrosive or irritant (acids or alkalis); properties H8 and H4 are relevant; heavy metals and their leachates (H14) should also be considered (see Nos 3.3 and 4.2.2).*
11 01 10	Sludges and filter cakes other than those mentioned in 11 01 09
11 01 11*	Aqueous rinsing liquids containing dangerous substances *Residues may be irritant (acids or alkalis); property H4 is relevant; heavy metals and their leachates (H13) should also be considered (see Nos 3.3 and 4.2.2).*
11 01 12	Aqueous rinsing liquids other than those mentioned in 11 01 11

11 01 13*	Degreasing wastes containing dangerous substances *Depending on the type of degreasing, hydrocarbons (H7, H13 or H14) or alkalis (H8) may lead to classification as hazardous waste.*
11 01 14	Degreasing wastes other than those mentioned in 11 01 13

11 02	**Wastes from non-ferrous hydrometallurgical processes**
11 02 05*	Wastes from copper hydrometallurgical processes containing dangerous substances *Residues may be corrosive (acids); property H8 (R35) is relevant; heavy metals and their leachates (H13) should also be considered (see Nos 3.3 and 4.2.2).*
11 02 06	Wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05

12	**WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS**

12 01	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 14*	Machining sludges containing dangerous substances *Mineral oils should be tested for hazards under H7 (R45); synthetic oils should be considered on a substance-specific basis (check safety data sheet); the solids content should be tested for metals with hazardous properties (e.g. nickel).*
12 01 15	Machining sludges other than those mentioned in 12 01 14
12 01 16*	Waste blasting material containing dangerous substances *Substance-specific classification depending on the blasted layer;* *For example, the following should be taken into account:* - *Tars with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *heavy metals (in particular lead and chromium (VI)),* - *Organotin compounds (see No 4.2.2).*
12 01 17	Waste blasting material other than those mentioned in 12 01 16
12 01 20*	Spent grinding bodies and grinding materials containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances*
12 01 21	Spent grinding bodies and grinding materials other than those mentioned in 12 01 20

15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**

15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 01	Paper and cardboard packaging
15 01 02	Plastic packaging
15 01 03	Wooden packaging
15 01 04	Metallic packaging
15 01 05	Composite packaging
15 01 06	Mixed packaging
15 01 07	Glass packaging
15 01 09	Textile packaging
15 01 10*	Packaging containing residues of or contaminated by dangerous substances *Substance-specific assessment of the hazardous constituents or of the contaminants;* *Classification of the product residues: see product designation;* *usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances;* *if constituents are unknown: hazardous if residues are present that cannot be described as droplet-free, trickle-free or scraped clean;* *for wooden packaging, cf. Annex III to the Waste Wood Ordinance [28.]*

15 02	**Absorbents, filter materials, wiping cloths and protective clothing**
15 02 02*	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances *Consider production-specific and origin-specific hazardous constituents, (see No 4.1);* *usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
15 02 03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02

16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**

16 01	**End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 04*	End-of-life vehicles *Hazardous components and parts as listed in Group 16 01 below.*
16 01 06	End-of-life vehicles, containing neither liquids nor other hazardous components
16 01 11*	Brake pads containing asbestos *The hazardous constituent is asbestos (see No 4.2.4); the hazardous property is H7 (R45). Manufacture banned.*
16 01 12	Brake pads other than those mentioned in 16 01 11
16 01 14*	Antifreeze fluids containing dangerous substances *The determining factor for classification is usually the nature of the chemicals used; the flammability (H3) shall be taken into particular account.* *Other constituent- and product-specific hazardous properties shall be considered; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
16 01 15	Antifreeze fluids other than those mentioned in 16 01 14

16 02	**Wastes from electrical and electronic equipment**

16 02 09*	Transformers and capacitors containing PCBs *The hazardous constituent is PCB (see No 4.2.1); waste is hazardous if it contains more than 50 mg/kg PCB (special regulation: PCB/PCT Waste Order [29]).* *Reference: Transformers and capacitors.*
16 02 10*	Discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09 *The hazardous constituent is PCB (see No 4.2.1); waste is hazardous if it contains more than 50 mg/kg PCB (special regulation: PCB/PCT Waste Ordinance).* *Reference: Other equipment containing PCBs.*
16 02 11*	Discarded equipment containing chlorofluorocarbons, HCFC, HFC *The hazardous constituent is CFC (see No 4.2.3); the hazardous property is H14 (R59).* *Reference: CFCs [23], Annex 1.*
16 02 12*	Discarded equipment containing free asbestos *The hazardous constituent is asbestos (see No 4.2.4); the hazardous property is H7 (R45).* *Manufacture banned.*
16 02 13*	Discarded equipment containing hazardous components[10] other than those mentioned in 16 02 09 to 16 02 12 *Equipment should be classified as hazardous waste if the dangerous substances have not been removed or the absence of hazardous components has not been verified.*
16 02 14	Discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 15*	Hazardous components removed from discarded equipment *Self-explanatory from the footnote;* *other hazardous components corresponding to the origin.*
16 02 16	Components removed from discarded equipment other than those mentioned in 16 02 15

16 03	**Off-specification batches and unused products**
16 03 03*	Inorganic wastes containing dangerous substances *Consider substance-specific assessment and production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 03 04	Inorganic wastes other than those mentioned in 16 03 03
16 03 05*	Organic wastes containing dangerous substances *Consider substance-specific assessment and production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 03 06	Organic wastes other than those mentioned in 16 03 05

16 05	**Gases in pressure containers and discarded chemicals**
16 05 04*	Gases in pressure containers (including halons) containing dangerous substances *Substance-specific assessment in accordance with No 4.1; depending on the constituent, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 05 05	Gases in pressure containers other than those mentioned in 16 05 04

[10] Hazardous components from electrical and electronic equipment may include accumulators and batteries mentioned in 16 06 and marked as hazardous; mercury switches, glass from cathode ray tubes and other activated glass etc.

