

Guidance document

On the definition and classification of hazardous waste

DRAFT VERSION from 08 June 2015

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Executive Summary

The final guidance document will contain an executive summary in English and French language.

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List of Abbreviations

ABANDA	Database on waste analyses (‘Abfallanalysendatenbank’)
AH	Absolute Hazardous Entry
ANH	Absolute Non-Hazardous Entry
ATP	Adaption to Technical Progress
BDE	Brominated diphenyl ethers
BREF	Best Available Techniques Reference Document
BTX	Benzene Toluene and Xylene
CaO	Calcium oxide
Ca(OH) ₂	Calcium hydroxide
CEN	European Committee for Standardization
CJEU	Court of Justice of the European Union
C&L	Classification & Labelling
CLP	Classification, Labelling and Packaging
CLRTAP	Convention on Long-Range Transboundary Air Pollution
ECHA	European Chemicals Agency
EEA	European Environmental Agency
ELV	End of life vehicles
ETDS	Environmental Terminology and Discovery Service
GHS	Globally Harmonised System
HP	Hazardous Property
LANUV	Environment Agency of North Rhine-Westphalia (‘Landesamt für Natur, Umwelt und Verbraucherschutz’ Nordrhein-Westfalen’)
LoW	List of Waste (Decision 2000/532/EC, as amended)
MH	Mirror Hazardous Entry
MNH	Mirror Non-Hazardous Entry
ODS	Ozone depleting substances
OSHA	Occupational Safety & Health Administration
PAH	Polycyclic Aromatic Hydrocarbons
SDS	Safety Data Sheet
UNECE	United Nations Economic Commission for Europe
WEEE	Waste electrical and electronic equipment
WFD	Waste Framework Directive (2008/98/EC)

Glossary

Cut-off value

Where a substance is present in the waste below a determined limit value (i.e. its cut-off value), it shall not be included in any calculation of a threshold. Cut-off values for individual substances for the assessment of hazardous properties are indicated in Annex III to the WFD.

M-factor

M-factor means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present.

Chapter

The LoW contains 20 chapters categorising wastes according their source (chapters 01 to 12 and 17 to 20), type (chapters 13 to 15) and not otherwise specified (chapter 16). The chapter numbering in the LoW has two digits.

Sub-chapter

Chapters of the LoW are further divided into sub-chapters with four digits. Sub-chapters group wastes based on common origins or properties.

Entry

Entries of the LoW show a six digit code and cover different type of wastes. Wastes assigned to entries with an asterisk (*) shall be considered hazardous. All other entries of the LoW are considered non-hazardous. Thereby a waste has to be either hazardous or non-hazardous. There are different types of entries: AH, ANH, MNH, MH (see below)

Absolute Hazardous (AH) entry

AH entries are entries with six digits from the LoW. Wastes which are assigned to AH entries cannot be allocated to alternative entries and are hazardous without any further assessment

Absolute non-hazardous (ANH) entry

ANH entries are entries with six digits from the LoW. Wastes which are assigned to ANH entries cannot be allocated to alternative entries and are non-hazardous without any further assessment

Mirror entry

Mirror entries are a pair of at least two alternative entries with six digits on the LoW. In contrast to AH or ANH entries, if waste is to be allocated to a pair of alternative entries (namely Mirror non-hazardous (MNH) entries and mirror hazardous (MH) entries, further steps in the assessment for allocation have to be undertaken.

Harmonised classification

For some substances the decision on the classification of the chemical is taken at EU Community level. It is mandatory for the suppliers of the respective substance or mixture to apply this harmonised classification and labelling.

Self-classification

In most cases, suppliers need to decide in the classification of a substance or mixture. This is called self-classification. The self-classification must fulfil the minimum requirements laid down in the harmonised classification.

Hazardous waste

Hazardous waste means waste which displays one or more of the hazardous properties listed in Annex III to the WFD

Hazardous property (HP)

HPs are properties of waste which render it hazardous. There are 15 HPs described in Annex III to the WFD. In some cases hazardous properties are assessed based on hazardous substances contained in the waste.

Hazardous substance

A hazardous substance is a substance that is assigned a hazard statement code when classified using the CLP Regulation.

Hazard statement code

The code assigned to the hazard class and category. For example a carcinogen could be 'H350' or 'H351'.

Hazard Class

The nature of the hazard. For example a carcinogenic is 'Carc.'

Hazard Category

A sub-category of the hazard class that describes the severity of the hazard. For example a carcinogen could be '1A'. '1B' or '2'.

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Foreword

A foreword will be added by the Commission to the final document

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Notice

This document contains non-binding guidance regarding classification of hazardous waste in the framework of:

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directive (also referred to as the Waste Framework Directive or WFD) and;
- List of Waste 2000/532/EC as amended by Commission Decision 2014/955/EU(also referred to as LoW).

The purpose of this document is to assist national authorities and economic operators with guidance on how to understand and apply the aforementioned legislation. The content, including examples, reflects the views of Directorate-General Environment of the European Commission and as such is not legally binding. The binding interpretation of EU legislation is the exclusive competence of the Court of Justice of the European Union (CJEU). The views expressed in this guidance document cannot prejudge the position that the Commission might take before the CJEU.

It is the Member States' task to enforce EU environmental law, and the enforcement practice may differ among Member States, depending on factual circumstances, administrative structures, regional or local conditions, or other reason. In practical cases similar to the presented examples, other facts may occur that justify other decisions by the competent authorities. Therefore, the examples are in no way construed as established decisions that Member States legislators or enforcement bodies are bound to take. In practical implementation and enforcement, specific circumstances and the context of the waste management situation, as well as the requirements of the legislation, will always need to be taken into account.

In the document, the European legislation in force at the time of writing, including all amendments, is taken as the basis. Annex E contains a reference to the official name, the date of adoption and the source within the Official Journal of all cited legal acts, as well as a link to the corresponding entry at the EurLex website. It should be noted that the legal acts may since have been amended or repealed. Consolidated versions of the acts can be found via the entry at the EurLex website¹; information on the amending acts can be found within the EurLex entries under the section 'Relationship between documents'.

¹ <http://eur-lex.europa.eu/homepage.html?locale=en>

1. Introduction

1.1. Background

Waste management is becoming increasingly sophisticated and complex. On the other hand, the knowledge on waste generation, waste properties and waste management has been vastly improved during the last 15 years, when the EU first developed a consolidated list of waste (the then so-called 'European Waste Catalogue').

Further, the waste management industry today is a fast-growing innovative sector, developing new treatment technologies or using existing technologies (including pre-treatment) much more efficiently. These changes provide many specific solutions, enabling the use of waste as a resource as well as the ability to recover raw materials from waste on many occasions. In this respect, the management of waste, including hazardous waste, offers many opportunities for society as a whole.

At the same time, waste management is a sector where impacts for health and the environment are of particular concern, and this is indeed specifically recognised for hazardous wastes by EU waste law. The question if the advantages of recycling are outweighed by unwanted transfers and perpetuation of dangerous substances in the material cycle needs to be carefully considered and offers difficult challenges for regulators, authorities and economic actors.

Against this background, understanding at what point and under what circumstances waste is to be considered hazardous is a crucial watershed during the entire chain of waste management from generation to final treatment (indeed, it goes even beyond this, since the knowledge what makes waste hazardous also is relevant in the case of waste prevention). At the point where a waste is correctly classified as hazardous, a number of important obligations are triggered, for instance on labelling and packaging, but also in terms of the available compliant treatment.

The EU has learned lessons from the application of previous waste legislation and has taken the scientific and economic progress into account when the framework for classification of waste and the list of properties that render waste hazardous have been modified in 2014. This update of legislation, which also takes into consideration the fundamental changes in EU chemicals legislation during the last years, again sets out challenges for authorities and industry.

1.2. To whom is the guidance addressed?

This document aims at assisting national authorities and economic operators with guidance on how to understand and correctly apply the relevant EU legislation regarding the classification of waste, in particular the Waste Framework Directive and the List of Waste.

1.3. How to read the guidance?

The overall background and the specific legislative framework is presented within the first two chapters.

In the following, chapter 3 guides you through the basic steps of the classification process. It does not contain specific information on how to perform the necessary steps for classification but rather mentions a general overview. For certain steps, reference is made to the corresponding Annex, where more detailed information can be found.

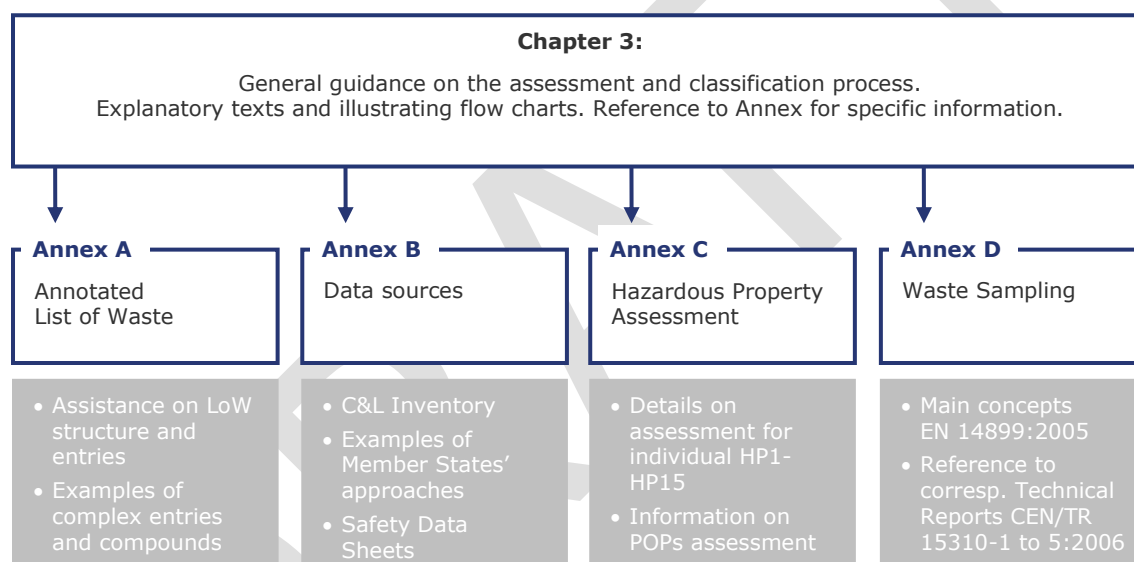


Figure 1: Overview structure of this guidance document

2. Legislative Framework

2.1. Waste Legislation

2.1.1. Waste Framework Directive (WFD)

The WFD sets out what waste is and how it should be managed. It considers some wastes to be hazardous waste.

A hazardous waste is defined as a waste that has one or more of the fifteen specified hazardous properties listed in Annex III to the WFD. The application of this is determined by the European List of Waste.

Box 1: Simplified content of the WFD

The Waste Framework Directive 2008/98/EC (hereinafter WFD) is the key legislative document on waste at the EU level, containing general definitions, fundamental principles, and basic obligations of different relevant actors. Being a Directive, the WFD is transposed into the national legislation of the MS by means of separate legal acts.

The scope of the Directive focuses on 'waste' as defined in Article 3(1) WFD, i.e.

'any substance or object which the holder discards or intends or is required to discard'.

Any object is either waste or not waste (the latter including products, industrial by-products and substances or objects which have reached the 'end-of-waste'-status). Whereas in many cases the decision whether a substance or an object is 'waste' in the sense of the WFD is easy to determine, some other cases are difficult. Extensive guidance on the term 'waste' and its understanding, including examples from the binding jurisprudence of the CJEU, can be found in the document [EC 2012]. If the substance or object fulfils the criteria of being waste, it is subject to the waste legislation including waste classification.

The WFD also defines what is 'hazardous waste' in its Article 3(2):

'waste which displays one or more of the hazardous properties listed in Annex III'.

Just as the question whether something is 'waste', the question whether it is 'hazardous waste' is a crucial watershed, following a binary test: waste is always either hazardous or non-hazardous. For the case that waste is hazardous, a number of specific obligations apply, e.g.

- labelling and packaging obligations;
- the obligation to provide evidence for the tracking of the waste according to the system put by the relevant Member State;
- a mixing ban (see for details on mixing ban [EC 2012]).

The EU acquis further determines that hazardous waste must only be treated in specially designated treatment facilities that have obtained a special permit.

The criteria of Annex III to the WFD have been recently updated to scientific progress. The new Hazardous Properties (HP) are to be applied starting June 2015. They are discussed in detail in Annex C of this document.

In the context of waste classification, further note that Article 7 WFD sets the basis for the List of Waste (the 'LoW', Decision 2000/532/EC, see below) and its application. Member States may introduce additional entries in the national documents reflecting the LoW, and Member States may – under certain circumstances – consider waste which is listed as hazardous in the LoW as non-hazardous and vice versa.

2.1.2. European List of Waste (LoW)

The LoW provides further provisions for the assessment of hazardous properties and the classification of waste.

It provides the list of wastes, categorised into chapters, sub-chapters and entries. The entries in the LoW can be categorised into 'absolute hazardous entries', 'absolute non-hazardous entries' and 'mirror entries'.

Box 2: Simplified content of the LoW

Commission Decision 2000/532/EC establishes the European List of Waste (LoW). The LoW is the key document for classification of waste. A consolidated version of the LoW has existed since 2000 and has been revised in 2014, including within its methodological part, in order to align the LoW to scientific progress and the developments in chemicals legislation. Legally, the LoW is an EU Decision addressed to the Member States; Member States often publish legal documents substantially reflecting the LoW. Note that these national documents are the relevant reference documents for economic operators and national authorities.

Classification according to the LoW firstly means that each waste is to be classified by a six digit number (see in detail chapter A.1).

Full and compliant classification enables economic operators and competent authorities for a decision in terms of the question whether the waste is hazardous or not (see in detail 3.1). In this respect, the LoW recognises three types of entries:

- 'Absolute hazardous entries': In all cases the classification alongside the LoW criteria leads to the allocation of a LoW entry marked with an asterisk (*), the waste is assumed actually exhibiting properties which render it hazardous and thus considered hazardous;
- 'Absolute non-hazardous entries': In all cases the classification alongside the LoW criteria leads to the allocation of a LoW entry not marked with an asterisk (*); the waste is assumed not exhibiting properties which would render it hazardous and thus considered non-hazardous;
- So-called 'mirror entries', where waste from the same source might under the LoW be allocated to a hazardous entry or to a non-hazardous entry depending on the specific case and on the composition of the waste.

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2.1.3. Waste Shipment Regulation (WSR)

The WSR establishes procedures, conditions and requirements that have to be fulfilled during transfrontier shipments of waste, including shipments between EU Member States.

Classification of waste according to WFD and LoW influences also procedures in the context of the WSR.

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Box 3: Simplified content of the WSR

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Regulation (EC) No 1013/2006 on the shipment of waste (Waste Shipment Regulation or WSR) establishes the procedures, conditions and requirements that have to be fulfilled during transfrontier shipments of waste, including shipments between Member States of the EU. As a Regulation, the WSR sets out obligations that are directly applicable in all Member States.

There are two control procedures for the shipment of waste, namely:

- the **general information requirements** of Article 18 which is normally applicable for the shipments for **recovery** of wastes listed in Annex III ('green' listed wastes) or IIIA, and
- the procedure of **prior written notification and consent** for other types of shipments of wastes, including:
 - shipments of wastes listed in Annex IV ('amber' listed wastes) or in Part 2 of Annex V (European List of Wastes), and
 - shipments for disposal of wastes listed in Annex III ('green' listed wastes).

In the context of identification of waste for the purpose of correct procedure and documentation, first note that the classification according to the lists contained in Annex III-IV of the WSR (the incorporated lists of international agreements) is relevant. These lists provide for a classification approach different to the one of the LoW.

However, classification according to WFD and LoW is also relevant in the context of the WSR, for instance as a criterion whether the waste may be exported for certain non-EU non-OECD countries (Article 36(1) WSR). LoW entries of the transported waste have to be indicated on the notification and movement document used in the framework of the notification procedure, and on the Annex VII form used during the Article 18 procedure respectively.

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2.1.4. Directive on waste from the extractive industries

The Mining Waste Directive sets up the framework for proper management of wastes resulting from extractive industries.

Although it is excluded from the scope of the WFD, the hazardousness of wastes from the extractive industries should be classified in line with the LoW.

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Box 4: Simplified content of the Mining Waste Directive

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Directive 2006/21/EC on the management of waste from extractive industries ('Mining Waste Directive') aims at ensuring that waste from the extractive industries is managed without endangering human health and without using processes or methods which could harm the environment. Although waste from extractive industries where covered by the Mining Waste Directive is explicitly excluded from the scope of the WFD (Article 2(2)(d) WFD), classification according to LoW nevertheless is relevant: operators are under the Mining Waste Directive to prepare a waste management plan, establishing the necessary measures to properly manage relevant waste. In accordance with the waste management plan the hazardousness of the waste from the extractive industries should be classified in line with criteria of LoW.

2.1.5. REACH Regulation

The REACH regulation lays down the registration, evaluation, authorization and restriction of chemicals in the EU.

Waste is not considered as a substance or mixture under REACH. Nevertheless, information generated in the framework of REACH may be relevant for waste classification.

Box 5: Simplified content of the REACH regulation

The REACH Regulation (EC) 1907/2006 entered into force in 2007. REACH is the general chemicals law at EU level. Its main tools are:

- registration of substances (i.e. submitting a file with defined properties for each substances to European Chemicals Agency ECHA);
- improved communication alongside the supply chain by means of Safety Data Sheets (SDS);
- evaluation of substances by public authorities with the aim of identifying problematic substances;
- restriction of use;
- authorization, i.e. ban of use of a substance with the possibility of an exemptive permit under certain conditions.

In the context of classification, first it is important to note that waste (as defined by the WFD) is not considered a substance or a mixture under REACH; no obligations apply under REACH for producers or holders of waste.

However, information generated or communicated in the framework of REACH may serve as an important information tool (see Annex B) for the classification of waste.

2.1.6. CLP Regulation

The CLP Regulation sets out criteria for substances to be classified as hazardous.

Waste is not considered as a substance, mixture or article under CLP. However, some of the hazardous properties applicable for waste are related to CLP criteria. Further, classifications of substances under CLP may also be relevant for waste classification.

Box 6: Simplified content of the CLP Regulation

CLP Regulation (EC) 1272/2008 adapts for the EU the UN international chemicals classification (Globally Harmonised System - GHS). In this context, it sets out criteria for substances to be classified as hazardous.

Similarly to REACH, under CLP Regulation waste is not considered a substance, mixture or article; consequently, obligations under CLP do not apply for producers or holders of waste.

In terms of the classification of waste, note that some of the HP criteria of Annex III to the WFD directly make reference to CLP criteria. Many mirror entries specifically refer to 'hazardous substances'. The presence of these 'hazardous substances' has to be evaluated in line with criteria set by CLP (see in detail 3.2 and Annex C). Further, Annex 3.1 of CLP Regulation contains official harmonised classification of substances which have to be taken into account where the classification of waste depends on the presence of hazardous substances (see for this particular aspect chapter B.1.1).

2.1.7. POP Regulation

The POP regulation aims to protect environment and human health from persistent organic pollutants (POPs).

Waste containing certain POPs as indicated in the Annex to the LoW (point 2, indent 3) above the relevant threshold of the POP regulation have to be classified as hazardous.

Box 7: Simplified content of the POP regulation

Regulation (EC) 850/2004 on persistent organic pollutants (POP Regulation) aims among others at protecting the environment and human health from certain specified substances that are transported across international boundaries far from their sources, persist in the environment, and cause bioaccumulation, by implementing relevant international agreements. The Regulation's scope is restricted to those substances with POP properties specified in the Annexes of the Regulation.

Following Article 7 of the POP Regulation, wastes consisting of POPs, containing or contaminated with them above specific limit values (concentration limit referred to in Article 7(4)(a) – the so called 'low POP-content limit value'), must be disposed of or recovered, without undue delay and in accordance with the provisions laid down in the POP Regulation in such a way as to ensure that the persistent organic pollutant content is destroyed or irreversibly transformed so that the remaining waste and releases do not exhibit the characteristics of persistent organic pollutants. Disposal or recovery operations that may lead to recovery, recycling, reclamation or re-use of the POPs are prohibited.

With the revision of LoW that becomes applicable in June 2015, it is now considered that in the case of mirror entries, waste containing certain POPs (as indicated in Annex to the LoW (point 2, indent 3)) above the relevant thresholds of POPs Regulation are considered hazardous (cf. A.5.8).

Note that this impact on classification is irrespective and independent from all obligations set out for the producers and holders of POPs waste according to POP Regulation.

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2.1.8. Seveso III Directive

The Seveso III Directive aims to prevent major accidents involving dangerous substances and a limitation of their consequences for the environment and human health.

It also applies to waste. Operators handling dangerous substances above certain thresholds must classify waste on the basis of its properties as a mixture. Relevant sources of information may include classification according EU waste legislation.

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Box 8: Simplified content of the Seveso III Directive

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Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso III Directive) has as main objective the prevention of major accidents which involve dangerous substances, and the limitation of their consequences for human health and the environment, with the goal of ensuring a high level of protection throughout the Union in a consistent and effective manner.

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Operators handling dangerous substances above certain thresholds must regularly inform the public likely to be affected by an accident, providing safety reports, a safety management system and an internal emergency plan. Member States must ensure that emergency plans are in place for the surrounding areas and that mitigation actions are planned. The Seveso III Directive also applies to waste. Note 5 to Annex I of the Seveso III Directive makes reference to CLP Regulation (EC) No 1272/2008 and mentions waste explicitly:

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'In the case of dangerous substances which are not covered by Regulation (EC) No 1272/2008, including waste, but which nevertheless are present, or are likely to be present, in an establishment and which possess or are likely to possess, under the conditions found at the establishment, equivalent properties in terms of major-accident potential, these shall be provisionally assigned to the most analogous category or named dangerous substance falling within the scope of this Directive.'

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According to the EU Commission's 'Guidance on technical implementation issues' [EC JRC 2013] within the Seveso III Directive, waste is treated on the basis of its properties as a mixture, and it is the obligation of the operator to define the classification of this mixture. If the classification cannot be carried out by the procedures under Regulation (EC) 1272/2008; other relevant sources of information may be used, e.g. information concerning the origin of the waste, practical experience, testing, transport classification or classification according to the European waste legislation.

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3. Procedures for the classification of waste

3.1. General approach to the classification of waste

The following chapter and flowchart (cf. Figure 2) guides through the general approach for classification of waste. The flowchart indicates a reference both

- to the respective chapter of this document, where the classification step is generally explained and;
- to the respective Annex to this document, where detailed information is provided.

Having completed the first two steps it should be known whether:

- the substance or object in question is subject to the WFD and LoW and;
- either an 'absolute' (hazardous or non-hazardous) LoW entry applies or a 'mirror entry' applies and thus performing a further assessment is necessary.

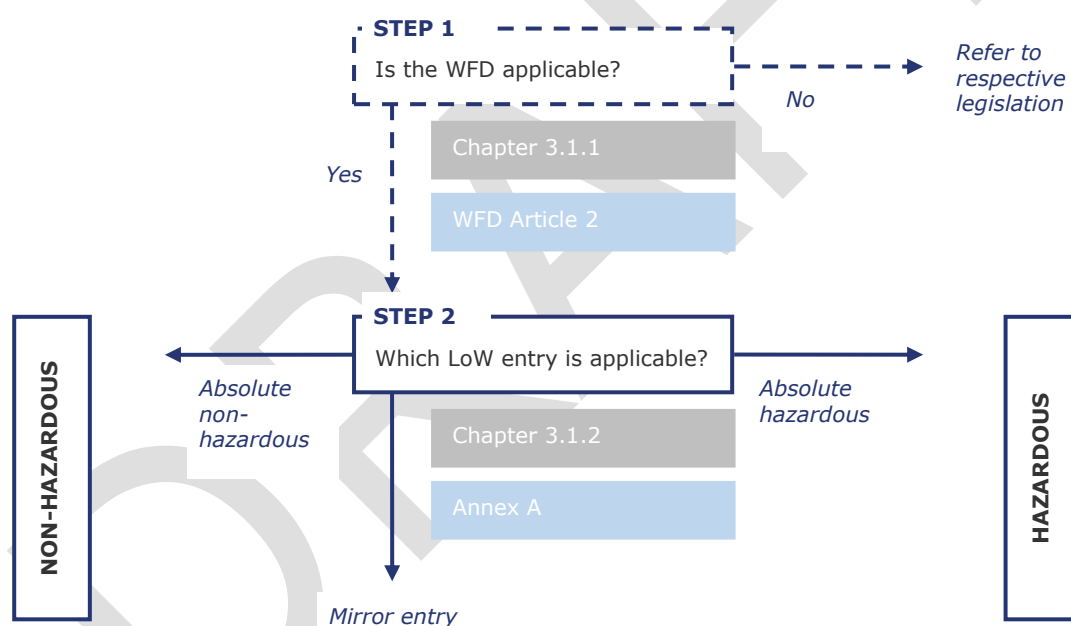


Figure 2: Flow chart for determination of applicable LoW entries

3.1.1. Step 1: Is the WFD applicable?

Before waste can be classified, it should be checked whether WFD and LoW are applicable at all:

- first, it has to be assessed whether the substance or object in question is waste (as defined in the WFD);
- second, it has to be assessed whether certain specified waste streams are excluded from the scope of the WFD.

Determining whether the object or substance in question is considered waste in the sense of the WFD is a precondition for a further assessment regarding its

hazardousness. For this particular assessment, the document [EC 2012] provides guidance on the key definition of 'discarding' under the WFD, and related concepts under the WFD such as 'by-product' and 'end-of-waste'.

Second, even if the substance or object is considered waste, it has to be assessed whether one of the exclusions from the scope laid down in Article 2 WFD applies. The text of Article 2 WFD is provided in the box below. Detailed guidance on selected exclusions is provided for in [EC 2012].

In case an assessment leads to the result that an exclusion applies, neither the WFD nor the LoW apply (a special case is the Mining Waste Directive as described in chapter 2.1.4; which is outside the scope of the WFD yet under the circumstances mentioned in the Directive, waste has to be classified in line with the LoW).

All waste streams not explicitly excluded by the WFD are to be classified according to WFD and LoW, and thus according to the approach outlined in this guidance document. This includes cases where additional legal documents exist for a particular waste stream (such as for waste electrical and electronic equipment (WEEE) in the case of the WEEE Directive 2012/19/EU or for waste batteries in the case of the Batteries Directive 2006/66/EC), as mentioned in Article 2(4) WFD.

Directive 2008/98/EC

Article 2 – Exclusions from the scope

1. The following shall be excluded from the scope of this Directive:
 - a. gaseous effluents emitted into the atmosphere;
 - b. land (in situ) including unexcavated contaminated soil and buildings permanently connected with land;
 - c. uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated;
 - d. radioactive waste;
 - e. decommissioned explosives;
 - f. faecal matter, if not covered by paragraph 2(b), straw and other natural non-hazardous agricultural or forestry material used in farming, forestry or for the production of energy from such biomass through processes or methods which do not harm the environment or endanger human health.
2. The following shall be excluded from the scope of this Directive to the extent that they are covered by other Community legislation:
 - a. waste waters;
 - b. animal by-products including processed products covered by Regulation (EC) No 1774/2002, except those which are destined for incineration, landfilling or use in a biogas or composting plant;
 - c. carcasses of animals that have died other than by being slaughtered, including animals killed to eradicate epizootic diseases, and that are disposed of in accordance with Regulation (EC) No 1774/2002;
 - d. waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries covered by Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries.
3. Without prejudice to obligations under other relevant Community legislation, sediments relocated inside surface waters for the purpose of managing waters and waterways or of preventing floods or mitigating the effects of floods and droughts or land reclamation shall be excluded from the scope of this Directive if it is proved that the sediments are non-hazardous.
4. Specific rules for particular instances, or supplementing those of this Directive, on the management of particular categories of waste, may be laid down by means of individual Directives.

Box 9: WFD Article 2 - Exclusions from the scope

3.1.2. Step 2: Which entry of the List of Waste is applicable?

The LoW contains 20 *chapters* (two digit codes), further divided into *sub-chapters* (four digit codes) and *entries* (six digit codes).

The assignment of a specific entry needs to be done according a certain precedence of the aforementioned chapters. An annotated version of the LoW, more information on the list's structure, a guidance on how to find the appropriate entry and specific examples can be found in Annex A.

Any entry marked with an asterisk (*) shall be considered as hazardous. All other entries are considered non-hazardous. To complete Step 2 and identify the applicable entry of the LoW,

- the appropriate entry of the LoW needs to be assessed for the waste in question, taking into account that specific entries at Member States level may have been introduced in the legal document at national level reflecting the EU LoW;
- subsequently, it needs to be assessed which of the following type this entry is:

- Absolute hazardous (AH) entry (marked with an asterisk (*))

Wastes which are assigned to AH entries cannot be allocated to alternative entries and are hazardous without any further assessment.

In case an AH entry is assigned, the waste will be classified as hazardous and no further assessment is needed. Please see Box 11 in chapter A.1 for information on AH entries displaying no hazardous properties.

- Absolute non-hazardous (ANH) entry

Wastes which are assigned to ANH entries cannot be allocated to alternative entries and shall be classified as non-hazardous without any further assessment.

In case an ANH entry is assigned, the waste will be classified as non-hazardous and no further assessment is needed. Please see Box 11 in chapter A.1 for information on ANH entries displaying hazardous properties.

- Mirror entry

Mirror entries are a pair of at least two alternative entries. In contrast to AH or ANH entries, if waste is to be allocated to a pair of alternative entries, further steps in the assessment for allocation have to be undertaken. Paired alternatives are:

- Mirror hazardous (MH) entry (marked with an asterisk (*))
- Mirror non-hazardous (MNH) entry

In case there is the choice to assign a MH entry or a MNH entry, it is necessary to proceed with steps 3-5 (cf. chapter 3.2) of the classification process in order to determine whether to assign the MH entry or the MNH entry.

Further assistance on the definition of ANH, AH, MH and MNH is given in chapter A.1.

3.2. Assignment of MH or MNH entry

The following chapters are applicable for the determination if a MH entry or a MNH entry needs to be assigned.

After having completed steps 3-5, the assessment is completed whether the waste in question contains hazardous components and displays one or more hazardous properties (HP1 to HP15), and/or whether it contains any relevant POPs. Hence it can be decided whether the waste is hazardous or non-hazardous. The following flowchart displays the necessary steps and refers to the following chapters (and respective Annexes for further details).

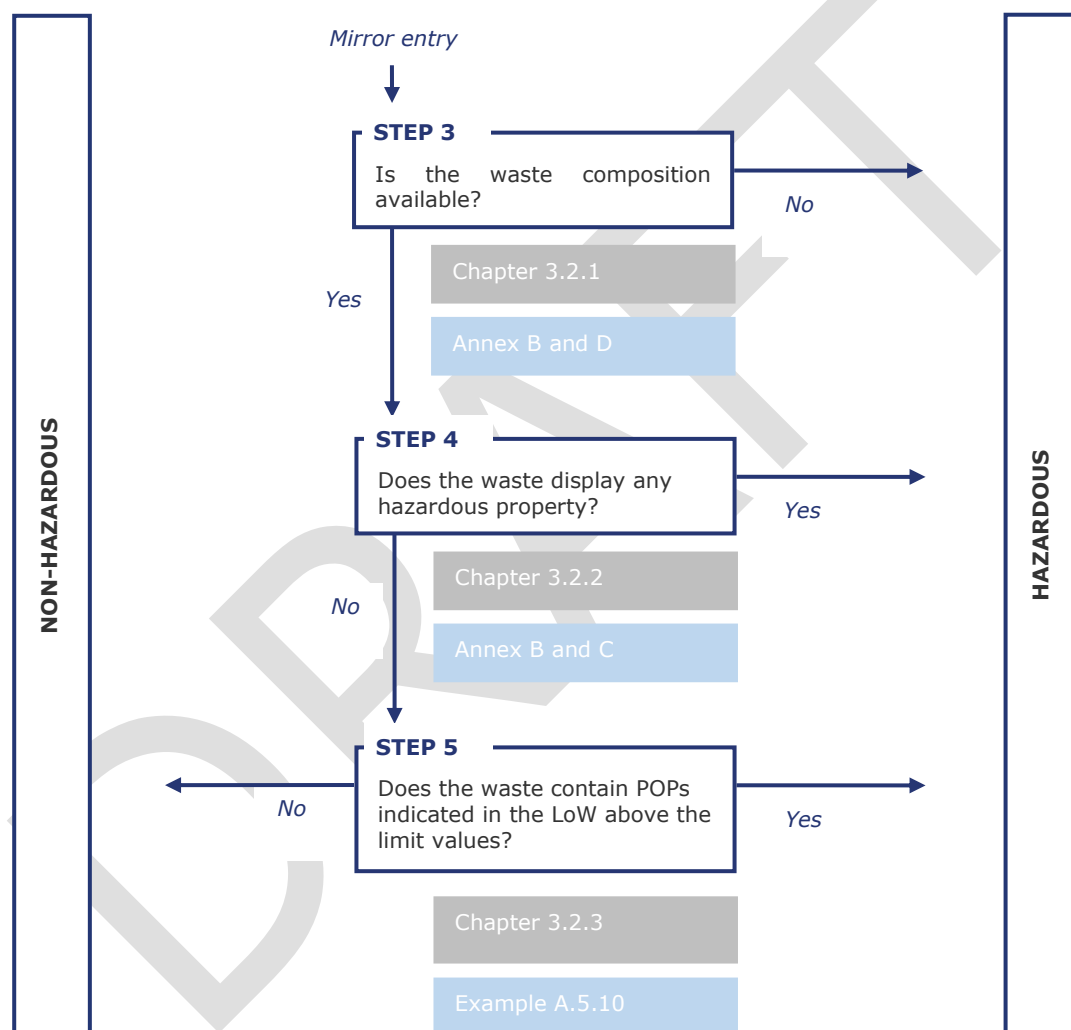


Figure 3: Flow chart for determining whether MH or MNH entry is to be assigned

3.2.1. Step 3: Is the waste composition available?

Knowing the composition of the waste is an important precondition for determining if the waste displays hazardous properties. There are several possibilities to examine which substances can be found in the waste and whether they are hazardous:

- information from the original producer of the substance or object before it became waste, e.g. Safety Data Sheets (SDS), GHS pictograms (see in more detail Annex B);
- extensive knowledge of 'waste-generating' manufacturing process/chemistry and its input substances and intermediates;
- database on waste analyses available on MS level;
- analysis and sampling of the waste (see Annex D).

If the composition of the waste cannot be determined by using aforementioned data sources, a further analysis and sampling of the waste is necessary. Please note that in particular regarding inorganic substances, chemical analysis may not determine the specific compounds within a waste but only identify individual cations and anions. In order to identify the whole compounds, the waste holder hence needs to further analyse the waste or apply detailed knowledge of the process/ activity that generated the waste in question.

In case it can be determined which substances are present in the waste it needs to be assessed whether these substances are hazardous. To find out if the substance is hazardous and how its chemical classification looks like, please refer to the guidance given by Annex B.

Finally, if the composition of the waste is unclear and if there is no possibility for further clarification in line with the steps outlined in the next chapters, the waste is to be classified as hazardous.

3.2.2. Step 4: Does the waste display any hazardous properties HP1 to HP15?

As indicated in chapter 2.1.1 and further described in Annex C of this document, Annex III to the WFD describes 15 properties (HP1 to HP15) of waste which render it hazardous. Table 1 provides an overview on the aforementioned hazardous properties.

Table 1: Properties of waste which render it hazardous (description taken from WFD, Annex III)

Hazardous Properties	
HP1	Explosive
HP2	Oxidising
HP3	Flammable
HP4	Irritant – skin irritation and eye damage
HP5	Specific Target Organ Toxicity (STOT)/ Aspiration Toxicity
HP6	Acute Toxicity
HP7	Carcinogenic
HP8	Corrosive
HP9	Infectious
HP10	Toxic for reproduction

HP11	Mutagenic
HP12	Release of an acute toxic gas
HP13	Sensitising
HP14	Ecotoxic
HP15	Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste

As soon as you have completed step 3, you should know the composition of the waste in question. This means you should have knowledge of which substances are contained in the waste and how they are chemically classified (e.g. if they are assigned with a 'hazard statement code' according to the CLP Regulation). Based on this knowledge, the following two methods can determine if the waste displays hazardous properties and therefore has to be classified as hazardous:

- Calculation if threshold limits based on hazard statement codes (individually depending on the properties HP4 to HP14, see Annex C) are exceeded by the substances that are present in the waste in question;
- Testing if the waste displays hazardous properties or not.

Annex C provides a detailed description and guidelines on how to assess the individual hazardous properties HP1 to HP15 via calculation and/or testing.

However, if a hazardous property has been assessed by a test and by calculating concentrations of hazardous substances as indicated in Annex III to the WFD, the results of the test shall prevail. If the waste displays one or more of the 15 hazardous properties, you have to assign the MH entry. Whereas, if the waste displays no hazardous property, you have to proceed with step 5 to check whether the waste contains specific POPs above the respective limit values, before you can finally assign the MH or MNH entry.

Hazard statement codes

Whether substances identified as ingredients of the relevant waste are considered hazardous substances, needs to be assessed in line with CLP criteria. For useful information tools in this context, consult Annex B of this document.

Note that according to CLP Regulation, 'hazard statements' are introduced defined as follows:

'hazard statement' means a phrase assigned to a hazard class and category that describes the nature of the hazards of a hazardous substance or mixture, including, where appropriate, the degree of hazard;

An example for a hazard statement code and assigned hazard class and category from Table 3.1 of the CLP Regulation is:

Hazard statement:	Description:	Hazard class and category:
H330	Fatal if inhaled	Acute Tox. 2

Thereby the first digit after the 'H' represents the categorisation of the hazard (2 – physical hazards, 3 – health hazards, 4 – environmental hazards), the second and third digit are consecutive numbers clustering hazard codes. Information on hazard statement codes assigned to substances can be found in Annex B.

Box 10: Remark on CLP criteria: Hazard Statement Codes

781 The concentration limits defined in Annex III to the WFD do not apply to pure metal
782 alloys in their massive form as long as they are not contaminated with hazardous
783 substances. Further information on the classification of metal alloys can be found in
784 chapter A.5.6.

785 **3.2.3. Step 5: Does the waste contain any of the POPs indicated in in**
786 **the Annex to the LoW (point 2, indent 3)?**

787 The last step in the classification of waste as hazardous or non-hazardous is to
788 determine whether its content of specific POPs (as listed in the Annex to the LoW,
789 point 2, indent 3) exceeds the relevant limit values of the POP Regulation. A detailed
790 overview, including a list of POPs to be considered and the respective concentration
791 limits, is provided in chapter A.5.10.

792 In case the waste does not contain relevant POPs or its POP content is below the
793 concentration limits, the MNH entry is assigned. Otherwise the MH entry is assigned.

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4. Annex

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Annex A: Annotated List of Waste

A.1. Structure of the LoW

The LoW, in the version as established by Decision 2000/532/EC and as amended by Decision 2014/955/EU, applies from 1 June 2015.

The LoW contains 20 *chapters* (two digit codes, cf. Table 2). These chapters are further divided into *sub-chapters* (four digit codes) and *entries* (six digit codes). Examples for chapter, sub-chapters and entries are provided below:

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

Sub-chapter: 20 01 Separately collected fractions (except 15 01)

Entry: 20 01 02 Glass

Classification of waste needs to be done in line with the wording of the respective chapter, sub-chapter and entry.

For the aforementioned example of waste classified with entry 20 01 01 this means that the waste:

- must consist of glass;
- must be collected separately;
- must stem from households or household-like commercial, industrial or institutional waste;
- must not be glass packaging because packaging waste is excluded from chapter 20 and has to be assigned with an entry of chapter 15 for packaging waste

The CJEU has delivered binding jurisprudence² how to interpret the terms contained in the LoW within a 2008 ruling. The Court found that "*The LoW merely establishes a waste nomenclature and does not define terms or concepts corresponding to the various codes*" and held that using definitions from other EU legal documents is an appropriate approach for interpretation.