16 05 06*	Laboratory chemicals consisting of or containing dangerous substances including mixtures of laboratory chemicals *Substance-specific assessment in accordance with No 4.1; depending on the substance, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances;* *Unsorted substances and those with an unknown composition should be classified as hazardous.*
16 05 07*	Discarded inorganic chemicals consisting of or containing dangerous substances *Substance-specific assessment in accordance with No 4.1; depending on the substance, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 05 08*	Discarded organic chemicals consisting of or containing dangerous substances *Substance-specific assessment in accordance with No 4.1; depending on the substance, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 05 09	Discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

16 08	**Spent catalysts**
16 08 02*	Spent catalysts containing dangerous transition metals or dangerous transition metal compounds *For the purpose of this entry, transition metals are:* *scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum.* *These metals or their compounds are dangerous if they are classified as dangerous substances. The classification as dangerous substances shall therefore determine which of those transition metals and which transition metal compounds are hazardous. This classification is based on the Substances Directive.*
16 08 03	Spent catalysts containing transition metals or transition metal compounds not otherwise specified.
16 08 01	Spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)
16 08 04	Spent fluid catalytic cracking catalysts (except 16 08 07)
16 08 07*	Spent catalysts contaminated with dangerous substances *Consider production-specific hazardous constituents,(see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; hazardous in particular if the catalysts are loaded with halogenated or flammable production residues;* *spent catalytic converters from motor vehicles should be classified as hazardous if they contain hazardous ceramic fibres.*

16 10	**Aqueous liquid wastes destined for off-site treatment**
16 10 01*	Aqueous liquid wastes containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 10 02	Aqueous liquid wastes other than those mentioned in 16 10 01
16 10 03*	Aqueous concentrates containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 10 04	Aqueous concentrates other than those mentioned in 16 10 03

16 11	Waste linings and refractories
16 11 01*	Carbon-based linings and refractories from metallurgical processes containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; in the case of iron and steel foundries, usually non-hazardous. In non-ferrous metal casting and certain precious metal foundries, relevant lead and nickel contents may arise.*
16 11 02	Carbon-based linings and refractories from metallurgical processes other than those mentioned in 16 11 01
16 11 03*	Other linings and refractories from metallurgical processes containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; wastes from iron and steel foundries are non-hazardous.*
16 11 04	Other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 05*	Linings and refractories from non-metallurgical processes containing dangerous substances *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
16 11 06	Linings and refractories from non-metallurgical processes other than those mentioned in 16 11 05

17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)

17 01	Concrete, bricks, tiles and ceramics
17 01 06*	Mixtures of, or separate fractions of, concrete, bricks, tiles and ceramics containing dangerous substances *Origin and substance-related assessment; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances;* *property H13 should also be considered (see No 3.3).* *Waste of the aforementioned building materials is liable to be hazardous in particular if it originates from restoration, demolition or unsealing of structural works in or on which dangerous substances were handled, such as:* • *Industrial plants* - *plants in which dangerous substances or preparations are used or are formed during manufacture* - *steelworks, metal processing plants, galvanising plants, machine tool construction* - *plants for manufacturing and storing paints and varnishes* - *coking plants, gasworks, briquette factories, textile cleaning plants* - *tanneries and leather processing plants* • *Motor vehicle industry plants* - *workshops for repairs and vulcanisation* - *battery-filling stations, petrol stations, car washes, storage tanks* • *Commercial firing installations* - *flues, chimneys, waste gas purification installations* • *Railway installations* - *railway yards, loading platforms, repair workshops, fuel stations* - *oil stores, washing tracks* • *Agricultural businesses* - *stores for fertilisers or pesticides*

	This waste code requires mineral building materials to be collected separately by type as far as possible or to be sorted in advance. For construction and demolition waste with significant non-mineral constituents, the waste codes in Chapter 17 09 should be used.
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06

17 02	**Wood, glass and plastic**
17 02 01	Wood
17 02 02	Glass
17 02 03	Plastic
17 02 04*	Glass, plastic and **wood** containing or contaminated with dangerous substances
	A distinction should be made between: *1. treated wood (see also Group 03 01)* *The following should be taken into particular account:* *creosote with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* *arsenic (CCA salts), chromate (CFB/CC/CCB/CCF salts), copper (chromium-free copper salts) (see No 4.2.2)* *2. contaminated wood:* *origin- and substance-specific classification;* *further indications can be found in Annex III to the Waste Wood Ordinance.*
17 02 04*	**Glass**, plastic and wood containing or contaminated with dangerous substances *Assessment of individual cases; usually only contamination should be considered;* *Industrial glass from the chemical industry and laboratories is liable to be hazardous.*
17 02 04*	Glass, **plastic** and wood containing or contaminated with dangerous substances *Assessment of individual cases; usually only contamination should be considered;* *Plastic of industrial origin, e.g. for pipelines, apparatus, containers, fittings, tanks and waste gas and waste water purification plants, is liable to be hazardous.*

17 03	**Bituminous mixtures, coal tar and tarred products**
17 03 01*	Bituminous mixtures containing coal tar *The hazardous constituent is coal tar, which should be classified as carcinogenic (H7),) see No 4.2.1).*
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01

17 04	**Metals (including their alloys)**
17 04 10*	Cables containing oil, coal tar and other dangerous substances *The following should be taken into account:* - *Tars with benzo(*a*)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *Mineral oils (mineral oil hydrocarbons) with property H7 (R45),* - *PCBs (special regulation: PCB/PCT Waste Ordinance).*
17 04 11	Cables other than those mentioned in 17 04 10