Order of precedence for LoW chapters

The chapters (two digit codes) can be categorized into three different types that need to be considered in a certain precedence (cf. flow chart Figure 4 in the following paragraph):

- A. 01 to 12 and 17 to 20
chapters related to waste source
- B. 13 to 15
chapters related to waste type
- C. 16

² Fn: Case MI.VER Srl and Daniele Antonelli v Provincia di Macerata, C-387/07, EU:C:2008:712, para 29-32, available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1430724825461&uri=CELEX:62007CA0387>

chapter for waste not otherwise specified in the list

First, it is important to consider the chapters 01 to 12 and 17 to 20 referring to the waste's source. Instead of considering the general type of industry where the waste arises, one should rather consider the specific industrial process. One example is waste from the automotive industry: depending on the process, waste can be classified in chapter 12 (wastes from shaping and physical and mechanical surface treatment of metals and plastic), chapter 11 (wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy) or 08 (wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks).

If no appropriate waste code can be found in chapters 01 to 12 or 17 to 20, the next chapters in the order of precedence are chapters 13 to 15. These chapters are related to the waste type, e.g. waste packaging.

If none of these waste codes apply, the waste must be identified according to chapter 16 which represents waste streams which cannot be related to certain processes or business fields, e.g. Waste EEE or end of life vehicles.

If the waste is not in chapter 16 either, the 99 code (wastes not otherwise specified) must be used in the section of the list corresponding to the waste source identified in the first step.

Table 2: Chapters LoW

CODE	CHAPTER DESCRIPTION	PRECEDENCE
01	WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, PHYSICAL AND CHEMICAL TREATMENT OF MINERALS	A
02	WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING	
03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD	
04	WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES	
05	WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL	
06	WASTES FROM INORGANIC CHEMICAL PROCESSES	
07	WASTES FROM ORGANIC CHEMICAL PROCESSES	
08	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS	
09	WASTES FROM THE PHOTOGRAPHIC INDUSTRY	
10	WASTES FROM THERMAL PROCESSES	
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY	B
12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS	
13	OIL WASTES AND WASTES OF LIQUID FUELS (EXCEPT EDIBLE OILS, 05 AND 12)	
14	WASTE ORGANIC SOLVENTS, REFRIGERANTS AND PROPELLANTS (EXCEPT 07 AND 08)	C
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED	
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST	C
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)	A

CODE	CHAPTER DESCRIPTION	PRECEDENCE
18	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (EXCEPT KITCHEN AND RESTAURANT WASTES NOT ARISING FROM IMMEDIATE HEALTH 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	
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS	

Types of LoW entries

Any entry marked with an asterisk (*) is considered as hazardous waste. As already indicated in chapter 3.1.2, the overall 842 entries of the LoW can be divided into absolute hazardous (AH), absolute non-hazardous (ANH), mirror hazardous (MH) and mirror non-hazardous (MNH) entries (cf. Table 3). Thereby each waste is either hazardous or non-hazardous.

Table 3: Number of entries in the LoW

842 entries in the List of Waste			
408 Hazardous entries		434 Non-hazardous entries	
228 AH	180 MH	198 MNH	236 ANH

▪ Absolute hazardous (AH) entry

Wastes which are assigned to AH entries cannot be allocated to alternative entries and are hazardous without any further assessment.

AH entries are marked in dark red colour in the Annotated List of Waste (cf. Table 4 in chapter A.3).

In case an AH entry is assigned, the waste will be classified as hazardous and no further assessment is needed.

▪ Absolute non-hazardous (ANH) entry

Wastes which are assigned to ANH entries cannot be allocated to alternative entries and are classified as non-hazardous without any further assessment.

ANH entries are marked in black colour in the Annotated List of Waste (cf. Table 4 in chapter A.3).

In case an ANH entry is assigned, the waste will be classified as non-hazardous and no further assessment is needed.

▪ Mirror entry

Mirror entries are a pair of at least two alternative entries. In contrast to AH or ANH entries, if waste is to be allocated to a pair of alternative entries, further steps in the assessment for allocation have to be undertaken. Paired alternative entries are:

○ Mirror hazardous (MH) entry

MH entries are marked in orange colour in the Annotated List of Waste (cf. Table 4 in chapter A.3).

○ Mirror non-hazardous (MNH) entry

MNH entries are marked in dark blue colour in the Annotated List of Waste (cf. Table 4 in chapter A.3).

Mirror entries can be divided into the following sub-categories:

- The decision between alternative MH and MNH entry is determined by a general reference to hazardous substances, e.g.:

10 12 09*	solid wastes from gas treatment containing hazardous substances	MH
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10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09	MNH
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- The decision between alternative MH and MNH entry is determined by a specific reference to particular hazardous substances, e.g.:

16 01 11*	brake pads containing asbestos	MH
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16 01 12	brake pads other than those mentioned in 16 01 11	MNH
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- For entries with references to multiple entries, the assignment of an entry may depend on the origin or certain properties of the waste in question as well as its potentially contained hazardous substances, e.g.:

17 06 01*	insulation materials containing asbestos	MH
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17 06 03*	insulation materials consisting of or containing hazardous substances	MH
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17 06 04	Insulation materials other than those mentioned in 17 06 01 and 17 06 03	MNH
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Often, but not necessarily, corresponding mirror entries can be recognized via the referencing words 'other than those mentioned in...' between MH and MNH entries.

In case there is the choice to assign a MH entry or a MNH entry, it is necessary to proceed with steps 3-5 (cf. chapter 3.2) of the classification process in order to determine whether to assign the MH entry or the MNH entry.

Remark

Absolute non-hazardous entry displaying hazardous properties

It is crucial taking in mind that a waste assigned with an ANH entry is classified as non-hazardous, no matter if the waste actually displays hazardous properties. The only exception to this principle is that the relevant MS considers the waste in question as hazardous in line with Article 7(2) WFD.

Absolute hazardous entry displaying no hazardous properties

The aforementioned statement is also valid vice versa. In case only an AH entry can be assigned to the waste in question, the waste is classified as hazardous, even if the waste in question does not display any hazardous properties. The only exception to this principle is that the relevant MS considers the waste in question as non-hazardous in line with Article 7(3) WFD.

Determination between mirror entries

The steps as described in chapter 3.2 are only necessary in case the waste in question is to be assigned to a MH entry or a MNH entry.

Box 11: Remark on ANH entries displaying HPs and vice versa

A.2. Identifying the appropriate entry

Selecting the most appropriate entry for the waste from the overall available 842 entries on the LoW is a complex exercise. First, the whole list must be considered entirely and the waste must fit to the finally selected entry, sub-chapter and chapter as described in the example of entry 20 01 02 in the previous chapter.

The following flow chart (cf. Figure 4) may clarify the process of identifying the most appropriate entry.

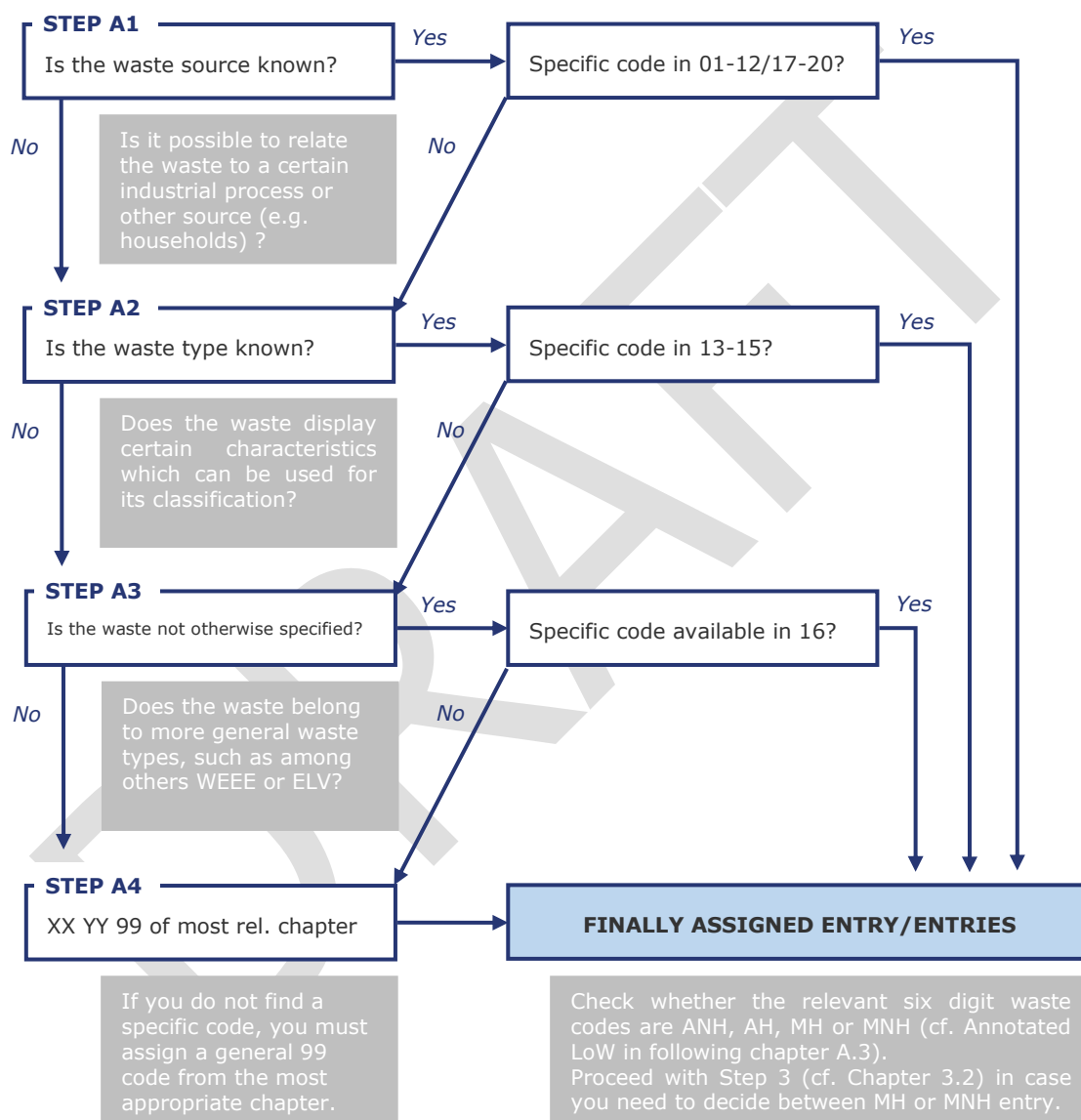


Figure 4: Process for identifying the most appropriate entry

- Within Step A1, initially chapters 01 to 12 and 17 to 20 have to be checked to identify an appropriate entry for the relevant waste according its origin, e.g. according the process where the waste was generated.

At this stage, the general code XX XX 99 of the respective sub-chapters for non-specified wastes shall not be used. Instead, Step A2 should be taken.

- Step A2 consists of assessing whether an entry according to the waste type can be found in chapters 13 to 15. In this step, it should be checked whether the waste in question exclusively contains packaging waste (for an example see A.4.1). In this case the only possibility is to choose an entry out of chapter 15.
- If the appropriate entry can still not be found, the general chapter 16 within Step A3 for wastes not otherwise specified (cf. chapter A.4.2 and A.4.3) should be consulted.
- If the appropriate waste entry could still not be identified, a general XX XX 99 code from the most appropriate chapters and sub-chapters must be chosen from the chapters already screened (cf. step A4).

When completing the steps A1 to A4, either an AH or ANH entry or the most appropriate mirror entries should be assigned to the waste in question. In the latter case it is necessary proceeding with step 3 (cf. chapter 3.2) of the classification procedure in order to finally decide whether to assign the MH or the MNH entry.

This flow chart illustrated in Figure 4 is only meant to render support. The process of classification should be seen instead as a circular process.

The following chapters aim at providing further assistance in this context:

- in chapter A.3, an annotated version of the LoW is enclosed;
- chapter A.4 contains specific examples of complex entries that should assist in the classification procedure;
- chapter A.5 shows examples for the classification of specific ingredients/compounds in certain waste types.

A.3. Annotated List of Waste

The following chapter consists of Table 4 which comprises all entries of the LoW clearly stating which entries are ANH, AH, MNH and MH entries.

Table 4: Annotated List of Waste

CODE	CHAPTER DESCRIPTION	ENTRY TYPE
1	WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS	
01 01	wastes from mineral excavation	
01 01 01	wastes from mineral metalliferous excavation	ANH
01 01 02	wastes from mineral non-metalliferous excavation	ANH
01 03	wastes from physical and chemical processing of metalliferous minerals	
01 03 04*	acid-generating tailings from processing of sulphide ore	MH
01 03 05*	other tailings containing hazardous substances	MH
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05	MNH
01 03 07*	other wastes containing hazardous substances from physical and chemical processing of metalliferous minerals	MH
01 03 08	dusty and powdery wastes other than those mentioned in 01 03 07	MNH
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 10	MNH
01 03 10*	red mud from alumina production containing hazardous substances other than the wastes mentioned in 01 03 07	MH
01 03 99	wastes not otherwise specified	MNH
01 04	wastes from physical and chemical processing of non-metalliferous minerals	
01 04 07*	wastes containing hazardous substances from physical and chemical processing of non-metalliferous minerals	MH
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07	MNH
01 04 09	waste sand and clays	ANH
01 04 10	dusty and powdery wastes other than those mentioned in 01 04 07	MNH
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07	MNH
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	MNH
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07	MNH
01 04 99	wastes not otherwise specified	MNH
01 05	drilling muds and other drilling wastes	
01 05 04	freshwater drilling muds and wastes	ANH
01 05 05*	oil-containing drilling muds and wastes	MH
01 05 06*	drilling muds and other drilling wastes containing hazardous substances	MH
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06	MNH

01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06	MNH
01 05 99	wastes not otherwise specified	MNH
2	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 01	sludges from washing and cleaning	ANH
02 01 02	animal-tissue waste	ANH
02 01 03	plant-tissue waste	ANH
02 01 04	waste plastics (except packaging)	ANH
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site	ANH
02 01 07	wastes from forestry	ANH
02 01 08*	agrochemical waste containing hazardous substances	MH
02 01 09	agrochemical waste other than those mentioned in 02 01 08	MNH
02 01 10	waste metal	ANH
02 01 99	wastes not otherwise specified	ANH
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin	
02 02 01	sludges from washing and cleaning	ANH
02 02 02	animal-tissue waste	ANH
02 02 03	materials unsuitable for consumption or processing	ANH
02 02 04	sludges from on-site effluent treatment	ANH
02 02 99	wastes not otherwise specified	ANH
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation	
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation	ANH
02 03 02	wastes from preserving agents	ANH
02 03 03	wastes from solvent extraction	ANH
02 03 04	materials unsuitable for consumption or processing	ANH
02 03 05	sludges from on-site effluent treatment	ANH
02 03 99	wastes not otherwise specified	ANH
02 04	wastes from sugar processing	
02 04 01	soil from cleaning and washing beet	ANH
02 04 02	off-specification calcium carbonate	ANH
02 04 03	sludges from on-site effluent treatment	ANH
02 04 99	wastes not otherwise specified	ANH
02 05	wastes from the dairy products industry	
02 05 01	materials unsuitable for consumption or processing	ANH
02 05 02	sludges from on-site effluent treatment	ANH
02 05 99	wastes not otherwise specified	ANH
02 06	wastes from the baking and confectionery industry	
02 06 01	materials unsuitable for consumption or processing	ANH
02 06 02	wastes from preserving agents	ANH
02 06 03	sludges from on-site effluent treatment	ANH
02 06 99	wastes not otherwise specified	ANH

02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)	
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials	ANH
02 07 02	wastes from spirits distillation	ANH
02 07 03	wastes from chemical treatment	ANH
02 07 04	materials unsuitable for consumption or processing	ANH
02 07 05	sludges from on-site effluent treatment	ANH
02 07 99	wastes not otherwise specified	ANH
3	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD	
03 01	wastes from wood processing and the production of panels and furniture	
03 01 01	waste bark and cork	ANH
03 01 04*	sawdust, shavings, cuttings, wood, particle board and veneer containing hazardous substances	MH
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	MNH
03 01 99	wastes not otherwise specified	ANH
03 02	wastes from wood preservation	
03 02 01*	non-halogenated organic wood preservatives	AH
03 02 02*	organochlorinated wood preservatives	AH
03 02 03*	organometallic wood preservatives	AH
03 02 04*	inorganic wood preservatives	AH
03 02 05*	other wood preservatives containing hazardous substances	AH
03 02 99	wood preservatives not otherwise specified	ANH
03 03	wastes from pulp, paper and cardboard production and processing	
03 03 01	waste bark and wood	ANH
03 03 02	green liquor sludge (from recovery of cooking liquor)	ANH
03 03 05	de-inking sludges from paper recycling	ANH
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard	ANH
03 03 08	wastes from sorting of paper and cardboard destined for recycling	ANH
03 03 09	lime mud waste	ANH
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation	ANH
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10	ANH
03 03 99	wastes not otherwise specified	ANH
4	WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES	
04 01	wastes from the leather and fur industry	
04 01 01	fleshings and lime split wastes	ANH
04 01 02	liming waste	ANH
04 01 03*	degreasing wastes containing solvents without a liquid phase	AH
04 01 04	tanning liquor containing chromium	ANH

04 01 05	tanning liquor free of chromium	ANH
04 01 06	sludges, in particular from on-site effluent treatment containing chromium	ANH
04 01 07	sludges, in particular from on-site effluent treatment free of chromium	ANH
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium	ANH
04 01 09	wastes from dressing and finishing	ANH
04 01 99	wastes not otherwise specified	ANH
04 02	wastes from the textile industry	
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)	ANH
04 02 10	organic matter from natural products (for example grease, wax)	ANH
04 02 14*	wastes from finishing containing organic solvents	MH
04 02 15	wastes from finishing other than those mentioned in 04 02 14	MNH
04 02 16*	dyestuffs and pigments containing hazardous substances	MH
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16	MNH
04 02 19*	sludges from on-site effluent treatment containing hazardous substances	MH
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19	MNH
04 02 21	wastes from unprocessed textile fibres	ANH
04 02 22	wastes from processed textile fibres	ANH
04 02 99	wastes not otherwise specified	ANH
5	WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL	
05 01	wastes from petroleum refining	
05 01 02*	desalter sludges	AH
05 01 03*	tank bottom sludges	AH
05 01 04*	acid alkyl sludges	AH
05 01 05*	oil spills	AH
05 01 06*	oily sludges from maintenance operations of the plant or equipment	AH
05 01 07*	acid tars	AH
05 01 08*	other tars	AH
05 01 09*	sludges from on-site effluent treatment containing hazardous substances	MH
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09	MNH
05 01 11*	wastes from cleaning of fuels with bases	AH
05 01 12*	oil containing acids	AH
05 01 13	boiler feedwater sludges	ANH
05 01 14	wastes from cooling columns	ANH

05 01 15*	spent filter clays	AH
05 01 16	sulphur-containing wastes from petroleum desulphurisation	ANH
05 01 17	Bitumen	ANH
05 01 99	wastes not otherwise specified	ANH
05 06	wastes from the pyrolytic treatment of coal	
05 06 01*	acid tars	AH
05 06 03*	other tars	AH
05 06 04	waste from cooling columns	ANH
05 06 99	wastes not otherwise specified	ANH
05 07	wastes from natural gas purification and transportation	
05 07 01*	wastes containing mercury	AH
05 07 02	wastes containing sulphur	ANH
05 07 99	wastes not otherwise specified	ANH
6	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	AH
06 01 02*	hydrochloric acid	AH
06 01 03*	hydrofluoric acid	AH
06 01 04*	phosphoric and phosphorous acid	AH
06 01 05*	nitric acid and nitrous acid	AH
06 01 06*	other acids	AH
06 01 99	wastes not otherwise specified	ANH
06 02	wastes from the MFSU of bases	
06 02 01*	calcium hydroxide	AH
06 02 03*	ammonium hydroxide	AH
06 02 04*	sodium and potassium hydroxide	AH
06 02 05*	other bases	AH
06 02 99	wastes not otherwise specified	ANH
06 03	wastes from the MFSU of salts and their solutions and metallic oxides	
06 03 11*	solid salts and solutions containing cyanides	MH
06 03 13*	solid salts and solutions containing heavy metals	MH
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13	MNH
06 03 15*	metallic oxides containing heavy metals	MH
06 03 16	metallic oxides other than those mentioned in 06 03 15	MNH

06 03 99	wastes not otherwise specified	ANH
06 04	metal-containing wastes other than those mentioned in 06 03	
06 04 03*	wastes containing arsenic	AH
06 04 04*	wastes containing mercury	AH
06 04 05*	wastes containing other heavy metals	AH
06 04 99	wastes not otherwise specified	ANH
06 05	sludges from on-site effluent treatment	
06 05 02*	sludges from on-site effluent treatment containing hazardous substances	MH
06 05 03	sludges from on-site effluent treatment other than those mentioned in 06 05 02	MNH
06 06	wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes	
06 06 02*	wastes containing hazardous sulphides	MH
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02	MNH
06 06 99	wastes not otherwise specified	ANH
06 07	wastes from the MFSU of halogens and halogen chemical processes	
06 07 01*	wastes containing asbestos from electrolysis	AH
06 07 02*	activated carbon from chlorine production	AH
06 07 03*	barium sulphate sludge containing mercury	AH
06 07 04*	solutions and acids, for example contact acid	AH
06 07 99	wastes not otherwise specified	ANH
06 08	wastes from the MFSU of silicon and silicon derivatives	
06 08 02*	waste containing hazardous chlorosilanes	MH
06 08 99	wastes not otherwise specified	MNH
06 09	wastes from the MFSU of phosphorous chemicals and phosphorous chemical processes	
06 09 02	phosphorous slag	ANH
06 09 03*	calcium-based reaction wastes containing or contaminated with hazardous substances	MH
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03	MNH
06 09 99	wastes not otherwise specified	ANH
06 10	wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and fertiliser manufacture	
06 10 02*	wastes containing hazardous substances	MH
06 10 99	wastes not otherwise specified	MNH
06 11	wastes from the manufacture of inorganic pigments and opacifiers	
06 11 01	calcium-based reaction wastes from titanium dioxide production	ANH
06 11 99	wastes not otherwise specified	ANH

06 13	wastes from inorganic chemical processes not otherwise specified	
06 13 01*	inorganic plant protection products, wood-preserving agents and other biocides.	AH
06 13 02*	spent activated carbon (except 06 07 02)	AH
06 13 03	carbon black	ANH
06 13 04*	wastes from asbestos processing	AH
06 13 05*	Soot	AH
06 13 99	wastes not otherwise specified	ANH
7	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	AH
07 01 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 01 04*	other organic solvents, washing liquids and mother liquors	AH
07 01 07*	halogenated still bottoms and reaction residues	AH
07 01 08*	other still bottoms and reaction residues	AH
07 01 09*	halogenated filter cakes and spent absorbents	AH
07 01 10*	other filter cakes and spent absorbents	AH
07 01 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11	MNH
07 01 99	wastes not otherwise specified	ANH
07 02	wastes from the MFSU of plastics, synthetic rubber and man-made fibres	
07 02 01*	aqueous washing liquids and mother liquors	AH
07 02 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 02 04*	other organic solvents, washing liquids and mother liquors	AH
07 02 07*	halogenated still bottoms and reaction residues	AH
07 02 08*	other still bottoms and reaction residues	AH
07 02 09*	halogenated filter cakes and spent absorbents	AH
07 02 10*	other filter cakes and spent absorbents	AH
07 02 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 02 12	sludges from on-site effluent treatment other than those mentioned in 07 02 11	MNH
07 02 13	waste plastic	ANH

07 02 14*	wastes from additives containing hazardous substances	MH
07 02 15	wastes from additives other than those mentioned in 07 02 14	MNH
07 02 16*	waste containing hazardous silicones	MH
07 02 17	waste containing silicones other than those mentioned in 07 02 16	MNH
07 02 99	wastes not otherwise specified	ANH
07 03	wastes from the MFSU of organic dyes and pigments (except 06 11)	
07 03 01*	aqueous washing liquids and mother liquors	AH
07 03 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 03 04*	other organic solvents, washing liquids and mother liquors	AH
07 03 07*	halogenated still bottoms and reaction residues	AH
07 03 08*	other still bottoms and reaction residues	AH
07 03 09*	halogenated filter cakes and spent absorbents	AH
07 03 10*	other filter cakes and spent absorbents	AH
07 03 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11	MNH
07 03 99	wastes not otherwise specified	ANH
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	AH
07 04 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 04 04*	other organic solvents, washing liquids and mother liquors	AH
07 04 07*	halogenated still bottoms and reaction residues	AH
07 04 08*	other still bottoms and reaction residues	AH
07 04 09*	halogenated filter cakes and spent absorbents	AH
07 04 10*	other filter cakes and spent absorbents	AH
07 04 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 04 12	sludges from on-site effluent treatment other than those mentioned in 07 04 11	MNH
07 04 13*	solid wastes containing hazardous substances	MH
07 04 99	wastes not otherwise specified	MNH
07 05	wastes from the MFSU of pharmaceuticals	

07 05 01*	aqueous washing liquids and mother liquors	AH
07 05 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 05 04*	other organic solvents, washing liquids and mother liquors	AH
07 05 07*	halogenated still bottoms and reaction residues	AH
07 05 08*	other still bottoms and reaction residues	AH
07 05 09*	halogenated filter cakes and spent absorbents	AH
07 05 10*	other filter cakes and spent absorbents	AH
07 05 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05 11	MNH
07 05 13*	solid wastes containing hazardous substances	MH
07 05 14	solid wastes other than those mentioned in 07 05 13	MNH
07 05 99	wastes not otherwise specified	ANH
07 06	wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics	
07 06 01*	aqueous washing liquids and mother liquors	AH
07 06 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 06 04*	other organic solvents, washing liquids and mother liquors	AH
07 06 07*	halogenated still bottoms and reaction residues	AH
07 06 08*	other still bottoms and reaction residues	AH
07 06 09*	halogenated filter cakes and spent absorbents	AH
07 06 10*	other filter cakes and spent absorbents	AH
07 06 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11	MNH
07 06 99	wastes not otherwise specified	ANH
07 07	wastes from the MFSU of fine chemicals and chemical products not otherwise specified	
07 07 01*	aqueous washing liquids and mother liquors	AH
07 07 03*	organic halogenated solvents, washing liquids and mother liquors	AH
07 07 04*	other organic solvents, washing liquids and mother liquors	AH
07 07 07*	halogenated still bottoms and reaction residues	AH
07 07 08*	other still bottoms and reaction residues	AH

07 07 09*	halogenated filter cakes and spent absorbents	AH
07 07 10*	other filter cakes and spent absorbents	AH
07 07 11*	sludges from on-site effluent treatment containing hazardous substances	MH
07 07 12	sludges from on-site effluent treatment other than those mentioned in 07 07 11	MNH
07 07 99	wastes not otherwise specified	ANH
8	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 hazardous substances	MH
08 01 12	waste paint and varnish other than those mentioned in 08 01 11	MNH
08 01 13*	sludges from paint or varnish containing organic solvents or other hazardous substances	MH
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13	MNH
08 01 15*	aqueous sludges containing paint or varnish containing organic solvents or other hazardous substances	MH
08 01 16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15	MNH
08 01 17*	wastes from paint or varnish removal containing organic solvents or other hazardous substances	MH
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17	MNH
08 01 19*	aqueous suspensions containing paint or varnish containing organic solvents or other hazardous substances	MH
08 01 20	aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19	MNH
08 01 21*	waste paint or varnish remover	AH
08 01 99	wastes not otherwise specified	ANH
08 02	wastes from MFSU of other coatings (including ceramic materials)	
08 02 01	waste coating powders	ANH
08 02 02	aqueous sludges containing ceramic materials	ANH
08 02 03	aqueous suspensions containing ceramic materials	ANH
08 02 99	wastes not otherwise specified	ANH
08 03	wastes from MFSU of printing inks	
08 03 07	aqueous sludges containing ink	ANH
08 03 08	aqueous liquid waste containing ink	ANH
08 03 12*	waste ink containing hazardous substances	MH
08 03 13	waste ink other than those mentioned in 08 03 12	MNH
08 03 14*	ink sludges containing hazardous substances	MH
08 03 15	ink sludges other than those mentioned in 08 03 14	MNH
08 03 16*	waste etching solutions	AH

08 03 17*	waste printing toner containing hazardous substances	MH
08 03 18	waste printing toner other than those mentioned in 08 03 17	MNH
08 03 19*	disperse oil	AH
08 03 99	wastes not otherwise specified	ANH
08 04	wastes from MFSU of adhesives and sealants (including waterproofing products)	
08 04 09*	waste adhesives and sealants containing organic solvents or other hazardous substances	MH
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09	MNH
08 04 11*	adhesive and sealant sludges containing organic solvents or other hazardous substances	MH
08 04 12	adhesive and sealant sludges other than those mentioned in 08 04 11	MNH
08 04 13*	aqueous sludges containing adhesives or sealants containing organic solvents or other hazardous substances	MH
08 04 14	aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13	MNH
08 04 15*	aqueous liquid waste containing adhesives or sealants containing organic solvents or other hazardous substances	MH
08 04 16	aqueous liquid waste containing adhesives or sealants other than those mentioned in 08 04 15	MNH
08 04 17*	rosin oil	AH
08 04 99	wastes not otherwise specified	ANH
08 05	wastes not otherwise specified in 08	
08 05 01*	waste isocyanates	AH
9	WASTES FROM THE PHOTOGRAPHIC INDUSTRY	
09 01	wastes from the photographic industry	
09 01 01*	water-based developer and activator solutions	AH
09 01 02*	water-based offset plate developer solutions	AH
09 01 03*	solvent-based developer solutions	AH
09 01 04*	fixer solutions	AH
09 01 05*	bleach solutions and bleach fixer solutions	AH
09 01 06*	wastes containing silver from on-site treatment of photographic wastes	AH
09 01 07	photographic film and paper containing silver or silver compounds	ANH
09 01 08	photographic film and paper free of silver or silver compounds	ANH
09 01 10	single-use cameras without batteries	ANH
09 01 11*	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03	MH
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11	MNH
09 01 13*	aqueous liquid waste from on-site reclamation of silver other than those mentioned in 09 01 06	AH

09 01 99	wastes not otherwise specified	MNH
10	WASTES FROM THERMAL PROCESSES	
10 01	wastes from power stations and other combustion plants (except 19)	
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)	ANH
10 01 02	coal fly ash	ANH
10 01 03	fly ash from peat and untreated wood	ANH
10 01 04*	oil fly ash and boiler dust	AH
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form	ANH
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form	ANH
10 01 09*	sulphuric acid	AH
10 01 13*	fly ash from emulsified hydrocarbons used as fuel	AH
10 01 14*	bottom ash, slag and boiler dust from co-incineration containing hazardous substances	MH
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14	MNH
10 01 16*	fly ash from co-incineration containing hazardous substances	MH
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16	MNH
10 01 18*	wastes from gas cleaning containing hazardous substances	MH
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18	MNH
10 01 20*	sludges from on-site effluent treatment containing hazardous substances	MH
10 01 21	sludges from on-site effluent treatment other than those mentioned in 10 01 20	MNH
10 01 22*	aqueous sludges from boiler cleansing containing hazardous substances	MH
10 01 23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22	MNH
10 01 24	sands from fluidised beds	ANH
10 01 25	wastes from fuel storage and preparation of coal-fired power plants	ANH
10 01 26	wastes from cooling-water treatment	ANH
10 01 99	wastes not otherwise specified	ANH
10 02	wastes from the iron and steel industry	
10 02 01	wastes from the processing of slag	ANH
10 02 02	unprocessed slag	ANH
10 02 07*	solid wastes from gas treatment containing hazardous substances	MH
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07	MNH
10 02 10	mill scales	ANH
10 02 11*	wastes from cooling-water treatment containing oil	MH

10 02 12	wastes from cooling-water treatment other than those mentioned in 10 02 11	MNH
10 02 13*	sludges and filter cakes from gas treatment containing hazardous substances	MH
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13	MNH
10 02 15	other sludges and filter cakes	MNH
10 02 99	wastes not otherwise specified	ANH
10 03	wastes from aluminium thermal metallurgy	
10 03 02	anode scraps	ANH
10 03 04*	primary production slags	AH
10 03 05	waste alumina	ANH
10 03 08*	salt slags from secondary production	AH
10 03 09*	black drosses from secondary production	AH
10 03 15*	skimmings that are flammable or emit, upon contact with water, flammable gases in hazardous quantities	MH
10 03 16	skimmings other than those mentioned in 10 03 15	MNH
10 03 17*	tar-containing wastes from anode manufacture	MH
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17	MNH
10 03 19*	flue-gas dust containing hazardous substances	MH
10 03 20	flue-gas dust other than those mentioned in 10 03 19	MNH
10 03 21*	other particulates and dust (including ball-mill dust) containing hazardous substances	MH
10 03 22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21	MNH
10 03 23*	solid wastes from gas treatment containing hazardous substances	MH
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23	MNH
10 03 25*	sludges and filter cakes from gas treatment containing hazardous substances	MH
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25	MNH
10 03 27*	wastes from cooling-water treatment containing oil	MH
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27	MNH
10 03 29*	wastes from treatment of salt slags and black drosses containing hazardous substances	MH
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29	MNH
10 03 99	wastes not otherwise specified	ANH
10 04	wastes from lead thermal metallurgy	
10 04 01*	slags from primary and secondary production	AH
10 04 02*	dross and skimmings from primary and secondary production	AH

10 04 03*	calcium arsenate	AH
10 04 04*	flue-gas dust	AH
10 04 05*	other particulates and dust	AH
10 04 06*	solid wastes from gas treatment	AH
10 04 07*	sludges and filter cakes from gas treatment	AH
10 04 09*	wastes from cooling-water treatment containing oil	MH
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09	MNH
10 04 99	wastes not otherwise specified	ANH
10 05	wastes from zinc thermal metallurgy	
10 05 01	slags from primary and secondary production	ANH
10 05 03*	flue-gas dust	AH
10 05 04	other particulates and dust	ANH
10 05 05*	solid waste from gas treatment	AH
10 05 06*	sludges and filter cakes from gas treatment	AH
10 05 08*	wastes from cooling-water treatment containing oil	MH
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08	MNH
10 05 10*	dross and skimmings that are flammable or emit, upon contact with water, flammable gases in hazardous quantities	MH
10 05 11	dross and skimmings other than those mentioned in 10 05 10	MNH
10 05 99	wastes not otherwise specified	ANH
10 06	wastes from copper thermal metallurgy	
10 06 01	slags from primary and secondary production	ANH
10 06 02	dross and skimmings from primary and secondary production	ANH
10 06 03*	flue-gas dust	AH
10 06 04	other particulates and dust	ANH
10 06 06*	solid wastes from gas treatment	AH
10 06 07*	sludges and filter cakes from gas treatment	AH
10 06 09*	wastes from cooling-water treatment containing oil	MH
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09	MNH
10 06 99	wastes not otherwise specified	ANH
10 07	wastes from silver, gold and platinum thermal metallurgy	
10 07 01	slags from primary and secondary production	ANH
10 07 02	dross and skimmings from primary and secondary production	ANH
10 07 03	solid wastes from gas treatment	ANH
10 07 04	other particulates and dust	ANH
10 07 05	sludges and filter cakes from gas treatment	ANH

10 07 07*	wastes from cooling-water treatment containing oil	MH
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07	MNH
10 07 99	wastes not otherwise specified	ANH
10 08	wastes from other non-ferrous thermal metallurgy	
10 08 04	particulates and dust	ANH
10 08 08*	salt slag from primary and secondary production	AH
10 08 09	other slags	ANH
10 08 10*	dross and skimmings that are flammable or emit, upon contact with water, flammable gases in hazardous quantities	MH
10 08 11	dross and skimmings other than those mentioned in 10 08 10	MNH
10 08 12*	tar-containing wastes from anode manufacture	MH
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12	MNH
10 08 14	anode scrap	ANH
10 08 15*	flue-gas dust containing hazardous substances	MH
10 08 16	flue-gas dust other than those mentioned in 10 08 15	MNH
10 08 17*	sludges and filter cakes from flue-gas treatment containing hazardous substances	MH
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17	MNH
10 08 19*	wastes from cooling-water treatment containing oil	MH
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19	MNH
10 08 99	wastes not otherwise specified	ANH
10 09	wastes from casting of ferrous pieces	
10 09 03	furnace slag	ANH
10 09 05*	casting cores and moulds which have not undergone pouring containing hazardous substances	MH
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05	MNH
10 09 07*	casting cores and moulds which have undergone pouring containing hazardous substances	MH
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07	MNH
10 09 09*	flue-gas dust containing hazardous substances	MH
10 09 10	flue-gas dust other than those mentioned in 10 09 09	MNH
10 09 11*	other particulates containing hazardous substances	MH
10 09 12	other particulates other than those mentioned in 10 09 11	MNH
10 09 13*	waste binders containing hazardous substances	MH
10 09 14	waste binders other than those mentioned in 10 09 13	MNH
10 09 15*	waste crack-indicating agent containing hazardous substances	MH
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15	MNH
10 09 99	wastes not otherwise specified	ANH

10 10	wastes from casting of non-ferrous pieces	
10 10 03	furnace slag	ANH
10 10 05*	casting cores and moulds which have not undergone pouring, containing hazardous substances	MH
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05	MNH
10 10 07*	casting cores and moulds which have undergone pouring, containing hazardous substances	MH
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07	MNH
10 10 09*	flue-gas dust containing hazardous substances	MH
10 10 10	flue-gas dust other than those mentioned in 10 10 09	MNH
10 10 11*	other particulates containing hazardous substances	MH
10 10 12	other particulates other than those mentioned in 10 10 11	MNH
10 10 13*	waste binders containing hazardous substances	MH
10 10 14	waste binders other than those mentioned in 10 10 13	MNH
10 10 15*	waste crack-indicating agent containing hazardous substances	MH
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15	MNH
10 10 99	wastes not otherwise specified	ANH
10 11	wastes from manufacture of glass and glass products	
10 11 03	waste glass-based fibrous materials	ANH
10 11 05	particulates and dust	ANH
10 11 09*	waste preparation mixture before thermal processing, containing hazardous substances	MH
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09	MNH
10 11 11*	waste glass in small particles and glass powder containing heavy metals (for example from cathode ray tubes)	MH
10 11 12	waste glass other than those mentioned in 10 11 11	MNH
10 11 13*	glass-polishing and -grinding sludge containing hazardous substances	MH
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13	MNH
10 11 15*	solid wastes from flue-gas treatment containing hazardous substances	MH
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15	MNH
10 11 17*	sludges and filter cakes from flue-gas treatment containing hazardous substances	MH
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17	MNH
10 11 19*	solid wastes from on-site effluent treatment containing hazardous substances	MH
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19	MNH
10 11 99	wastes not otherwise specified	ANH
10 12	wastes from manufacture of ceramic goods, bricks, tiles and construction products	
10 12 01	waste preparation mixture before thermal processing	ANH

10 12 03	particulates and dust	ANH
10 12 05	sludges and filter cakes from gas treatment	ANH
10 12 06	discarded moulds	ANH
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)	ANH
10 12 09*	solid wastes from gas treatment containing hazardous substances	MH
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09	MNH
10 12 11*	wastes from glazing containing heavy metals	MH
10 12 12	wastes from glazing other than those mentioned in 10 12 11	MNH
10 12 13	sludge from on-site effluent treatment	ANH
10 12 99	wastes not otherwise specified	ANH
10 13	wastes from manufacture of cement, lime and plaster and articles and products made from them	
10 13 01	waste preparation mixture before thermal processing	ANH
10 13 04	wastes from calcination and hydration of lime	ANH
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)	MNH
10 13 07	sludges and filter cakes from gas treatment	ANH
10 13 09*	wastes from asbestos-cement manufacture containing asbestos	MH
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09	MNH
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10	MNH
10 13 12*	solid wastes from gas treatment containing hazardous substances	MH
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12	MNH
10 13 14	waste concrete and concrete sludge	ANH
10 13 99	wastes not otherwise specified	ANH
10 14	waste from crematoria	
10 14 01*	waste from gas cleaning containing mercury	AH
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY	
11 01	wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)	
11 01 05*	pickling acids	AH
11 01 06*	acids not otherwise specified	AH
11 01 07*	pickling bases	AH
11 01 08*	phosphatising sludges	AH
11 01 09*	sludges and filter cakes containing hazardous substances	MH
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09	MNH