17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	Soil and stones containing dangerous substances *Origin- and substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1);* *Property H13 should also be considered (see No 3.3).* *Waste of the aforementioned building materials is liable to be hazardous in particular if it originates from restoration, demolition or unsealing of structural works in or on which dangerous substances were handled, such as:* • *Industrial plants* - *plants in which dangerous substances or preparations are used or are formed during manufacture* - *steelworks, metal processing plants, galvanising plants, machine tool construction* - *plants for manufacturing and storing paints and varnishes* - *coking plants, gasworks, briquette factories, textile cleaning plants* - *tanneries and leather processing plants* • *Motor vehicle industry plants* - *workshops for repairs and vulcanisation* - *battery-filling stations, petrol stations, car washes, storage tanks* • *Railway installations* - *railway yards, loading platforms, repair workshops, fuel stations* - *oil stores, washing tracks* • *Agricultural businesses* - *stores for fertilisers or pesticides* • *Waste from soil washing plants, concentrated dangerous substances from physico-chemical soil treatment* • *Contamination with dangerous substances due to crashes or collisions* • *Cleaning of contaminated sites*
17 05 04	Soil and stones other than those mentioned in 17 05 03
17 05 05*	Dredging spoil containing dangerous substances *Origin- and substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1);* *Property H13 should also be considered (see No 3.3).* *Dredging spoil from port areas and near shipyards is usually hazardous.*
17 05 06	Dredging spoil other than those mentioned in 17 05 05
17 05 07*	Track ballast containing dangerous substances *Track ballast is liable to be hazardous if it originates from:* • *switch points,* • *station and parking areas,* • *fuelling areas,* • *tram, suburban railway and underground railway tracks,* • *industrial tracks,* • *contamination with dangerous substances due to crashes or collisions.* *Otherwise, track ballast is deemed non-hazardous, with the exception of known, isolated contaminations detected individually, for example due to herbicides, mineral oils or PAHs; however, herbicide contamination is usually found to be at a level deemed to be non-hazardous.*
17 05 08	Track ballast other than those mentioned in 17 05 07

17 06	**Insulation materials and asbestos-containing construction materials**
17 06 01*	Insulation materials containing asbestos *The hazardous constituent is asbestos (see No 4.2.4); the hazardous property is H7 (R45). Manufacture banned*
17 06 03*	Other insulation materials consisting of or containing dangerous substances *Origin- or substance-specific assessment of the material or contamination;* *cf. also the LASI paper [25], LAGA Decision;* *Hazardous in the case of waste comprising or containing ceramic fibres or mineral wool manufactured before June 2000; non-hazardous in the case of waste containing mineral wools exempt under Note Q of Directive 97/69/EC.*
17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03

17 08	**Gypsum-based construction material**
17 08 01*	Gypsum-based construction materials contaminated with dangerous substances *Origin- and substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1);* *property H13 should also be considered (see No 3.3).*
17 08 02	Gypsum-based construction materials other than those mentioned in 17 08 01

17 09	**Other construction and demolition wastes**
17 09 01*	Construction and demolition wastes containing mercury *Reference: mercury, (see No 4.2.2).*
17 09 02*	Construction and demolitions wastes containing PCB (e.g. PCB-containing sealants, PCB-containing resin-based floorings, PCB-containing sealed glazing units, PCB-containing capacitors) *The hazardous constituent is PCB (see No 4.2.1); waste is hazardous if it contains more than 50 mg/kg PCB (special regulation: PCB/PCT Waste Ordinance [29]).*
17 09 03*	Other construction and demolition wastes (including mixed wastes) containing dangerous substances *Origin- and substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1);* *property H13 should also be considered (see No 3.3).* *cf. the notes on mineral waste of Group 17 01*
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

18	**WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH CARE)**

18 01	**Wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 01	Sharps (except 18 01 03)
18 01 02	Body parts and organs including blood bags and blood preserves (except 18 01 03)
18 01 03*	Wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 01 04	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection (e.g. dressings, plaster casts, linen, disposable clothing, diapers) *For guidance on assignment, c.f. LAGA Guideline [16] on the proper disposal of waste from health-care establishments.*
18 01 06*	Chemicals consisting of or containing dangerous substances *Substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; in other cases cf. LAGA Guideline on the proper disposal of waste from health-care establishments.*
18 01 07	Chemicals other than those mentioned in 18 01 06
18 01 08*	Cytotoxic and cytostatic medicines *Substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; in other cases cf. LAGA Guideline on the proper disposal of waste from health-care establishments.*
18 01 09	Medicines other than those mentioned in 18 01 08

18 02	**Wastes from research, diagnosis, treatment or prevention of disease involving animals**
	Procedure analogous to that for waste types in Group 18 01
18 02 01	Sharps (except 18 02 02)
18 02 02*	Wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 02 03	Wastes whose collection and disposal is not subject to special requirements in order to prevent infection *For guidance on assignment, c.f. LAGA Guideline on the proper disposal of waste from health-care establishments*
18 02 05*	Chemicals consisting of or containing dangerous substances *Substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; in other cases cf. LAGA Guideline on the proper disposal of waste from health-care establishments.*
18 02 06	Chemicals other than those mentioned in 18 02 05
18 02 07*	Cytotoxic and cytostatic medicines *Substance-specific assessment; depending on the substances contained, direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances; in other cases cf. LAGA Guideline on the proper disposal of waste from health-care establishments.*
18 02 08	Medicines other than those mentioned in 18 02 07