11 01 11*	aqueous rinsing liquids containing hazardous substances	MH
11 01 12	aqueous rinsing liquids other than those mentioned in 11 01 11	MNH
11 01 13*	degreasing wastes containing hazardous substances	MH
11 01 14	degreasing wastes other than those mentioned in 11 01 13	MNH
11 01 15*	eluate and sludges from membrane systems or ion exchange systems containing hazardous substances	AH
11 01 16*	saturated or spent ion exchange resins	AH
11 01 98*	other wastes containing hazardous substances	MH
11 01 99	wastes not otherwise specified	MNH
11 02	wastes from non-ferrous hydrometallurgical processes	
11 02 02*	sludges from zinc hydrometallurgy (including jarosite, goethite)	AH
11 02 03	wastes from the production of anodes for aqueous electrolytical processes	ANH
11 02 05*	wastes from copper hydrometallurgical processes containing hazardous substances	MH
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05	MNH
11 02 07*	other wastes containing hazardous substances	MH
11 02 99	wastes not otherwise specified	MNH
11 03	sludges and solids from tempering processes	
11 03 01*	wastes containing cyanide	AH
11 03 02*	other wastes	AH
11 05	wastes from hot galvanising processes	
11 05 01	hard zinc	ANH
11 05 02	zinc ash	ANH
11 05 03*	solid wastes from gas treatment	AH
11 05 04*	spent flux	AH
11 05 99	wastes not otherwise specified	ANH
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 01	ferrous metal filings and turnings	ANH
12 01 02	ferrous metal dust and particles	ANH
12 01 03	non-ferrous metal filings and turnings	ANH
12 01 04	non-ferrous metal dust and particles	ANH
12 01 05	plastics shavings and turnings	ANH
12 01 06*	mineral-based machining oils containing halogens (except emulsions and solutions)	AH
12 01 07*	mineral-based machining oils free of halogens (except emulsions and solutions)	AH
12 01 08*	machining emulsions and solutions containing halogens	AH

12 01 09*	machining emulsions and solutions free of halogens	AH
12 01 10*	synthetic machining oils	AH
12 01 12*	spent waxes and fats	AH
12 01 13	welding wastes	ANH
12 01 14*	machining sludges containing hazardous substances	MH
12 01 15	machining sludges other than those mentioned in 12 01 14	MNH
12 01 16*	waste blasting material containing hazardous substances	MH
12 01 17	waste blasting material other than those mentioned in 12 01 16	MNH
12 01 18*	metal sludge (grinding, honing and lapping sludge) containing oil	AH
12 01 19*	readily biodegradable machining oil	AH
12 01 20*	spent grinding bodies and grinding materials containing hazardous substances	MH
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20	MNH
12 01 99	wastes not otherwise specified	ANH
12 03	wastes from water and steam degreasing processes (except 11)	
12 03 01*	aqueous washing liquids	AH
12 03 02*	steam degreasing wastes	AH
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	AH
13 01 04*	chlorinated emulsions	AH
13 01 05*	non-chlorinated emulsions	AH
13 01 09*	mineral-based chlorinated hydraulic oils	AH
13 01 10*	mineral based non-chlorinated hydraulic oils	AH
13 01 11*	synthetic hydraulic oils	AH
13 01 12*	readily biodegradable hydraulic oils	AH
13 01 13*	other hydraulic oils	AH
13 02	waste engine, gear and lubricating oils	
13 02 04*	mineral-based chlorinated engine, gear and lubricating oils	AH
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils	AH
13 02 06*	synthetic engine, gear and lubricating oils	AH

13 02 07*	readily biodegradable engine, gear and lubricating oils	AH
13 02 08*	other engine, gear and lubricating oils	AH
13 03	waste insulating and heat transmission oils	
13 03 01*	insulating or heat transmission oils containing PCBs	AH
13 03 06*	mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01	AH
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils	AH
13 03 08*	synthetic insulating and heat transmission oils	AH
13 03 09*	readily biodegradable insulating and heat transmission oils	AH
13 03 10*	other insulating and heat transmission oils	AH
13 04	bilge oils	
13 04 01*	bilge oils from inland navigation	AH
13 04 02*	bilge oils from jetty sewers	AH
13 04 03*	bilge oils from other navigation	AH
13 05	oil/water separator contents	
13 05 01*	solids from grit chambers and oil/water separators	AH
13 05 02*	sludges from oil/water separators	AH
13 05 03*	interceptor sludges	AH
13 05 06*	oil from oil/water separators	AH
13 05 07*	oily water from oil/water separators	AH
13 05 08*	mixtures of wastes from grit chambers and oil/water separators	AH
13 07	wastes of liquid fuels	
13 07 01*	fuel oil and diesel	AH
13 07 02*	Petrol	AH
13 07 03*	other fuels (including mixtures)	AH
13 08	oil wastes not otherwise specified	
13 08 01*	desalter sludges or emulsions	AH
13 08 02*	other emulsions	AH
13 08 99*	wastes not otherwise specified	AH
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	AH
14 06 02*	other halogenated solvents and solvent mixtures	AH
14 06 03*	other solvents and solvent mixtures	AH
14 06 04*	sludges or solid wastes containing halogenated solvents	AH
14 06 05*	sludges or solid wastes containing other solvents	AH
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	MNH
15 01 02	plastic packaging	MNH
15 01 03	wooden packaging	MNH
15 01 04	metallic packaging	MNH
15 01 05	composite packaging	MNH
15 01 06	mixed packaging	MNH
15 01 07	glass packaging	MNH
15 01 09	textile packaging	MNH
15 01 10*	packaging containing residues of or contaminated by hazardous substances	MH
15 01 11*	metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers	MH
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 hazardous substances	MH
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	MNH
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 03	end-of-life tyres	ANH
16 01 04*	end-of-life vehicles	AH
16 01 06	end-of-life vehicles, containing neither liquids nor other hazardous components	ANH
16 01 07*	oil filters	AH
16 01 08*	components containing mercury	MH
16 01 09*	components containing PCBs	MH
16 01 10*	explosive components (for example air bags)	AH

16 01 11*	brake pads containing asbestos	MH
16 01 12	brake pads other than those mentioned in 16 01 11	MNH
16 01 13*	brake fluids	AH
16 01 14*	antifreeze fluids containing hazardous substances	MH
16 01 15	antifreeze fluids other than those mentioned in 16 01 14	MNH
16 01 16	tanks for liquefied gas	ANH
16 01 17	ferrous metal	ANH
16 01 18	non-ferrous metal	ANH
16 01 19	Plastic	ANH
16 01 20	Glass	ANH
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	AH
16 01 22	components not otherwise specified	MNH
16 01 99	wastes not otherwise specified	ANH
16 02	wastes from electrical and electronic equipment	
16 02 09*	transformers and capacitors containing PCBs	MH
16 02 10*	discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09	MH
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC	MH
16 02 12*	discarded equipment containing free asbestos	MH
16 02 13*	discarded equipment containing hazardous components (3) other than those mentioned in 16 02 09 to 16 02 12	MH
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	MNH
16 02 15*	hazardous components removed from discarded equipment	MH
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15	MNH
16 03	off-specification batches and unused products	
16 03 03*	inorganic wastes containing hazardous substances	MH
16 03 04	inorganic wastes other than those mentioned in 16 03 03	MNH
16 03 05*	organic wastes containing hazardous substances	MH
16 03 06	organic wastes other than those mentioned in 16 03 05	MNH
16 03 07*	metallic mercury	AH
16 04	waste explosives	
16 04 01*	waste ammunition	AH
16 04 02*	fireworks wastes	AH
16 04 03*	other waste explosives	AH
16 05	gases in pressure containers and discarded chemicals	
16 05 04*	gases in pressure containers (including halons) containing hazardous substances	MH

16 05 05	gases in pressure containers other than those mentioned in 16 05 04	MNH
16 05 06*	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals	MH
16 05 07*	discarded inorganic chemicals consisting of or containing hazardous substances	MH
16 05 08*	discarded organic chemicals consisting of or containing hazardous substances	MH
16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08	MNH
16 06	batteries and accumulators	
16 06 01*	lead batteries	AH
16 06 02*	Ni-Cd batteries	AH
16 06 03*	mercury-containing batteries	AH
16 06 04	alkaline batteries (except 16 06 03)	ANH
16 06 05	other batteries and accumulators	ANH
16 06 06*	separately collected electrolyte from batteries and accumulators	AH
16 07	wastes from transport tank, storage tank and barrel cleaning (except 05 and 13)	
16 07 08*	wastes containing oil	AH
16 07 09*	wastes containing other hazardous substances	AH
16 07 99	wastes not otherwise specified	ANH
16 08	spent catalysts	
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)	MNH
16 08 02*	spent catalysts containing hazardous transition metals or hazardous transition metal compounds	MH
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified	MNH
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)	MNH
16 08 05*	spent catalysts containing phosphoric acid	AH
16 08 06*	spent liquids used as catalysts	AH
16 08 07*	spent catalysts contaminated with hazardous substances	MH
16 09	oxidising substances	
16 09 01*	permanganates, for example potassium permanganate	AH
16 09 02*	chromates, for example potassium chromate, potassium or sodium dichromate	AH
16 09 03*	peroxides, for example hydrogen peroxide	AH
16 09 04*	oxidising substances, not otherwise specified	AH
16 10	aqueous liquid wastes destined for off-site treatment	
16 10 01*	aqueous liquid wastes containing hazardous substances	MH

16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01	MNH
16 10 03*	aqueous concentrates containing hazardous substances	MH
16 10 04	aqueous concentrates other than those mentioned in 16 10 03	MNH
16 11	waste linings and refractories	
16 11 01*	carbon-based linings and refractories from metallurgical processes containing hazardous substances	MH
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01	MNH
16 11 03*	other linings and refractories from metallurgical processes containing hazardous substances	MH
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03	MNH
16 11 05*	linings and refractories from non-metallurgical processes containing hazardous substances	MH
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05	MNH
17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)	
17 01	concrete, bricks, tiles and ceramics	
17 01 01	Concrete	MNH
17 01 02	Bricks	MNH
17 01 03	tiles and ceramics	MNH
17 01 06*	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances	MH
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	MNH
17 02	wood, glass and plastic	
17 02 01	Wood	MNH
17 02 02	Glass	MNH
17 02 03	Plastic	MNH
17 02 04*	glass, plastic and wood containing or contaminated with hazardous substances	MH
17 03	bituminous mixtures, coal tar and tarred products	
17 03 01*	bituminous mixtures containing coal tar	MH
17 03 02	bituminous mixtures other than those mentioned in 17 03 01	MNH
17 03 03*	coal tar and tarred products	AH
17 04	metals (including their alloys)	
17 04 01	copper, bronze, brass	MNH
17 04 02	Aluminium	MNH
17 04 03	Lead	MNH
17 04 04	Zinc	MNH
17 04 05	iron and steel	MNH
17 04 06	Tin	MNH
17 04 07	mixed metals	MNH
17 04 09*	metal waste contaminated with hazardous substances	MH
17 04 10*	cables containing oil, coal tar and other hazardous substances	MH
17 04 11	cables other than those mentioned in 17 04 10	MNH

17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil	
17 05 03*	soil and stones containing hazardous substances	MH
17 05 04	soil and stones other than those mentioned in 17 05 03	MNH
17 05 05*	dredging spoil containing hazardous substances	MH
17 05 06	dredging spoil other than those mentioned in 17 05 05	MNH
17 05 07*	track ballast containing hazardous substances	MH
17 05 08	track ballast other than those mentioned in 17 05 07	MNH
17 06	insulation materials and asbestos-containing construction materials	
17 06 01*	insulation materials containing asbestos	MH
17 06 03*	other insulation materials consisting of or containing hazardous substances	MH
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03	MNH
17 06 05*	construction materials containing asbestos	AH
17 08	gypsum-based construction material	
17 08 01*	gypsum-based construction materials contaminated with hazardous substances	MH
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01	MNH
17 09	other construction and demolition wastes	
17 09 01*	construction and demolition wastes containing mercury	MH
17 09 02*	construction and demolition wastes containing PCB (for example PCB-containing sealants, PCB-containing resin-based floorings, PCB-containing sealed glazing units, PCB-containing capacitors)	MH
17 09 03*	other construction and demolition wastes (including mixed wastes) containing hazardous substances	MH
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	MNH
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)	MNH
18 01 02	body parts and organs including blood bags and blood preserves (except 18 01 03)	MNH
18 01 03*	wastes whose collection and disposal is subject to special requirements in order to prevent infection	MH
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)	MNH
18 01 06*	chemicals consisting of or containing hazardous substances	MH
18 01 07	chemicals other than those mentioned in 18 01 06	MNH
18 01 08*	cytotoxic and cytostatic medicines	MH
18 01 09	medicines other than those mentioned in 18 01 08	MNH

18 01 10*	amalgam waste from dental care	AH
18 02	wastes from research, diagnosis, treatment or prevention of disease involving animals	
18 02 01	sharps (except 18 02 02)	MNH
18 02 02*	wastes whose collection and disposal is subject to special requirements in order to prevent infection	MH
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection	MNH
18 02 05*	chemicals consisting of or containing hazardous substances	MH
18 02 06	chemicals other than those mentioned in 18 02 05	MNH
18 02 07*	cytotoxic and cytostatic medicines	MH
18 02 08	medicines other than those mentioned in 18 02 07	MNH
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 02	ferrous materials removed from bottom ash	ANH
19 01 05*	filter cake from gas treatment	AH
19 01 06*	aqueous liquid wastes from gas treatment and other aqueous liquid wastes	AH
19 01 07*	solid wastes from gas treatment	AH
19 01 10*	spent activated carbon from flue-gas treatment	AH
19 01 11*	bottom ash and slag containing hazardous substances	MH
19 01 12	bottom ash and slag other than those mentioned in 19 01 11	MNH
19 01 13*	fly ash containing hazardous substances	MH
19 01 14	fly ash other than those mentioned in 19 01 13	MNH
19 01 15*	boiler dust containing hazardous substances	MH
19 01 16	boiler dust other than those mentioned in 19 01 15	MNH
19 01 17*	pyrolysis wastes containing hazardous substances	MH
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17	MNH
19 01 19	sands from fluidised beds	ANH
19 01 99	wastes not otherwise specified	ANH
19 02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)	
19 02 03	premixed wastes composed only of non-hazardous wastes	ANH
19 02 04*	premixed wastes composed of at least one hazardous waste	AH
19 02 05*	sludges from physico/chemical treatment containing hazardous substances	MH
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05	MNH
19 02 07*	oil and concentrates from separation	AH

19 02 08*	liquid combustible wastes containing hazardous substances	MH
19 02 09*	solid combustible wastes containing hazardous substances	MH
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09	MNH
19 02 11*	other wastes containing hazardous substances	AH
19 02 99	wastes not otherwise specified	ANH
19 03	stabilised/solidified wastes	
19 03 04*	wastes marked as hazardous, partly stabilised other than 19 03 08	MH
19 03 05	stabilised wastes other than those mentioned in 19 03 04	MNH
19 03 06*	wastes marked as hazardous, solidified	MH
19 03 07	solidified wastes other than those mentioned in 19 03 06	MNH
19 03 08*	partly stabilised mercury	AH
19 04	vitrified waste and wastes from vitrification	
19 04 01	vitrified waste	ANH
19 04 02*	fly ash and other flue-gas treatment wastes	AH
19 04 03*	non-vitrified solid phase	AH
19 04 04	aqueous liquid wastes from vitrified waste tempering	ANH
19 05	wastes from aerobic treatment of solid wastes	
19 05 01	non-composted fraction of municipal and similar wastes	ANH
19 05 02	non-composted fraction of animal and vegetable waste	ANH
19 05 03	off-specification compost	ANH
19 05 99	wastes not otherwise specified	ANH
19 06	wastes from anaerobic treatment of waste	
19 06 03	liquor from anaerobic treatment of municipal waste	ANH
19 06 04	digestate from anaerobic treatment of municipal waste	ANH
19 06 05	liquor from anaerobic treatment of animal and vegetable waste	ANH
19 06 06	digestate from anaerobic treatment of animal and vegetable waste	ANH
19 06 99	wastes not otherwise specified	ANH
19 07	landfill leachate	
19 07 02*	landfill leachate containing hazardous substances	MH
19 07 03	landfill leachate other than those mentioned in 19 07 02	MNH
19 08	wastes from waste water treatment plants not otherwise specified	
19 08 01	Screenings	ANH
19 08 02	waste from desanding	ANH
19 08 05	sludges from treatment of urban waste water	ANH
19 08 06*	saturated or spent ion exchange resins	AH
19 08 07*	solutions and sludges from regeneration of ion exchangers	AH
19 08 08*	membrane system waste containing heavy metals	MH

19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats	MNH
19 08 10*	grease and oil mixture from oil/water separation other than those mentioned in 19 08 09	MH
19 08 11*	sludges containing hazardous substances from biological treatment of industrial waste water	MH
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11	MNH
19 08 13*	sludges containing hazardous substances from other treatment of industrial waste water	MH
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13	MNH
19 08 99	wastes not otherwise specified	MNH
19 09	wastes from the preparation of water intended for human consumption or water for industrial use	
19 09 01	solid waste from primary filtration and screenings	ANH
19 09 02	sludges from water clarification	ANH
19 09 03	sludges from decarbonation	ANH
19 09 04	spent activated carbon	ANH
19 09 05	saturated or spent ion exchange resins	ANH
19 09 06	solutions and sludges from regeneration of ion exchangers	ANH
19 09 99	wastes not otherwise specified	ANH
19 10	wastes from shredding of metal-containing wastes	
19 10 01	iron and steel waste	ANH
19 10 02	non-ferrous waste	ANH
19 10 03*	fluff-light fraction and dust containing hazardous substances	MH
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03	MNH
19 10 05*	other fractions containing hazardous substances	MH
19 10 06	other fractions other than those mentioned in 19 10 05	MNH
19 11	wastes from oil regeneration	
19 11 01*	spent filter clays	AH
19 11 02*	acid tars	AH
19 11 03*	aqueous liquid wastes	AH
19 11 04*	wastes from cleaning of fuel with bases	AH
19 11 05*	sludges from on-site effluent treatment containing hazardous substances	MH
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05	MNH
19 11 07*	wastes from flue-gas cleaning	AH
19 11 99	wastes not otherwise specified	ANH
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified	
19 12 01	paper and cardboard	ANH
19 12 02	ferrous metal	ANH
19 12 03	non-ferrous metal	ANH

19 12 04	plastic and rubber	ANH
19 12 05	Glass	ANH
19 12 06*	wood containing hazardous substances	MH
19 12 07	wood other than that mentioned in 19 12 06	MNH
19 12 08	Textiles	ANH
19 12 09	minerals (for example sand, stones)	ANH
19 12 10	combustible waste (refuse derived fuel)	ANH
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances	MH
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	MNH
19 13	wastes from soil and groundwater remediation	
19 13 01*	solid wastes from soil remediation containing hazardous substances	MH
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01	MNH
19 13 03*	sludges from soil remediation containing hazardous substances	MH
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03	MNH
19 13 05*	sludges from groundwater remediation containing hazardous substances	MH
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05	MNH
19 13 07*	aqueous liquid wastes and aqueous concentrates from groundwater remediation containing hazardous substances	MH
19 13 08	aqueous liquid wastes and aqueous concentrates from groundwater remediation other than those mentioned in 19 13 07	MNH
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 01	paper and cardboard	ANH
20 01 02	Glass	ANH
20 01 08	biodegradable kitchen and canteen waste	ANH
20 01 10	Clothes	ANH
20 01 11	Textiles	ANH
20 01 13*	Solvents	AH
20 01 14*	Acids	AH
20 01 15*	Alkalines	AH
20 01 17*	Photochemicals	AH
20 01 19*	Pesticides	AH
20 01 21*	fluorescent tubes and other mercury-containing waste	AH
20 01 23*	discarded equipment containing chlorofluorocarbons	AH
20 01 25	edible oil and fat	MNH

20 01 26*	oil and fat other than those mentioned in 20 01 25	MH
20 01 27*	paint, inks, adhesives and resins containing hazardous substances	MH
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27	MNH
20 01 29*	detergents containing hazardous substances	MH
20 01 30	detergents other than those mentioned in 20 01 29	MNH
20 01 31*	cytotoxic and cytostatic medicines	MH
20 01 32	medicines other than those mentioned in 20 01 31	MNH
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	MH
20 01 34	batteries and accumulators other than those mentioned in 20 01 33	MNH
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (3)	MH
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	MNH
20 01 37*	wood containing hazardous substances	MH
20 01 38	wood other than that mentioned in 20 01 37	MNH
20 01 39	Plastics	ANH
20 01 40	Metals	ANH
20 01 41	wastes from chimney sweeping	ANH
20 01 99	other fractions not otherwise specified	ANH
20 02	garden and park wastes (including cemetery waste)	
20 02 01	biodegradable waste	ANH
20 02 02	soil and stones	ANH
20 02 03	other non-biodegradable wastes	ANH
20 03	other municipal wastes	
20 03 01	mixed municipal waste	ANH
20 03 02	waste from markets	ANH
20 03 03	street-cleaning residues	ANH
20 03 04	septic tank sludge	ANH
20 03 06	waste from sewage cleaning	ANH
20 03 07	bulky waste	ANH
20 03 99	municipal wastes not otherwise specified	ANH

947

948

949 **A.4. Examples of the classification of complex entries**

950 This chapter presents additional information and examples providing guidance on
 951 characterisation approaches to be followed for some of the more problematic and
 952 complex entries, in particular packaging waste, waste from electrical and electronic
 953 equipment (WEEE) and end of life vehicles (ELV).