19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**

19 01	Wastes from incineration or pyrolysis of waste
19 01 11*	Bottom ash and slag containing dangerous substances *Depending on the material used, leachates (H13), in particular heavy metals, and property H14 should be considered (see Nos 3.3 and 4.2.2).* *Slags usually non-hazardous.*
19 01 12	Bottom ash and slag other than those mentioned in 19 01 11
19 01 13*	Fly ash containing dangerous substances *Depending on the material used, leachates (H13), in particular heavy metals, and property H14 should be considered (see Nos 3.3 and 4.2.2).* *usually hazardous.*
19 01 14	Fly ash other than those mentioned in 19 01 13
19 01 15*	Boiler dust containing dangerous substances *Depending on the material used, leachates (H13), in particular heavy metals, and property H14 should be considered (see Nos 3.3 and 4.2.2);* *usually hazardous*
19 01 16	Boiler dust other than those mentioned in 19 01 15
19 01 17*	Pyrolysis wastes containing dangerous substances *Depending on the material used, leachates (H13), in particular heavy metals, and property H14 should be considered (see Nos 3.3 and 4.2.2). PAHs (see No 4.2.1) may also be relevant.*
19 01 18	Pyrolysis wastes other than those mentioned in 19 01 17

19 02	Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 05*	Sludges from physico/chemical treatment containing dangerous substances *Depending on the waste treated and the treatment method, heavy metals (see No 4.2.2) and their leachates (H13, see No 3.3) should be considered.*
19 02 06	Sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 02 08*	Liquid combustible wastes containing dangerous substances *Individual classification depending on the waste treated and the treatment method; usually direct testing of hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1); assess H3 in particular.*
19 02 09*	Solid combustible wastes containing dangerous substances
19 02 10	Combustible wastes other than those mentioned in 19 02 08 and 19 02 09

19 03	Stabilised/solidified wastes [11]
19 03 04*	Wastes marked as hazardous, partly[12] stabilised *Depends on the classification of the waste before the stabilisation attempt.*
19 03 05	Stabilised wastes other than those mentioned in 19 03 04
19 03 06*	Wastes marked as hazardous, solidified *Depends on the classification of the waste before the solidisation.*
19 03 07	Solidified wastes other than those mentioned in 19 03 06

[11] Stabilisation processes change the dangerousness of the constituents in the waste and thus transform hazardous waste into non-hazardous waste. Solidification processes only change the physical state of the waste (e.g. liquid into solid) by using additives without changing the chemical properties of the waste

[12] A waste is considered as partly stabilised if after the stabilisation process hazardous constituents which have not been changed completely into non-hazardous constituents could be released into the environment in the short, middle or long term.

19 07	**Landfill leachate**
19 07 02*	Landfill leachate containing dangerous substances *Substance-specific assessment; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
19 07 03	Landfill leachate other than those mentioned in 19 07 02

19 08	**Wastes from waste water treatment plants not otherwise specified**
19 08 09	Grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 10*	Grease and oil mixture from oil/water separation other than those mentioned in 19 08 09 *Self-explanatory: the hazardous constituents are mineral oil hydrocarbons, H7 (R45).*
19 08 11*	Sludges containing dangerous substances from biological treatment of industrial waste water *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
19 08 12	Sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 13*	Sludges containing dangerous substances from other treatment of industrial waste water *Consider production-specific hazardous constituents, (see No 4.1); usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances.*
19 08 14	Sludges from other treatment of industrial waste water other than those mentioned in 19 08 13

19 10	**Wastes from shredding of metal-containing wastes**
19 10 03*	Fluff-light fraction and dust containing dangerous substances *The following should be taken into account:* - *Mineral oils (mineral oil hydrocarbons) with property H7 (R45),* - *PCBs (special regulation: PCB/PCT Waste Ordinance),* - *Heavy metals (see No 4.2.2).*
19 10 04	Fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 05*	Other fractions containing dangerous substances *The following should be taken into account:* - *Mineral oils (mineral oil hydrocarbons) with property H7 (R45),* - *PCBs (special regulation: PCB/PCT Waste Ordinance),* - *Heavy metals (see No 4.2.2).*
19 10 06	Other fractions other than those mentioned in 19 10 05

19 11	**Wastes from oil regeneration**
19 11 05*	Sludges from on-site effluent treatment containing dangerous substances *The following should be taken into account:* - *Mineral oils (mineral oil hydrocarbons) with property H7 (R45),* - *PAHs (see No 4.2.1).*
19 11 06	Sludges from on-site effluent treatment other than those mentioned in 19 11 05

19 12	**Wastes from the mechanical treatment of waste (e.g. sorting, crushing, compacting, palletising) not otherwise specified**
19 12 06*	Wood containing dangerous substances *Individual assessment depending on input (cf. Chapter 17).*
19 12 07	Wood other than that mentioned in 19 12 06

19 12 11*	Other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances *Individual assessment depending on input.*
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

19 13	**Wastes from soil and groundwater remediation**
19 13 01*	Solid wastes from soil remediation containing dangerous substances *The following should be taken into account:* - *tars with benzo(a)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53), (see No 4.2.1),* - *mineral oils (mineral oil hydrocarbons) with property H7 (R45),* - *PCBs (special regulation: PCB/PCT Waste Ordinance),* - *heavy metals (see No 4.2.2),* - *halogenated solvents.*
19 13 02	Solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	Sludges from soil remediation containing dangerous substances *The following should be taken into account:* - *Tars with benzo(a)pyrene as the characteristic component, with properties H7 (R45), H10 (R60/61), H11 (R46), H14 (R50-53),(see No 4.2.1),* - *Mineral oils (mineral oil hydrocarbons) with property H7 (R45),* - *PCBs (special regulation: PCB/PCT Waste Ordinance),* - *Heavy metals (see No 4.2.2),* - *Halogenated solvents.*
19 13 04	Sludges from soil remediation other than those mentioned in 19 13 03
19 13 05*	Sludges from groundwater remediation containing dangerous substances *Dangerous substances arising from remediation such as:* *pesticides, mineral oil hydrocarbons, solvents.*
19 13 06	Sludges from groundwater remediation other than those mentioned in 19 13 05
19 13 07*	Aqueous liquid wastes and aqueous concentrates from groundwater remediation containing dangerous substances *Dangerous substances arising from remediation such as:* *heavy metals (including ion exchangers), pesticides, mineral oil hydrocarbons, solvents.*
19 13 08	Aqueous liquid wastes and aqueous concentrates from groundwater remediation other than those mentioned in 19 13 07

20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**

20 01	**Separately collected fractions (except 15 01)**
20 01 25	Edible oil and fat
20 01 26*	Oil and fat other than those mentioned in 20 01 25 *The differentiation is based on the waste designation; the hazardous constituents are mineral oil hydrocarbons, H7 (R45).*
20 01 27*	Paints, inks, adhesives and resins containing dangerous substances *The determining factor for classification is usually the nature of the solvent used (the flammability (H3) shall be taken into particular account).* *Other constituent- and product-specific hazardous properties shall be considered; in this context direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1).*
20 01 28	Paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 29*	Detergents containing dangerous substances *Substance-specific assessment; usually direct testing of the hazardous properties based on knowledge of the law relating to dangerous substances (see No 4.1);* *(e.g. acids, alkalis, surfactants, cleaners containing hypochlorite, solvents)*
20 01 30	Detergents other than those mentioned in 20 01 29
20 01 31*	Cytotoxic and cytostatic medicines *see Chapter 18 of the Waste Catalogue Ordinance;* *Observe the LAGA Guideline on the proper disposal of waste from health-care establishments*
20 01 32	Medicines other than those mentioned in 20 01 31
20 01 33*	Batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries *cf. Group 16 06*
20 01 34	Batteries and accumulators other than those mentioned in 20 01 33
20 01 21*	Fluorescent tubes and other mercury-containing waste *Metallic mercury, e.g. from thermometers, is the determining factor; see No 4.2.2.*
20 01 23*	Discarded equipment containing chlorofluorocarbons *The hazardous constituents are CFCs (see No 4.2.3); the hazardous property is H14 (R59).* *Reference: CFCs [23], Annex 1*
20 01 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 30 01 23 containing hazardous components *Individual assessment:* *e.g. asbestos, oil, dangerous batteries, LCDs, cathode ray tubes etc.* *See corresponding entries in Group 16 02*
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 37*	Wood containing dangerous substances *See notes on waste code 17 02 04*
20 01 38	Wood other than that mentioned in 20 01 37

Annex III

Criteria for hazardous property H13

Hazardous property H13 can generally be considered fulfilled if one of the following concentrations limits is exceeded:

Eluate criteria

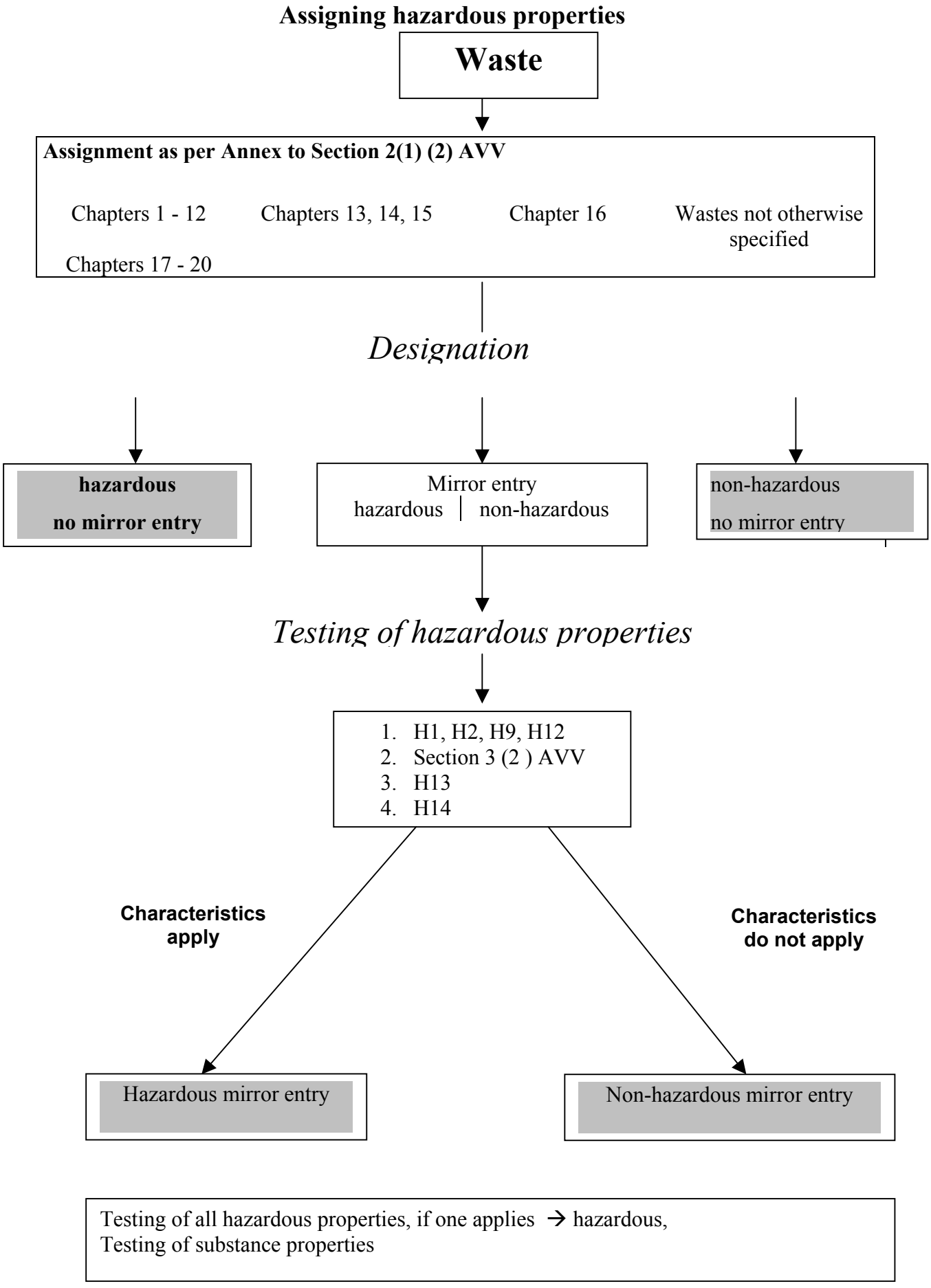
Parameter	Criterion
Antimony	> 0.07 mg/l
Arsenic	> 0.2 mg/l
Barium	> 10 mg/l
Lead	> 1 mg/l
Cadmium	> 0.1 mg/l
Chromium, total	> 1 mg/l
Copper	> 5 mg/l
Molybdenum	> 1 mg/l
Nickel	> 1 mg/l
Mercury	> 0.02 mg/l
Selenium	> 0.05 mg/l
Zinc	> 5 mg/l
Fluoride	> 15 mg/l