954 **A.4.1. Packaging waste and contents**

955 Separately collected packaging waste is to be allocated under sub-chapter 15 01. Such
 956 waste must not be classified under sub-chapter 20 01, as the heading of sub-chapter
 957 20 01 explicitly excludes sub-chapter 15 01. Under sub-chapter 15 01 the following
 958 MNH entries are contained:

15 01 01	paper and cardboard packaging	MNH
15 01 02	plastic packaging	MNH
15 01 03	wooden packaging	MNH
15 01 04	metallic packaging	MNH
15 01 05	composite packaging	MNH
15 01 06	mixed packaging	MNH
15 01 07	glass packaging	MNH
15 01 09	textile packaging	MNH

959 The following MH entries are provided:

15 01 10*	packaging containing residues of or contaminated by hazardous substances	MH
15 01 11*	metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers	MH

960 Before it is decided which entry for packaging waste is most suitable, one has to
 961 assess whether the waste actually should be classified as packaging waste at all, or
 962 rather be classified according its content. Figure 5 provides a flow chart supporting
 963 this decision.

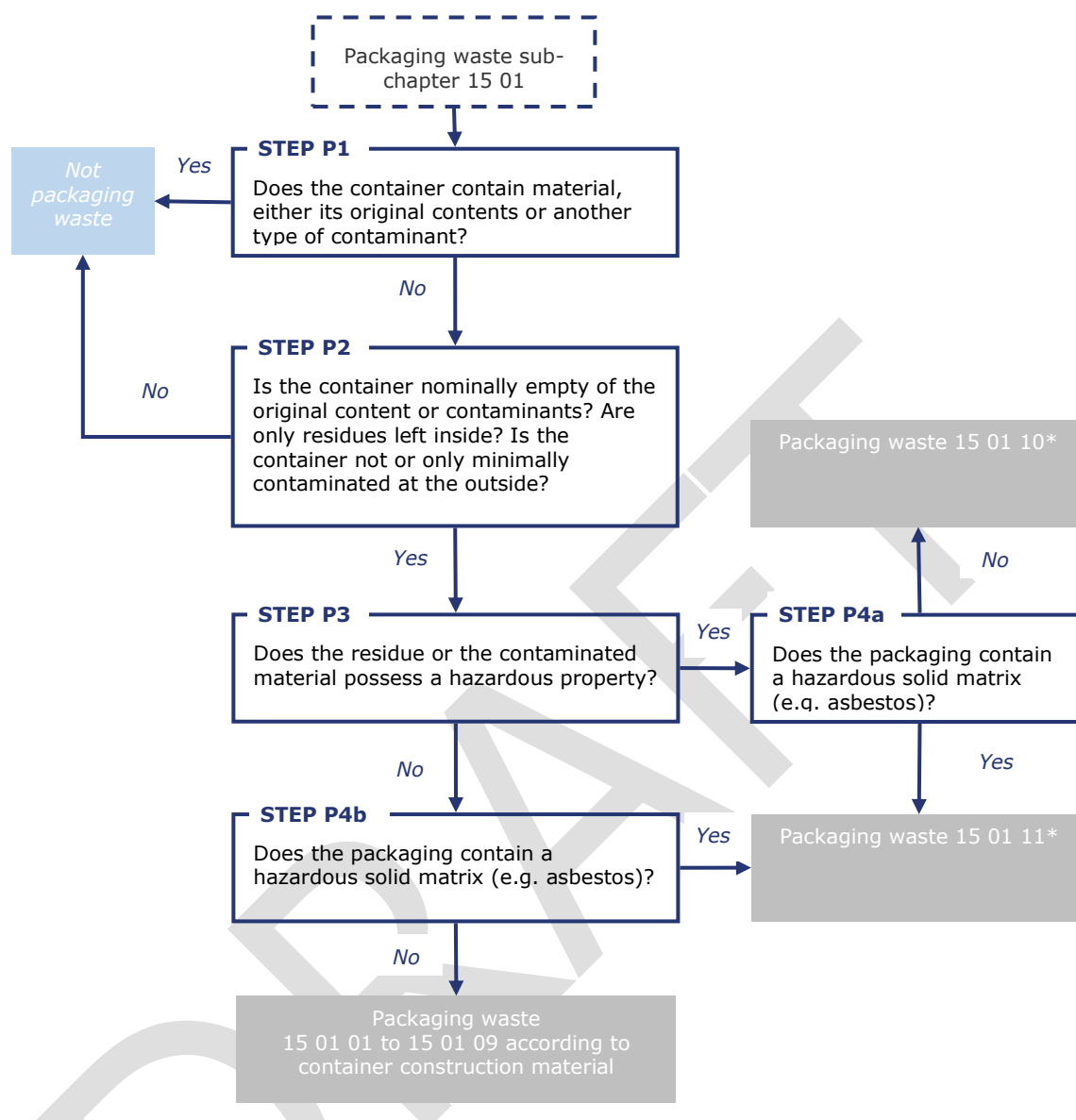


Figure 5: Flow chart for classification of packaging waste based on [UK EA 2015]

In order to allocate the sub-chapter 15 01 it is necessary to determine whether the packaging/container is empty (cf. Step P1 and P2 in Figure 5). It is suggested to understand 'empty', that the content was effectively removed, using reasonable physical or mechanical processes with industry standards such as washing, draining or scraping (depending on the container and its content).

When the packaging contains residual material that cannot be removed by normal standards (e.g. due to size of aperture or nature of material), then the waste should not be classified as packaging waste but as the residual material waste (e.g. half empty tin of solidified varnish might be classified as 08 01 11*).

In the case that waste containers are washed to remove the contents, further considerations should be taken to ensure an environmentally sound method is used.

If the packaging is empty, it has to be further assessed during Step P3 whether there are residues that display hazardous properties. Additionally it needs to be checked if

the previous content or its leftovers caused a contamination of the packaging material itself. If hazardous properties can be related to the residue/contamination a hazardous entry will need to be assigned. If the residue contains a hazardous solid matrix (e.g. asbestos) it will be assigned to entry 15 01 11* (cf. Step P4a). Otherwise entry 15 01 10* will apply. Examples for the latter are taken from [UK EA 2015]:

- an empty drum of diesel fuel containing any quantity of residual diesel (diesel fuel is a hazardous substance, and possesses a range of hazardous properties);
- an empty paint can, labelled with a hazard pictogram, both contaminated with and containing dried paint residues of a paint containing ecotoxic heavy metals (note that the drying of paint may increase the concentration of other hazardous substances present as water/solvent evaporates).

If no hazardous properties are displayed by the residue, within the last part of Step 4b the packaging material itself needs to be assessed. It should be checked if the packaging consists of hazardous material, e.g. asbestos in old fireproof packaging material. In this case again entry 15 01 11* applies. Otherwise a non-hazardous entry according to the packaging's material needs to be assigned (codes 15 01 01 to 15 01 09) [UK EA 2015].

A.4.2. Waste from electrical and electronic equipment (WEEE)

In the LoW, there are two existing chapters explicitly referring to WEEE:

- 16 wastes not otherwise specified in the list
- 20 municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions

According to the structure presented in paragraph A.1 of this document, chapter 20 takes precedence over chapter 16. In sub-chapter 20 01, separately collected WEEE from municipal waste can be allocated to the following hazardous entries:

- 20 01 21* fluorescent tubes and other mercury-containing waste AH
- 20 01 23* discarded equipment containing chlorofluorocarbons AH
- 20 01 35* discarded electrical and electronic equipment other than those mentioned 20 01 21 and 20 01 23 containing hazardous components MH

MNH entries are the following ones:

- 20 01 36 discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35. MNH

For cases the WEEE arises from a commercial/ industrial source and thus cannot be allocated to an entry of chapter 20, the following MH entries exist in chapter 16:

- 16 02 09* transformers and capacitors containing PCBs MH
- 16 02 10* discarded equipment containing or contaminated by PCBs other than those mentioned in 16 02 09* MH
- 16 02 11* discarded equipment containing chlorofluorocarbons, HCFC, HFC MH
- 16 02 12* discarded equipment containing asbestos MH
- 16 02 13* discarded equipment containing hazardous components other than those mentioned in 16 02 09* to 16 02 12* MH
- 16 02 15* Hazardous components removed from discarded equipment MH

MNH entries are the following ones:

- 16 02 14 discarded equipment other than those mentioned in 16 02 09 to 16 02 13 MNH
- 16 02 16 components removed from discarded equipment other than those mentioned in 16 02 15 MNH

Nevertheless, different entries apart from chapters 16 and 20 of the LoW will have to be used for fractions generated during the treatment process of WEEE. Further information on treatment steps and resulting fractions thereof can be found in [BW 2003]. A graphical overview is displayed in Figure 6.

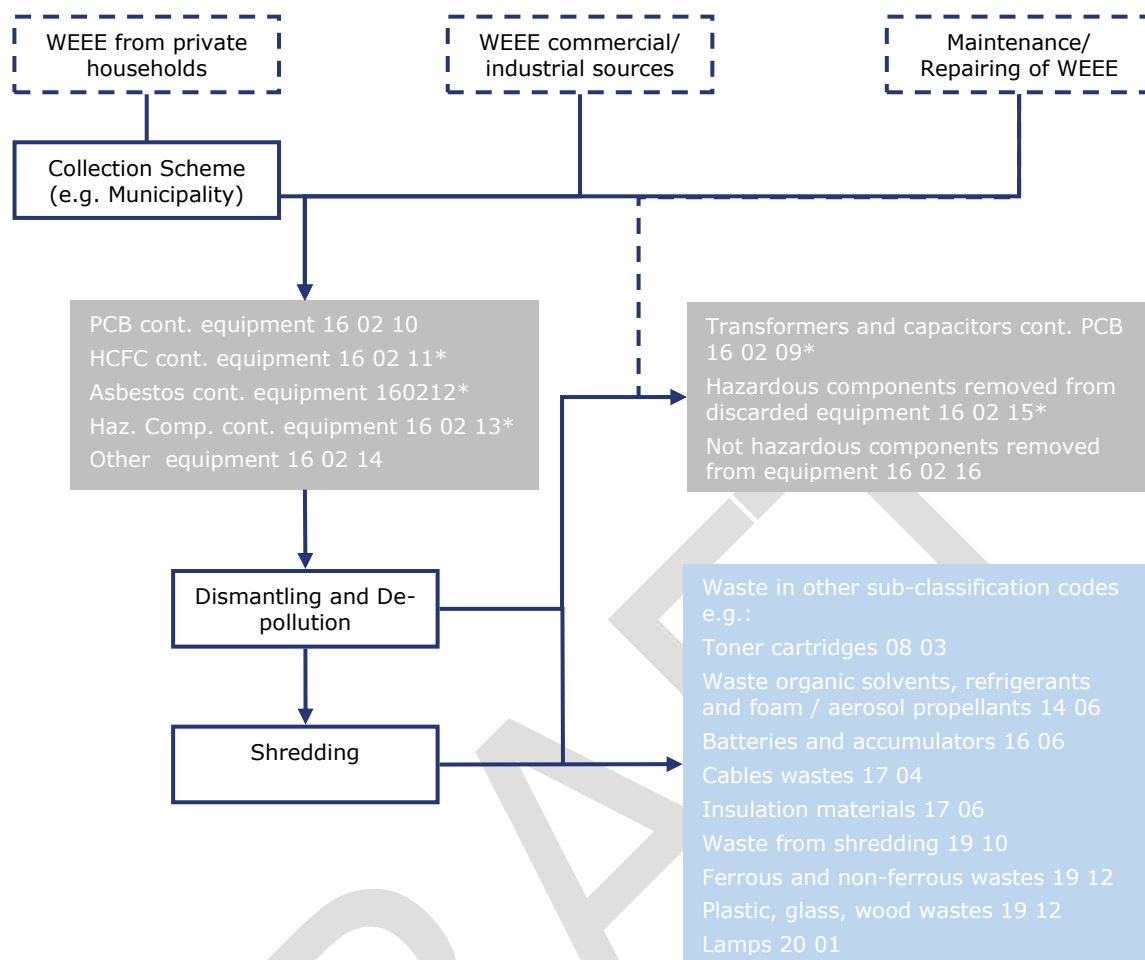


Figure 6: LoW entries from WEEE treatment based on [IPA 2015] and [BW 2003]

A.4.3. End of life vehicles (ELV)

End of life vehicles are covered within the LoW in chapter 16 and in particular in sub-chapter 16 01. For whole vehicles two entries are mainly relevant:

16 01 04*	end-of-life vehicles	AH
16 01 06	end-of-life vehicles, containing neither liquids nor other hazardous components	ANH

Treatment processes within a facility for ELV are displayed in Figure 7. Depending on the treatment steps, different entries of the LoW (not from sub-chapter 16 01) come into play for fractions originally stemming from ELV.

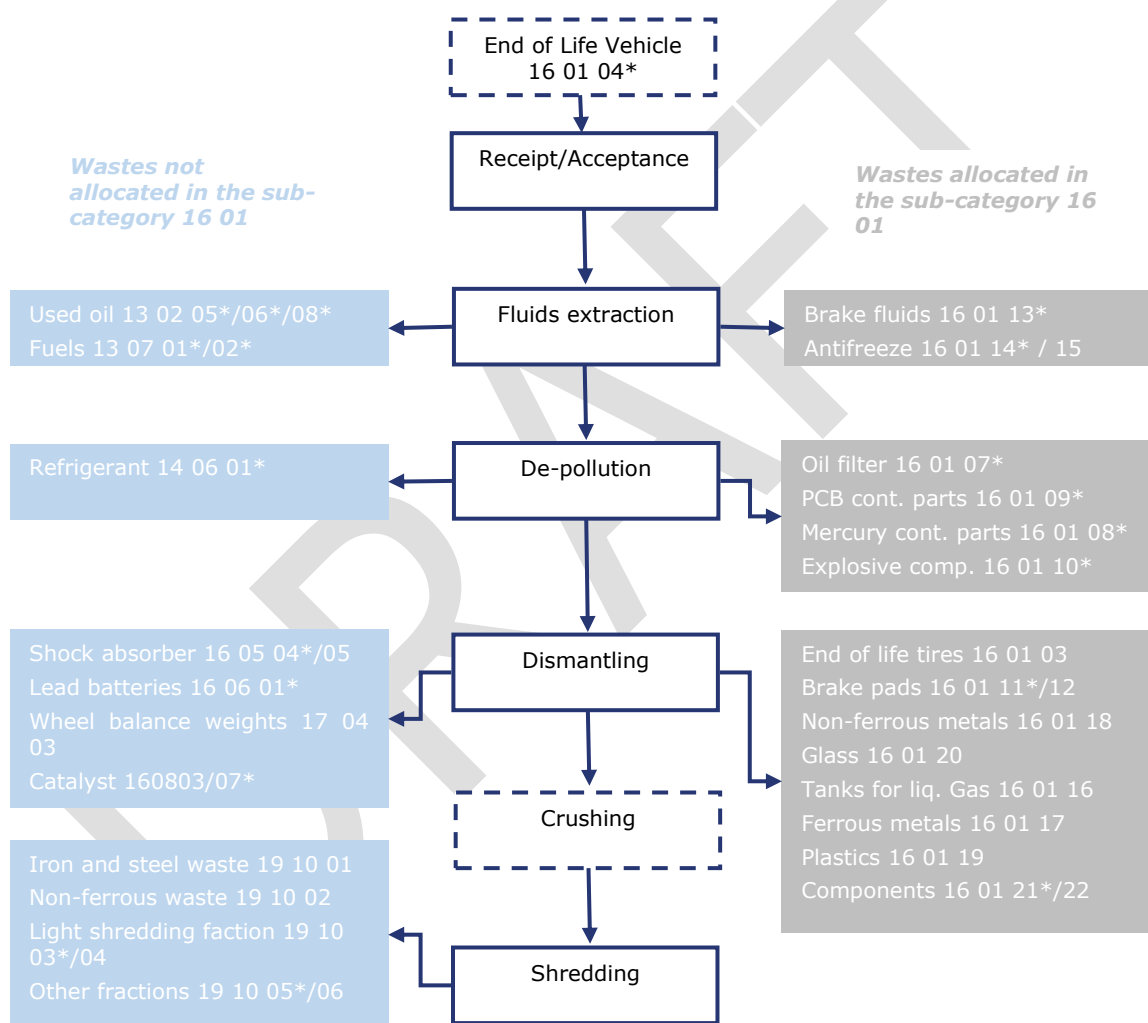


Figure 7: LoW entries from ELV treatment based on [IPA 2015]

A.5. Examples for the assessment of specific ingredients and compounds of specific waste types

This chapter presents additional information and examples for the assessment of specific ingredients and compounds of specific waste types. In the following, certain waste types or pollutants will be researched and difficulties with classification encountered will be explained. Main entries of the LoW used for the classification will be presented. Please note that the described applicable entries will not be exclusive.

A.5.1. Organic ingredients and specific chemical compounds

The following example provides general guidance on the classification of waste containing organic ingredients and specific chemical compounds such as PAH (Polycyclic Aromatic Hydrocarbons), BTX (Benzene Toluene and Xylene) or hydrocarbons.

General information

Polycyclic aromatic hydrocarbons (PAH) describe substances (exemplary components: Acenaphtene, Anthracene, Flourene, Pyrene, etc.) that are often found together in groups of two or more. PAHs are found naturally in the environment but they can also be man-made [US EPA 2008].

BTX (abbreviation for Benzene, Toluene and Xylene) is a group of chemicals which is quantified by one analytical method. BTX are in a class of substances known as volatile organic compounds (VOCs)[ETSA 2015].

Hydrocarbons are compounds of hydrogen and carbon in various combinations that are present in petroleum products and natural gas. Some hydrocarbons are major air pollutants, some may be carcinogenic and others contribute to photochemical smog [ETSA 2015].

Main origin

PAHs are created when products like coal, oil, gas, and waste are burned but the burning process is not complete. Examples are fumes from vehicle exhaust, coal production plants or other facilities burning coal, petroleum, oil or wood. Most PAHs are used to conduct research. However, some PAHs are used to make dyes, plastics, and pesticides. Some are used in medicines [US EPA 2008].

BTX are made up of naturally-occurring chemicals that are found mainly in petroleum products such as gasoline. Besides gasoline, BTX can be found in many of the common household products. BTX can enter the environment from leaking underground storage tanks (UST's), overfills of storage tanks, fuel spills from auto accidents and from landfills.

Benzene can be found in gasoline and in products such as synthetic rubber, plastics, nylon, insecticides, paints, dyes, resins-glues, furniture wax, detergents and cosmetics. Other sources are auto exhaust, industrial emissions and cigarette smoke. Toluene occurs naturally as a component of many petroleum products. Toluene is used as a solvent for paints, coatings, gums, oils and resins. Xylenes are used in gasoline and as a solvent in printing, rubber and leather industries [ATSDR 2014].

Origins of waste containing hydrocarbons are industrial sites and combustion plants, motor vehicles and other gasoline-powered equipment, e.g. aircrafts or construction equipment [ETSA 2015].