Total contents

Hydrocarbons > 8,000 mg/kg

If it is established that at least one of these concentration limits has been exceeded, the waste can be considered as hazardous.

Annex IV


Assigning hazardous properties
Waste
Assignment as per Annex to Section 2(1) (2) AVV
Chapters 1 - 12
Chapters 13, 14, 15
Chapter 16
Wastes not otherwise specified
Chapters 17 - 20
Designation
hazardous
no mirror entry
Mirror entry
hazardous
non-hazardous
non-hazardous
no mirror entry
Testing of hazardous properties
1. H1, H2, H9, H12
2. Section 3 (2) AVV
3. H13
4. H14
Characteristics apply
Characteristics do not apply
Hazardous mirror entry
Non-hazardous mirror entry
Testing of all hazardous properties, if one applies → hazardous,
Testing of substance properties

Annex V

Concentration limits for selected metal compounds

(Substance classification from Annex I to the Substances Directive [7])

Element		Classification of the substance	Classification of the waste				
	Substance name	Classification	Hazardous property	Concentration limit in %	Generalised limit value in %	Note 1	Element/Substance content factor
As	Arsenic	T; R23/25	H6	3	**0.1**		1
As	Arsenic acid and salts thereof	N; R50-53	H14	0.25	0.25		1.89
		T; R23/25	H6	3	**0.1**		1.89
		Carc.Cat.1; R45	H7	0.1	0.1		1.89
As	Arsenic compounds other than those expressly listed in this Annex	N; R50-53	H14	0.25	0.25	x	
		T; R23/25	H6	3	**0.1**	x	
As	Lead hydrogen arsenate	N; R50-53	H14	0.25	0.25	x	
		T; R23/25	H6	3	**0.1**	x	
		Carc.Cat.1; R45	H7	0.1	0.1	x	
As	Diarsenic pentoxide	N; R50-53	H14	0.25	0.25		1.53
		T; R23/25	H6	3	**0.1**		1.53
		Carc.Cat.1; R45	H7	0.1	0.1		1.53
As	Diarsenic trioxide	N; R50-53	H14	0.25	0.25		1.32
		T+; R28	H6	0.1	0.1		1.32
		Carc.Cat.1; R45	H7	0.1	0.1		1.32
		C; R34	H8	5	5		1.32
Cd	Cadmium compounds except…	N; R50-53	H14	0.25	0.25	x	
		Xn; R20/21/22	H5	25	25	x	
Cd	Cadmium chloride	N; R50-53	H14	0.25	0.25		1.63
		T+; R26	H6	0.1	0.1		1.63
		Carc.Cat.2; R45	H7	0.1	0.1		1.63
		Muta.Cat.2; R46	H11	0.1	0.1		1.63
Cd	Cadmium cyanide	N; R50-53	H14	0.25	0.25		1.46
		T+; R26/27/28	H6	0.1	0.1		1.46
		Xn; R68	H11	1	**0.1**		1.46
Cd	Cadmium oxide	T;R48/23/25	H6	3	**0.1**		1.14
		Carc.Cat.2; R49	H7	0.1	0.1		1.14
Cd	Cadmium sulphate	N; R50-53	H14	0.25	0.25		1.85
		Xn;R22	H5	25	25		1.85
		T; R48/23/25	H6	3	**0.1**		1.85
		Carc.Cat.2; R49	H7	0.1	0.1		1.85

Element		Classification of the substance	Classification of the waste				
	Substance name	Classification	Hazardous property	Concentration limit in %	Generalised limit value in %	Note 1	Element/Substance content factor
Cd	Cadmium sulphide	R53	H14	25	25	x	
		Xn; R22	H5	25	25	x	
		T; R48/23/25	H6	3	**0.1**	x	
		Carc.Cat.3; R40	H7	1	**0.1**	x	
Cr VI	Chromium(VI) compounds except barium chromate an compounds separately listed in this Annex	N; R50-53	H14	0.25	0.25		
		Carc.Cat.2; R49	H7	0.1	0.1		
Cr VI	Ammonium dichromate	N; R50-53	H14	0.25	0.25		2.42
		Xi; R36/37-41	H4	20	20		2.42
		Xn; R21	H5	25	25		2.42
		T+; R26	H6	0.1	0.1		2.42
		Carc.Cat.2; R49	H7	0.1	0.1		2.42
		Muta.Cat.2; R46	H11	0.1	0.1		2.42
Cr VI	Lead chromate	N; R50-53	H14	0.25	0.25	x	
		Carc.Cat.3; R40	H7	1	**0.1**	x	
Cr VI	Chromium trioxide	N; R50-53	H14	0.25	0.25		1.92
		T; R25	H6	3	**0.1**		1.92
		Carc.Cat.1; R49	H7	0.1	0.1		1.92
		C; R35	H8	1	1		1.92
Cr VI	Potassium chromate	N; R50-53	H14	0.25	0.25		3.39
		Xi; R36/37/38	H4	20	20		3.39
		Carc.Cat.2; R49	H7	0.1	0.1		3.39
		Muta.Cat.2; R46	H11	0.1	0.1		3.39
Cr VI	Potassium dichromate	N; R50-53	H14	0.25	0.25		2.66
		Muta.Cat.2; R46	H11	0.1	0.1		2.66
		Xi; R37/38-41	H4	20	20		2.66
		Xn; R21	H5	25	25		2.66
		T+;R26	H6	0.1	0.1		2.66
		Carc.Cat.2; R49	H7	0.1	0.1		2.66
Cr VI	Zinc chromates, inc. zinc potassium chromate	N; R50-53	H14	0.25	0.25		3.49
		R41	H4	10	10		3.49
		Xn; R22	H5	25	25		3.49
		Carc.Cat.1; R45	H7	0.1	0.1		3.49
Cu	Dicopper oxide	Xn; R22	H5	25	25		1.13
Cu	Copper chloride	N; R50-53	H14	0.25	0.25		1.56
		Xn; R22	H5	25	25		1.56