Aspects to be considered for waste classification

Table 5 contains hazard statement code(s), hazard class and category codes for benzene, toluene and xylene-

Table 5: Hazard Statement Code(s), Hazard Class and Category Code(s) for BTX according Table 3.1 of the CLP Regulation

International Chemical Identification	CAS No.	Hazard Statement Code(s)	Hazard Class and Category Code(s)
Benzene	71-43-2	H225 H350 H340 H372 H304 H319 H315	Flam. Liq. 2 Carc. 1A Muta. 1B STOT RE 1 Asp. Tox. 1 Eye Irrit. 2 Skin Irrit. 2
Toluene	108-88-3	H225 H361d H304 H373 H315 H336	Flam. Liq. 2 Repr. 2 Asp. Tox. 1 STOT RE 2 Skin Irrit. 2 STOT SE 3
<i>o</i> -xylene	95-47-6	H226	Flam. Liq. 3
<i>p</i> -xylene	106-42-3	H332	Acute Tox. 4
<i>m</i> -xylene	108-38-3	H312	Acute Tox. 4
Xylene	1330-20-7	H315	Skin Irrit. 2

Regarding organic compounds, sum parameters like PAH, BTX and hydrocarbons are often applied in practical waste analysis. However, the CLP Regulation does not recognise this convention – at MS level, specific conventions may exist for the classification of waste as hazardous by using the above presented sum parameters.

Table 3.1 of the CLP uses benzo[*a*]pyrene as a marker compound representing PAH for carcinogenicity for certain coal tar entries. For hazard statement code(s), hazard class and category code(s) of benzo[*a*]pyrene please refer to Table 6. More information on the usage of PAH and benzo[*a*]pyrene for the example of coal tar can be found in chapter A.5.5.

Table 6: Hazard Statement Code(s), Hazard Class and Category Code(s) for benzo[*a*]pyrene according Table 3.1 of the CLP Regulation

International Chemical Identification	CAS No.	Hazard Statement Code(s)	Hazard Class and Category Code(s)
---------------------------------------	---------	--------------------------	-----------------------------------

Benzo[a]pyrene Benzo[def]chrysene	50-32-8	H350	Carc. 1B
		H340	Muta. 1B
		H360FD	Repr. 1B
		H317	Skin Sens. 1
		H400	Aquatic Acute 1
		H410	Aquatic Chronic 1

A.5.2. Substances that deplete the ozone layer

The following section provides general guidance on the classification of waste containing substances that deplete the ozone layer (ODS).

General information

Ozone-depleting substances generally contain chlorine, fluorine, bromine, carbon, and hydrogen in varying proportions and are often described by the general term halocarbons. Chlorofluorocarbons (CFCs), carbon tetrachloride, and methyl chloroform are important human-produced ozone-depleting gases. Another important group of human-produced halocarbons are the halons, which contain carbon, bromine, fluorine, and (in some cases) chlorine. Most known substances with a significant ozone depleting potential are covered by the Montreal Protocol which aims to phase out ODS. The corresponding EU legislation is Regulation EC/1005/2009 (see paragraph below).

These substances have a significant potential to harm the ozone layer for two reasons. The first is that they do not break down in the lower atmosphere - they can remain in the atmosphere for long time periods. The second is that they contain chlorine and/or bromine and thus help the natural reactions that destroy ozone [EEA 2014].

Main origin

Ozone depleting substances were, and still are used in many applications including refrigeration, air conditioning, foam blowing, cleaning of electronics components, manufacture of solvents and as components of fire extinguishers.

Main sources for waste containing ODS which in practice cause problems in their classification are foams from disposed refrigerators, PCB-containing construction and demolition wastes (e.g. joint material) and waste wood.

Applicable entries of the LoW

Applicable entries for ODS are listed below:

14 06 01*	chlorofluorocarbons, HCFC, HFC	AH
14 06 02*	other halogenated solvents and solvent mixtures	AH
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC	MH
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13	MNH
20 01 23*	discarded equipment containing chlorofluorocarbons, HCFC, HFC	AH

Aspects to be considered for waste classification

Annex I (controlled substances) and II (new substances) of Regulation EC/1005/2009 on substances that deplete the ozone layer provides a list of substances to be classified as ODS and their respective ozone-depleting potential.

Aforementioned mainly relevant entries 14 06 01* and 14 06 02* are AH entries. As a consequence, wastes assigned with these entries are hazardous without further assessment (even if they would not display hazardous properties).

For a decision between a MH or a MNH entry, the relevant hazardous property is HP 14 'Ecotoxic' (cf. chapter C.14). The CLP Regulation lays down in Part 5, that the generic concentration limit for substances (in a mixture), classified as hazardous to the ozone layer (Category 1), that trigger classification of the mixture as hazardous to the ozone layer, lies at 0.1 %.

For the decision between a MH and a MNH entry, this means that waste containing 0.1 % or more of ODS will have to be classified as hazardous by HP14.

A problematic aspect in practice is to which waste mass the threshold of 0.1 % shall be based on. In the case of ODS containing foam, e.g. stemming from disposed refrigerators, the value of 0.1 % should refer to separated foam containing ODS. It should not be based on the mass of the whole refrigerator part, to which the foam is attached. Hence, it must be ensured that potentially hazardous fractions are separated by applying Best Available Technologies.

A.5.3. Asbestos and man-made mineral fibres

The following example provides general guidance on the classification of waste containing asbestos.

General information

Asbestos is a mineralogical name which describes certain fibre silicates (metal) belonging to the mineralogical group of the serpentine and the amphibole minerals and those are crystallized in the so-called asbestiform form. The minerals that fall under this definition are: amosite, crocidolite, anthophyllite, chrysotile, fibre fibre-shaped actinolite and tremolite fibre shaped [OVAM 2015].

Man-made mineral fibre (MMMF) is a generic name used to describe an inorganic fibrous material manufactured primarily from glass, rock, minerals, slag and processed inorganic oxides. The MMMF produced are – in contrast to asbestos - non-crystalline (glassy, vitreous, amorphous) [EC 2012a].

Main origin

According to the European Agency for Safety and Health at Work, asbestos is a product of concern as there are around 3000 recorded uses of asbestos and it still can be found in industrial buildings, private homes, ships, heating and cooling systems and work equipment and plant among others [OSHA Unknown].

Most of man-made mineral fibres are used as thermal or acoustical insulation. Usage for this purpose is divided about equally between glass wool (about 3 million tonnes, used predominantly in North America) and rock (stone) and slag wool (about 3 million tonnes, used predominantly in Europe and the rest of the world) [EC 2012a].

Applicable entries of the LoW

According to the available entries, asbestos may be allocated to the following entries:

06 07 01*	wastes containing asbestos from electrolysis	MH
06 13 04*	wastes from asbestos processing	AH

10 13 09*	wastes from asbestos-cement manufacture containing asbestos	MH
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09	MNH
15 01 11*	metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers	MH
16 01 11*	brake pads containing asbestos	MH
16 02 12*	discarded equipment containing free asbestos	MH
17 06 01*	insulation materials containing asbestos	MH
17 06 05*	construction materials containing asbestos	MH

Aspects to be considered for waste classification

For a decision between a MH or a MNH entry, the relevant hazardous property is HP 7 'Carcinogenic'. Asbestos is classified according to the CLP Regulation with hazard class 'Carc. 1A' and category code 'STOT RE 1' corresponding to hazard statement codes H350 and H372. Following Annex III of the WFD (cf. chapter C.7) the concentration limit for H350 is 0.1 %.

As a consequence, waste containing 0.1 % or more of asbestos will have to be classified as hazardous by HP7.

A.5.4. Wastes containing CaO and Ca(OH)₂

The following example provides general guidance on the classification of waste containing calcium oxide CaO and calcium hydroxide Ca(OH)₂.

General information

CaO (also called lime or quicklime) may take the form of odourless crystals, white or greyish- white lumps, or granular powder. The commercial material may have a yellowish or brownish tint because of its iron content.

Ca(OH)₂ (also called hydrated lime) is a soft white, powder or granule, non-combustible material with a bitter taste and no odour.

Main origin

Calcium oxide and Calcium hydroxide are used in similar industries and applications:

- Use as raw material in the preparation of chlorinated lime, bleaching powder, and calcium salts. Also used as a binding agent for the manufacture of several products such as cement, and other building and paving materials.
- Used for water treatment and for the treatment of waste effluents from different industries.
- Used as a scrubbing and neutralizing agents in the chemical and petrochemical industry.
- Involved in different operations in the following industries: iron and steel manufacturing (as well as other metals), ammonia synthesis, metal ores refining, manufacture of fine chemicals (e.g. pharmaceuticals, lubricants), pulp and paper industry, leather manufacturing, etc.

Applicable entries of the LoW

According to [UBA 2013], relevant entries for $\text{CaO}/\text{Ca}(\text{OH})_2$ containing wastes can mainly be found in the following sub-chapters:

- 10 01 wastes from power stations and other combustion plants (except 19)
- 10 02 wastes from the iron and steel industry
- 10 13 wastes from manufacture of cement, lime and plaster and articles and products made from them

When $\text{CaO}/\text{Ca}(\text{OH})_2$ is used for scrubbing flue gas in thermal disposal of waste, the following entry applies for the solid residues:

19 01 07* solid waste from gas treatment AH

Additional entries may apply for wastes containing $\text{CaO}/\text{Ca}(\text{OH})_2$. Entry 06 02 01* calcium hydroxide for instance needs to be assigned for wastes containing $\text{Ca}(\text{OH})_2$ resulting from manufacture, formulation, supply and use of bases.

Aspects to be considered for waste classification

While choosing the appropriate entry for a waste containing $\text{CaO}/\text{Ca}(\text{OH})_2$, please note that absolute non-hazardous entries will be non-hazardous. This means no further assessment on hazardous properties is necessary although the waste may exceed limit values for CaO and $\text{Ca}(\text{OH})_2$ as laid down in the CLP Regulation. For instance, slags from iron and steel industry can be assigned to the following entries:

- 10 02 01 wastes from the processing of slag ANH
- 10 02 02 unprocessed slag ANH

Even if the CaO content of aforementioned slags from iron and steel industry would be above the concentration limit as laid down in the CLP Regulation (and thus is hazardous according to CLP), the waste will be classified as non-hazardous [UBA 2013].

According to the CLP Regulation, calcium oxide (CaO) and calcium hydroxide ($\text{Ca}(\text{OH})_2$) are assigned hazard statement codes H315, H318 and H335. For a decision between a MH or a MNH entry, the relevant hazardous properties are HP 4 'Irritant – skin irritation and eye damage' and HP 5 'Specific Target Organ Toxicity (STOT)/Aspiration Toxicity'. Corresponding concentration limits are laid down in Annex III of the WFD (cf. chapter C.4 and C.5) and are also displayed in Table 7.

As a consequence:

- if the sum of the concentrations of all substances classified as H318 (e.g. CaO and $\text{Ca}(\text{OH})_2$) exceeds or equals 10 %;

OR

- if the sum of the concentrations of all substances classified as H315 (e.g. CaO and $\text{Ca}(\text{OH})_2$) and H319 exceeds or equals 20 %;

the waste shall be classified hazardous according HP4.

Additionally:

- if the sum of concentrations of all substances classified as H335 e.g. CaO and $\text{Ca}(\text{OH})_2$ exceeds or equals 20 %;

the waste shall be classified hazardous according HP5.

Please refer to chapter C.4 and C.5 for further information.

Table 7: Hazard statement codes and concentration limits for CaO and Ca(OH)₂

	Hazard Class and Category Code(s)	Hazard Statement Code(s)	Concentration limit (total of substances)
CaO	Skin Irrit. 2	H315	≥ 20 %
	Eye Dam. 1	H318	≥ 10 %
	STOT SE 3	H335	≥ 20 %
Ca(OH) ₂	Skin Irrit. 2	H315	≥ 20 %
	Eye Dam. 1	H318	≥ 10 %
	STOT SE 3	H335	≥ 20 %

A.5.5. Wastes containing coal tar

The following example provides general guidance on the classification of waste containing coal tar.

General information

Coal tar is a viscous material composed of complex, high-molecular-weight, compounds derived from the distillation of petroleum or the destructive distillation of wood or coal [ETSA 2015].

Bitumen is a generic term applied to natural inflammable substances of variable colour, hardness, and volatility, composed principally of a mixture of hydrocarbons substantially free from oxygenated bodies. Bitumens are sometimes associated with mineral matter. Petroleum, asphalts, natural mineral waxes, and asphaltites are all considered bitumens [ETSA 2015].

Main origin

The majority of coal tar is distilled to produce refined products, including creosote, coal-tar pitch, crude naphthalene, and anthracene oils. Some crude coal tar is used as fuel for blast furnaces in the steel industry, because of its high availability and heating value. Coal tar also has a long history of being used in pharmaceutical products. In the industry of alumina and aluminium production and processing, coal tar is used in several process steps. Further applications are in the broad sectors of construction and in various coal related industries.

Bitumen is used in various forms of road construction and maintenance. Bitumen is also used in roofing, waterproofing, insulation, paints, adhesives, synthetic turf bases and sound insulation materials. The most important sources are highway, bridge, street, foundation, structure, and building construction. The petroleum and coal products manufacturing industry is also a significant source since bitumen is initially produced and processed there.

Applicable entries of the LoW

According to the available entries, coal tar containing wastes can be allocated to the following entries:

17 03 01*	bituminous mixtures containing coal tar	MH
17 03 02	bituminous mixtures other than those mentioned in 17 03 01	MNH

17 03 03* coal tar and tarred products**AH****Aspects to be considered for waste classification**

Potential hazards of waste containing coal tar depends on its level of PAHs, which are known to have carcinogenic effects (high for coal tar, rather low in bitumen). [CUMBRIA 2011] Thus, please refer also to chapter A.5.1.

Indicator tests exist to identify whether the waste containing coal tar contains a significant concentration of PAH components. Tests will indicate presence of PAH but *not* give a measurement. Examples are [OVAM 2015, CUMBRIA 2011]:

- use of PAH marker in combination with use of a UV lamp
- white spray paint
- adding a drop of methylene chloride.

When the test gives positive results it is assumed that the material contains tar and therefore is dangerous. Unless the holder of the waste stream is able to demonstrate that the concentration of PAHs is below the CLP classification thresholds levels and thus can be classified as non-hazardous. However the classification as non-hazardous must not be done exclusively by the presence of PAHs but from all the substances present in the waste stream. The spray test is only indicative [OVAM 2015].

Coal tar and its distillates (e.g. tar oils) potentially display carcinogenic properties. If the concentration of such materials is at or above 0.1 % the waste would possess the hazardous property HP 7 carcinogenic (cf. chapter C.7). Coal tar is a complex mix of hydrocarbon compounds which have to be added together to determine the overall concentration of coal tar. Therefore the 0.1% concentration must include all hydrocarbon fractions of the coal tar (e.g. in the case of road material/asphalt concrete to be suspected of containing coal tar). Those based on PAH's alone are not consistent with the legislation.

Determining the coal tar content is usually not conducted in the testing of waste. Instead, Table 3.1 of the CLP Regulation uses benzo[a]pyrene as a marker compound for carcinogenicity for certain coal tar entries. Where the concentration of benzo[a]pyrene is at or above 50 ppm (mg/kg) e.g. in the asphalt concrete alone (excluding other material) then the amount of coal tar should be considered to be sufficient for the material to be hazardous and thus coded 17 03 01*.

Any sampling of asphalt concrete would need to ensure that layers with different concentrations of benzo[a]pyrene are properly and representatively assessed [UK EA 2015].

A.5.6. Metals and alloys

The following example provides general guidance on the classification of waste containing metals and alloys.

General information

The term metals comprises a number of chemical elements in the periodic table that form a metallic bond with other metal atoms. In most cases they appear shiny, are malleable and hard and are able to conduct heat and electricity. Materials with similar physical properties (such as alloys) are also often referred to as metals.

Main origin

Metal wastes arise in various sectors such as WEEE, ELV, construction and demolition and several industrial uses.

Applicable entries of the LoW

Although entries 17 04 01 – 17 04 09* specifically refer to separate metals, only construction and demolition wastes shall be assigned with those entries. As long as the respective metal wastes are not contaminated with any hazardous substances, MNH entries 17 04 01 – 17 04 07 can be assigned according to the metallic composition of the waste. Otherwise the hazardous mirror entry 17 04 09* is applicable.

If the waste in question does not stem from construction and demolition, metal wastes need to be assigned to the LoW entries according to the order of precedence as described in chapter A.2.

As a consequence, metal wastes from waste management facilities cannot be assigned to entries of chapter 17 but can be assigned to the following entries:

19 10	waste from shredding of metal-containing wastes	
19 10 01	iron and steel waste	ANH
19 10 02	non-ferrous waste	ANH
19 10 05*	other fractions containing hazardous substances	MH
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified	
19 12 02	ferrous metal	ANH
19 12 03	non-ferrous metal	ANH
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of wastes containing hazardous substances	MH

Additionally, specific non-hazardous entries for metals exist in chapter 15 (waste packaging) and 20 (municipal waste).

A detailed reference to heavy metals is not included in this example.

Aspects to be considered for waste classification

In the LoW pure metal alloys are specifically exempt of the classification as hazardous:

'The concentration limits defined in Annex III to Directive 2008/98/EC do not apply to pure metal alloys in their massive form (not contaminated with hazardous substances). Those waste alloys that are considered as hazardous waste are specifically enumerated in this list and marked with an asterisk ()'*

Additionally, special care should be taken in order to avoid misclassification of scrap metals as waste. Council Regulation (EU) No 333/2011 establishes criteria determining when certain types of scrap metal (iron, steel and aluminium scrap) cease to be waste. Comparable legislation exists for copper scrap (Commission Regulation (EU) No 715/2013). If fulfilling the relevant criteria, metals/alloys are not considered waste as defined according to the WFD, and the classification according to this guidance document is not applicable.

In the case of metals, hazardous entries are unlikely to be used, unless a substantial indication exists that metal fractions have been contaminated with hazardous substances during the treatment process.

Only alloys in their massive form that are specifically listed as hazardous, or contaminated by hazardous substances, should be treated as hazardous. According to [UK EA 2015], the only 'alloy' specifically listed in the LoW is:

18 01 10* amalgam waste from dental care

AH

A.5.7. Organic peroxides

The following example provides general guidance on the classification of waste containing organic peroxides.

General information

The CLP Regulation defines organic peroxides in Annex I, Section 2.15:

'Organic peroxides means liquid or solid organic substances which contain the bivalent -O-O- structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. The term organic peroxide includes organic peroxide mixtures (formulations) containing at least one organic peroxide. Organic peroxides are thermally unstable substances or mixtures, which can undergo exothermic self-accelerating decomposition. In addition, they can have one or more of the following properties:

- *be liable to explosive decomposition;*
- *burn rapidly;*
- *be sensitive to impact or friction;*
- *react dangerously with other substances.'*

Main origin

The plastics and rubber industries are important users of organic peroxides. Organic peroxides and mixtures containing organic peroxides are used as e.g. accelerators, activators, catalysts, cross-linking agents, curing agents, hardeners, initiators and promoters. Other applications may be the use as bleaching agents (e.g. flour bleaching), as active pharmaceutical ingredients and as flame retardant synergists.

Applicable entries of the LoW

Organic peroxides often can be assigned to the following entries:

16 09 01*	permanganates, for example potassium permanganate	AH
16 09 02*	chromates, for example potassium chromate, potassium or sodium chromate	AH
16 09 03*	peroxides, for example hydrogen peroxide	AH
16 09 04*	oxidising substances, not otherwise specified	AH

All above mentioned entries are absolute hazardous entries, which means no assessment on hazardous properties is necessary in case one of these entries is assigned for waste containing organic peroxides.

Aspects to be considered for waste classification

For a decision between the MH and the MNH entry in the field of organic peroxides, hazardous properties HP1 and HP3 are most relevant.

In the determination of HP1 'Explosive' (cf. chapter C.1), cut-off values for organic peroxides need to be considered. A waste containing organic peroxides classified with hazard statement class H240 or H241 needs to be assessed for HP1, unless the following statements hold true:

▪ No other hazardous substances assigned hazard statement codes listed in Table 9 (see chapter C.1) are present, and

▪ One of the following two criteria is met:

- the waste contains >1 % but ≤ 7 % hydrogen peroxide, and the available oxygen content (O_i) of the organic peroxide(s) is ≤ 0.5 %;
- the waste contains ≤ 1 % hydrogen peroxide, and the available oxygen content (O_i) of the organic peroxide(s) is ≤ 1 %.