Cu	Copper sulphate	N; R50-53	H14	0.25	0.25		2.51
		Xi; R36/38	H4	20	20		2.51
		Xn; R22	H5	25	25		2.51
Hg	Mercury	N; R50-53	H14	0.25	0.25		1
		T; R23	H6	3	**0.1**		1
Hg	Inorganic mercury compounds other than mercury(II) sulphide and those expressly listed in this Annex	N; R50-53	H14	0.25	0.25	x	
		T+; R26/27/28	H6	0.1	0.1	x	
Hg	Organic mercury compounds other than those expressly listed in this Annex	N; R50-53	H14	0.25	0.25	x	
		T+; R26/27/28	H6	0.1	0.1	x	
Hg	Mercurous chloride	N; R50-53	H14	0.25	0.25		1.18
		Xi; R36/37/38	H4	20	20		1.18
		Xn; R22	H5	25	25		1.18
Hg	Mercury dichloride	N; R50-53	H14	0.25	0.25		1.35
		T+; R28	H6	0.1	0.1		1.35
		C; R34	H8	5	5		1.35
Ni	Dinickel trioxide	R53	H14	25	25		1.41
		Carc.Cat.1; R49	H7	0.1	0.1		1.41
Ni	Nickel	Carc.Cat.3; R40	H7	1	**0.1**		1
Ni	Nickel carbonate	N; R50-53	H14	0.25	0.25		2.02
		Xn;R22	H5	25	25		2.02
		Carc.Cat.3; R40	H7	1	**0.1**		2.02
Ni	Nickel dihydroxide	N; R50-53	H14	0.25	0.25		1.58
		Xn; R20/22	H5	25	25		1.58
		Carc.Cat.3; R40	H7	1	**0.1**		1.58
Ni	Nickel dioxide	R53	H14	25	25		1.41
		Carc.Cat.1; R49	H7	0.1	0.1		1.41
Ni	Nickel sulphate	N; R50-53	H14	0.25	0.25		2.63
		Xn;R22	H5	25	25		2.63
		Carc.Cat.3; R40	H7	1	**0.1**		2.63
Pb	Lead compounds other than those expressly listed in this Annex	N; R50-53	H14	0.25	0.25	x	
		Xn; R20/22	H5	25	25	x	
		Repr.Cat.1; R61	H10	0.5	0.5	x	
Pb	Lead acetate, basic	N; R50-53	H14	0.25	0.25	x	
		Xn; R48/22	H5	25	25	x	
		Carc.Cat.3; R40	H7	1	**0.1**	x	
		Repr.Cat.1; R61	H10	0.5	0.5	x	
Pb	Lead chromate	N; R50-53	H14	0.25	0.25	x	
		Carc.Cat.3; R40	H7	1	**0.1**	x	
		Repr.Cat.1; R61	H10	0.5	0.5	x	

Sb	Antimony compounds other than Sb_2O_4, Sb_2O_5, Sb_2S_5, Sb_2S_3 and the antimony compounds listed separately in this Annex	N; R51-53	H14	2.5	2.5	x	
		Xn; R20/22	H5	25	25	x	
Sb	Antimony pentachloride	N; R51-53	H14	2.5	2.5		2.46
		C; R34	H8	5	5		2.46
Sb	Antimony trichloride	N; R51-53	H14	2.5	2.5		1.87
		C; R34	H8	5	5		1.87
Se	Selenium	R53	H14	25	25		1
		T; R23/25	H6	3	3		1
Se	Selenium compounds except cadmium sulphoselenide	N; R50-53	H14	0.25	0.25		
		T; R23/25	H6	3	3		
Sn	Tin tetrachloride	R52-53	H14	25	25		2.19
		C; R34	H8	5	5		2.19
Sn*	Tributyltin compounds other than those expressly listed	N; R50-53	H14	0.25	0.25	x	
		Xi; R36/38	H4	20	**10**	x	
		Xn; R21	H5	25	25	x	
		T; R25-48/23/25	H6	3	**0.1**	x	
Sn*	Triethyltin compounds other than those expressly listed	N; R50-53	H14	0.25	0.25	x	
		T+; R26/27/28	H6	0.1	0.1	x	
Sn*	Trimethyltin compounds other than those expressly listed	N; R50-53	H14	0.25	0.25	x	
		T+; R26/27/28	H6	0.1	0.1	x	
Sn*	Trioctyltin compounds other than those expressly listed	R53	H14	25	25	x	
		Xi; R36/37/38	H4	20	**10**	x	
Sn*	Triphenyltin compounds other than those expressly listed	N; R50-53	H14	0.25	0.25	x	
		T; R23/24/25	H6	3	**0.1**	x	
Sn*	Tripropyltin compounds other than those expressly listed	N; R50-53	H14	0.25	0.25	x	
		T; R23/24/25	H6	3	**0.1**	x	
Tl	Thallium	R53	H14	25	25		1
		T+;R26/28	H6	0.1	0.1		1
Tl	Thallium compounds other than those expressly listed in this Annex	N; R51-53	H14	2.5	2.5		
		T+;R26/28	H6	0.1	0.1		
Zn	Zinc chloride	N; R50-53	H14	0.25	0.25		2.08
		C; R34	H8	5	5		2.08
Zn	Zinc sulphate	N; R50-53	H14	0.25	0.25		2.47
		Xi; R36/38	H4	20	20		2.47

* Organotin compounds

Annex VI

Procedures for analysing waste

The sampling and analysis of waste described below shall be performed by independent testing bodies accredited under DIN EN ISO/IEC 17025 or by bodies revocably approved by the competent authorities within the context of the *Länder* Administrative Agreement on the accreditation and notification of testing laboratories and measuring bodies in the officially regulated environmental field, Waste Section.

1 Sampling

The samples for analysis shall be taken in accordance with Guideline PN 98 of the JointWorking Group of the Federal States on Waste (LAGA) "Principles for taking samples from waste and deposited materials" [30]. The following shall be observed in the process:

1.1 Homogeneity / Inhomogeneity / Heterogeneity

The following assignment shall apply:
Waste is generally homogeneous if its homogeneity can be verified visually, for example sludges, dusts, reaction products from flue-gas purification plants, slags, mechanically and biologically treated waste.
Inhomogeneities generally occur in solid wastes and can rarely be detected by visual inspection. Indications of homogeneity, and also information on the origin, can be obtained by sensory tests and/or rapid chemical tests (on-site analysis), e.g. testing electrical conductivity or the pH.

All other waste is heterogeneous.

1.2 Number and size of samples

1.2.1 The number of individual samples taken shall be laid down in accordance with the requirements of LAGA Guideline PN 98.

1.2.2 The minimum size of individual samples shall be taken from Section 6.5 of LAGA Guideline PN 98 for each waste producer and each waste code for set and solid waste.

2 Measurement of the parameters

The parameters shall be measured in accordance with the procedure described below. Equivalent procedures in accordance with the state of the art are, in principle, permitted. Proof of equivalence shall be furnished by the user.

2.1 Analysis procedure - solids

Details on measuring arsenic and heavy metals

DIN EN 13657 (January 2003 edition)

Analysis parameter	Analysis method	Edition
Arsenic	DIN EN ISO 11969	November 1996
Lead, cadmium, chromium, copper, nickel and zinc	E DIN ISO 11047 DIN EN ISO 11885	May 2003 April 1998
Thallium	DIN EN ISO 11885	April 1998
Mercury	DIN EN 1483	August 1997
Cyanide	LAGA Guideline CN 2/79	December 1983
Asbestos	Federal Environment Ministry publication: Publication of analytical methods for taking samples of and testing the substances and substance groups listed in the Annex to the Order banning certain chemicals [23]	2003
hydrocarbons	E DIN EN 14039 in conjunction with LAGA guideline KW 04	January 2005 November 2004
Creosotes, PAHs, benzo(*a*)pyrene	DIN ISO 13877	January 2000
PCBs	for oils: EN 12766-1 or EN 12667-2 other, solid wastes: DIN ISO10382 DIN 38414 Part 20	2002 February 1998 January 1996
Benzene	Contaminated Sites Manual, Hesse Office for Geology and the Environment, Volume 7 Part 4	2000
Highly volatile halogenated hydrocarbons / halons	Contaminated Sites Manual, Hesse Office for Geology and the Environment, Volume 7 Part 4	2000

2.2 Eluates

Producing eluates to measure the parameters

DIN EN 12457-4 “Characterisation of waste - Leaching; Compliance test for leaching of granular waste materials and sludges – Part 4: One-stage batch test at a liquid to solids ratio of

10 l/kg for materials with particle size below 10 mm (with or without size reduction)”

(January 2003)

Note: The specifications in Annex F to DIN EN 12457 Part 4 shall be observed.

Analysis parameter	**Analysis method**	**Edition**
Antimony	DIN EN ISO 11885	April 1998
Arsenic	DIN EN ISO 11969 or, alternatively, DIN EN ISO 11885	November 1996 April 1998
Barium	DIN EN ISO 11885 or, alternatively, DIN EN ISO 14911	April 1998 December 1999
Lead	DIN 38406-E6 or, alternatively, DIN EN ISO 11885	July1998 April 1998
Cadmium	DIN EN ISO 5961 or, alternatively, DIN EN ISO 11885	May 1995 April 1998
Chromium (VI)	DIN 38405-D24	May 1987
Copper	DIN 38406-E7 or, alternatively, DIN EN ISO 11885	September 1991 April 1998
Molybdenum	DIN EN ISO 11885	April 1998
Nickel	DIN 38406-E11 or, alternatively, DIN 38406-E22	September 1991 March 1988
Selenium	DIN EN ISO 11885	April 1998
Mercury	DIN EN 1483	August 1997
Zinc	DIN 38406-E8-1 or, alternatively, DIN EN ISO 11885	October 1980 April 1998
Fluoride	DIN 38405-D4-1	July 1985

2.3. Publications of specialist agencies

The publications of specialist agencies referred to in this Annex shall be securely archived at the German Patent Office in Munich.

The following have been published:

- the ISO, EN and DIN standards by Beuth-Verlag GmbH, Berlin and Cologne,
- LAGA Guideline PN 98 as LAGA Communication 32, Erich Schmidt Verlag, Berlin,
- Volume 7 of the Contaminated Sites Manual as a PDF file by the Hesse Office for Geology and the Environment at http://www.hlug.de/medien/altlasten/handbuch_band_7.htm.