The available oxygen content, O_i (%) for any given organic peroxides has to be calculated according chapter 2.15 of the CLP Regulation:

$$O_i (\%) = \sum (16 \times (n_i \times c_i / m_i))$$

where:

n_i : number of peroxide groups per molecule of organic peroxide i .

c_i : concentration (mass %) of organic peroxide i in the waste.

m_i : gram molecular mass of organic peroxide i

'Σ' means that if a waste contains more than one organic peroxide the available oxygen from each is added together. This includes all organic peroxides, and is not restricted to those classified as H240 or H241.

[UK EA 2015] provides an example calculation for methyl ethyl peroxide which is presented in the following. A waste contains 2.9 % methyl ethyl peroxide ($C_2H_5-O-O-CH_3$) and 3 % hydrogen peroxide. The concentration of hydrogen peroxide is > 1% and ≤ 7 % hydrogen peroxide (see criteria above). Methyl ethyl peroxide has a molecular mass of 76g (so ' m_i ' is 76) and one peroxide functional group present (so n_i is 1). When applying these values in the the formula ' $O_i (\%) = \sum (16 \times (n_i \times c_i / m_i))$ ' for a concentration (' c_i ') of 2.9% in the waste, methyl ethyl peroxide has an available oxygen content (O_i) of 0.61% ($16 \times 1 \times 2.9 / 76$). This is above the available oxygen threshold of 0.5 % for criteria (i), so HP1 must be assessed.

Organic peroxides have specifically to be considered in determining HP 3 'Flammable'. A waste containing self-reactive substances or organic peroxides classified as H240 or H241 may possess the hazardous property HP 3 Flammable as a result of the assessment of HP 1 Explosive classifying the waste as a whole as H242. Please refer to chapter C.3 for additional information.

Further guidance on organic peroxides according the CLP Regulation can be found directly in the CLP Regulation or in its corresponding guidance document (cf. pages 234ff of [ECHA 2013]).

A.5.8. Rubber wastes

The following example provides general guidance on the classification of rubber wastes.

General information

Rubber wastes are mainly end of life products from the use of tyres and general rubber goods.

Main origin

The annual production in 2013 of tyres and general rubber goods amounted to ~4.67 million tonnes and ~2.57 million tonnes respectively. Rubber waste arises in relevant quantities from tyres and general rubber goods. In 2012 the quantity of end-of-life

tyres amounted to 2,765 kt. There is no specific information available for general rubber goods [ETRMA 2015].

Applicable entries of the LoW

Tyre and rubber waste has to be allocated to one of the following entries of the LoW:

07 02 99	waste otherwise not specified	ANH
16 01 03	end-of-life tyres	ANH
16 03 05*	organic wastes containing hazardous substances	MH
16 03 06	organic wastes other than those mentioned in 16 03 05	MNH
19 12 04	plastic and rubber	ANH

Aspects to be considered for waste classification

The majority of rubber waste is allocated to ANH entries. Waste code 16 03 06 is a MNH entry to the MH entry 16 03 05* (organic wastes containing hazardous substances) under chapter 16 (wastes not otherwise specified in the list) sub-chapter 16 03 (off-specification batches and unused products). This hazardous entry can be used for unused rubber products with or for contaminated off-specification rubber batches which are contaminated e.g. with oils or solvents.

A.5.9. Plastic wastes

The following example provides general guidance on the classification of plastic wastes.

General information

A plastic material is an organic solid, essentially a polymer or combination of polymers of high molecular mass. A polymer is a chain of several thousand of repeating molecular units of monomers. The monomers of plastic are either natural or synthetic organic compounds. The term resin is sometimes used as synonym of a commercial polymer[EC JRC 2014].

Main origin

The EU is one of the world's crucial players in plastic manufacturing and in 2012 produced about 57 million tons of plastic. EU Converter demand in 2012 was about 46 million tons and the quantity of post-consumer plastic waste was approximately 25 million tons [Plastics Europe Facts 2013].

Plastic wastes arise from end of life plastic products from industrial or household applications. The generation of post-consumer plastics waste is dominated by plastic packaging waste. Other relevant sectors in particular are: building and construction, automotive, WEEE and agriculture [EC JRC 2014].

Applicable entries of the LoW

The applicable entries of the LoW for the most relevant sectors are the following:

Plastic packaging

15 01 02	plastic packaging	MNH
15 01 05	composite packaging	MNH
15 01 06	mixed packaging	MNH

	15 01 10*	packaging containing residues of or contaminated by hazardous substances	MH
1455	<u>Plastic waste from construction and demolition</u>		
	17 02 03	plastic	MNH
	17 02 04*	glass, plastic and wood containing or contaminated with hazardous substances	MH
1456	Entries which (can) contain plastic but do not explicitly refer to plastic, such as:		
	17 04 10*	cables containing oil, coal tar and other hazardous substances	MH
	17 04 11	cables other than those mentioned in 17 04 10	MNH
	17 06 03*	other insulation materials consisting of or containing dangerous substances	MH
	17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03	MNH
	17 09 03*	other construction and demolition wastes (including mixed wastes) containing dangerous substances	MH
	17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	MNH
1457	<u>Plastic waste from automotive applications</u>		
	16 01 19	plastic	ANH
	19 10 03*	fluff-light fraction and dust containing hazardous substances	MH
	19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03	MNH
1458	<u>Plastic WEEE</u>		
	19 12 04	plastic and rubber	ANH
1459	Entries which (can) contain plastic but do not explicitly refer to plastic, such as:		
	16 02 15*	hazardous components removed from discarded equipment	
	16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15	
	19 10 02	non-ferrous waste	ANH
	19 10 03*	fluff-light fraction and dust containing hazardous substances	MH
	19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03	MNH
	19 10 05*	other fractions containing hazardous substances	MH
	19 10 06	other fractions other than those mentioned in 19 10 05	MNH
	19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances	MH

19 12 12 other wastes (including mixtures of materials) from MNH
mechanical treatment of wastes other than those
mentioned in 19 12 11

1460 Agriculture

02 01 04 waste plastics (except packaging) ANH

1461 Apart from the aforementioned sectors, further entries for plastics can be found
1462 throughout different chapters of the LoW. Examples are:

07 02 13 waste plastic ANH

12 01 05 plastics shavings and turnings ANH

12 01 16* waste blasting material containing hazardous substances MH

12 01 17 waste blasting material other than those mentioned in 12 MNH
01 16

20 01 39 plastics ANH

1463 **Aspects to be considered for waste classification**

1464 Plastic materials usually contain not only plastic polymers but a variety of different
1465 additives in the plastic matrix to improve performance and use application or
1466 processing properties of the final product. Additives are a different group of special
1467 chemicals which are either incorporated into the plastic matrix prior or during
1468 processing or applied to the final products' surface after the processing [Bart 2005].

1469 A specific plastic waste can be hazardous either because of the additives it contains or
1470 because the waste is contaminated with hazardous substances e.g. oils or solvents.

1471 Typically relevant additives in plastic waste are for example stabilisers or pigments
1472 (e.g. cadmium, chromium, lead or tin compounds, BPA, nonylphenol compounds)
1473 flame retardants (SCCPs, MCCPs, PBDEs, HBCD, etc.), plasticisers (phthalates, SCCPs,
1474 MCCPs, etc.) and a variety of other possibly contained additives (for details see [BiPRO
1475 2015]).

1476 **A.5.10. POP wastes**

1477 The following example provides general guidance on the classification of waste
1478 containing POPs.

1479 **General information**

1480 Persistent Organic Pollutants (POPs) are organic chemical substances. They possess a
1481 particular combination of physical and chemical properties such that, once released
1482 into the environment, they persist for long periods of time, they become widely
1483 distributed throughout the environment, accumulate in the fatty tissue of living
1484 organisms including humans, and are toxic to both humans and wildlife.

1485 **Aspects to be considered for waste classification**

1486 The Stockholm Convention on POPs and the Protocol to the regional UNECE
1487 Convention on Long-Range Transboundary Air Pollution (CLRTAP) are international
1488 instruments, whose POP substance lists are amended continuously. As soon as new
1489 substances/substance groups are classified in the Convention as POPs, they are
1490 subsequently included in the POP Regulation.

1491 Specific waste related provisions for POPs are established under the aforementioned
1492 POP Regulation. Following Article 7, wastes consisting of POPs, containing or
1493 contaminated with them above specific limit values (concentration limit referred to in
1494 Article 7(4)(a) – the so called 'low POP-content limit value'), must be disposed of or

recovered, without undue delay and in accordance with the provisions laid down in the POP Regulation in such a way as to ensure that the POP content is destroyed or irreversibly transformed so that the remaining waste and releases do not exhibit the characteristics of POPs. Disposal or recovery operations that may lead to recovery, recycling, reclamation or re-use of the POPs are prohibited.

According to the LoW, the following applies in case of mirror entries:

'Wastes containing polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF), DDT (1,1,1-trichloro-2,2-bis (4-chlorophenyl)ethane), chlordane, hexachlorocyclohexanes (including lindane), dieldrin, endrin, heptachlor, hexachlorobenzene, chlordecone, aldrine, pentachlorobenzene, mirex, toxaphene hexabromobiphenyl and/or PCB exceeding the concentration limits indicated in Annex IV to Regulation (EC) No 850/2004 of the European Parliament and of the Council (1) shall be classified as hazardous.'

It is not foreseen to add further POPs to the LoW.

Thus, waste containing specific POPs above the limit values established in the POP Regulation (cf. Table 8) shall be classified as hazardous. For wastes containing other POPs, the concentration limit values resulting from Annex III to the WFD apply.

Table 8: Limit values established in the POP Regulation

Substance	CAS No.	EC No.	Concentration limit referred to in Article 7(4)(a)
Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)			15 µg/kg ⁽¹⁾
DDT (1,1,1-trichloro-2,2-bis (4-chlorophenyl)ethane)	50-29-3	200-024-3	50 mg/kg
Chlordane	57-74-9	200-349-0	50 mg/kg
Hexachlorocyclohexanes, including lindane	58-89-9	210-168-9	50 mg/kg
	319-84-6	200-401-2	
	319-85-7	206-270-8	
	608-73-1	206-271-3	
Dieldrin	60-57-1	200-484-5	50 mg/kg
Endrin	72-20-8	200-775-7	50 mg/kg
Heptachlor	76-44-8	200-962-3	50 mg/kg
Hexachlorobenzene	118-74-1	200-273-9	50 mg/kg
Chlordecone	143-50-0	205-601-3	50 mg/kg
Aldrin	309-00-2	206-215-8	50 mg/kg
Pentachlorobenzene	608-93-5	210-172-5	50 mg/kg
Polychlorinated Biphenyls (PCB)	1336-36-3 and others	215-648-1	50 mg/kg ⁽²⁾
Mirex	2385-85-5	219-196-6	50 mg/kg

Toxaphene	8001-35-2	232-283-3	50 mg/kg
Hexabromobiphenyl	36355-01-8	252-994-2	50 mg/kg
<p>(¹) The limit is calculated as PCDD and PCDF according to the toxic equivalency factors (TEFs) as indicated in Regulation (EC) No 850/2004</p> <p>(²) Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.</p>			

Waste which falls under the obligations of Article 7 of the POP Regulation because of its POP content above the low POP content limit value is not necessarily a hazardous waste. For example a waste containing pentaBDE (main historic use in flexible PUR foams for automotive and upholstery applications) in a concentration of 5 % shall be treated according to Article 7 of the POP Regulation (concentration limit for the sum of POP-BDEs 0.01 %) but is not a hazardous waste (limit value for pentaBDE 10 %). Note that all obligations for producers or holders of waste stemming from POPs Regulation have to be fulfilled independently whether the classification of waste in line with the LoW leads to the waste to be considered as hazardous or not.

Annex B: Data sources and information basis on hazardous substances

Once it is analysed which substances are present within the waste in question, it needs to be analysed if the identified substances are hazardous substances and how their chemical classification is determined. Annex B provides guidance on both, the examination whether identified substances are hazardous substances and their chemical classification. It further describes data sources providing relevant information therefor. The major data sources are displayed in Figure 8. Reference is made to the respective chapter of this document (grey box) and to the official source (blue box). Further explanations on the data sources including information on their precedence are given in the respective paragraphs below.

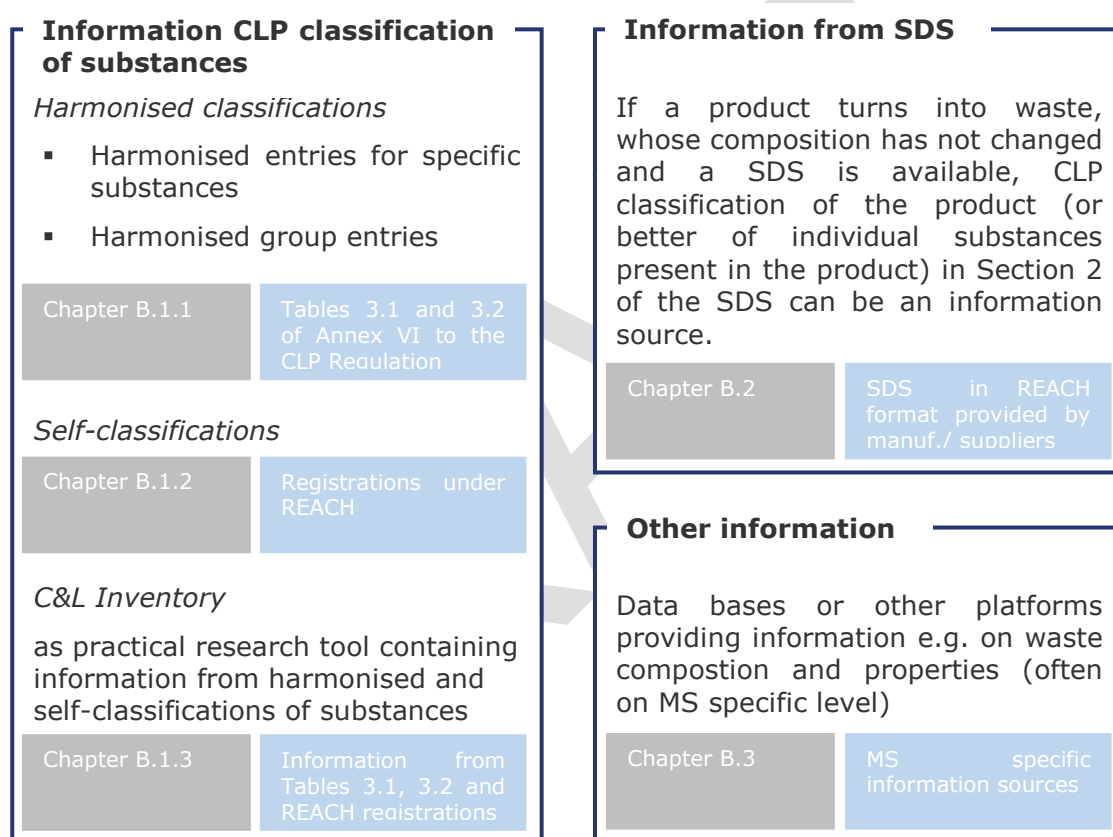


Figure 8: Data sources for information on hazardous substances

B.1 Classification of substances as hazardous according the CLP Regulation

On many occasions, the decisive criterion for the assignment of MH or MNH entries is the presence of 'hazardous substances', in line with the HP-criteria and related thresholds contained in Annex III to the WFD (consult in detail Annex C of this document). The EU CLP Regulation provides the criteria to assess the physical, human health and environmental hazards of substances. A hazardous substance is a substance that is assigned a hazard statement code when classified using the CLP Regulation. The chemical classification of a substance (in the form it exists in the waste) must be assessed using the criteria in the CLP Regulation.

1547 **B.1.1 Harmonised classification of substances**

1548 Some substances are 'officially' classified by means of a formal decision at the EU
1549 level. These are referred to as 'harmonised classifications' and listed in Table 3.1 of
1550 Part 3 of Annex VI to the CLP Regulation.

1551 A harmonised classification provides information on the chemical classification and
1552 labelling of a substance:

1553 Hazard statement code The code assigned to the hazard class and category. For
1554 example a carcinogen could be 'H350' or 'H351'.

1555 Hazard Class The nature of the hazard. For example a carcinogenic is
1556 'Carc.'

1557 Hazard Category A sub-category of the hazard class that describes the
1558 severity of the hazard. For example a carcinogen could be
1559 '1A', '1B' or '2'.

1560 The hazard classes and categories presented in Table 3.1 take legal precedence over
1561 all other sources of information on those hazard classes and categories, and they must
1562 be used for classification. Note that a harmonised classification may be incomplete
1563 where it only covers the hazard classes and categories listed. For information on
1564 terminologies please refer to the Glossary of this document or to [ECHA 2013].

1565 Table 3.1 of Annex VI of the CLP is regularly updated by adaptations to technical
1566 progress (ATPs). It contains two types of harmonised entries:

- 1567 ▪ harmonised entries for specific substances (such as e.g. 'lead chromate'), and
- 1568 ▪ harmonised group entries (such as e.g. 'lead compounds').

1569 Harmonised classifications can be found in the Classification and Labelling (C&L)
1570 Inventory maintained by the European Chemical Agency (ECHA) (cf. chapter B.1.3). In
1571 case a harmonised entry for a specific substance is existent, information of this entry
1572 shall prevail over information from harmonised group entries.

1573 **B.1.2 Self-classifications**

1574 Manufacturers, importers and downstream users of substances are obliged to perform
1575 a self-classification under the CLP Regulation (in the framework of registration of
1576 substances under REACH), determined through the application of the CLP classification
1577 criteria.

1578 There can be multiple classifications for the same substance due to:

- 1579 ▪ the different composition, form or physical state of the substance placed on the
1580 market;
- 1581 ▪ a manufacturer or producer identifying insufficient information to assess that hazard
1582 class or category (which they will report as 'data lacking', 'inconclusive', or
1583 'conclusive but not sufficient for classification');
- 1584 ▪ the manufacturer, importer or downstream user has access to, or has generated,
1585 different or additional data.

1586 Self-classifications may be used to identify what hazard classes and categories have
1587 already been identified by other notifiers going beyond the harmonised classification
1588 and can serve as general information basis.

B.1.3 The C&L Inventory as research tool

It is recommended to use the C&L Inventory³ managed by the ECHA as the main tool for researches on substance classification of substances or group of substances which is relevant in the context of waste classification (and, if applicable, for verification of that information). This inventory allows for an easy research for harmonised classifications of substances or group of substances as it contains information from Table 3.1 and Table 3.2 of Annex VI to the CLP Regulation. It also contains self-classifications provided in the framework of registration of substances under REACH. Furthermore the C&L Inventory is translated into all EU languages.

The C&L Inventory explains the following steps to be taken for research:

"Fill in your search criteria and read and agree to the legal disclaimer to perform a search. See the results table and click on the icon in the View column to see the summary of classification and labelling for a substance.

The summary of classification and labelling page will display the harmonised classification and labelling according to CLP criteria if a substance has a harmonised C&L.

The notifications received from a joint submission in the REACH registration process are also flagged accordingly.

All notifications for the same substance are grouped based on their numerical identifiers, and are displayed together.

Identical notifications for the same substance are merged and the number of notifiers is indicated. There can be multiple classifications for the same substance due to, for example, the different composition, form or physical state of the substance placed on the market.

You can click on the information icon to see an explanation of the data field next to it."

Please find below the exemplary harmonised entry of 'lead chromate' (CAS Number 7758-97-6) as it is displayed in the C&L Inventory.

Harmonised classification - Annex VI of Regulation (EC) No 1272/2008 (CLP Regulation)						
General Information						
Index Number	EC Number	CAS Number	International Chemical Identification			
082-004-00-2	231-846-0	7758-97-6	lead chromate			
ATP Inserted / Updated: CLP00/ATP01 ⓘ CLP Classification (Table 3.1)						
Classification		Labelling			Specific Concentration limits, M-Factors	Notes
Hazard Class and Category Code(s)	Hazard Statement Code(s)	Hazard Statement Code(s)	Supplementary Hazard Statement Code(s)	Pictograms, Signal Word Code(s)		
Carc. 1B	H350	H350		GHS09 GHS08 Dgr		Note 1
Repr. 1A	H360Df	H360Df				
STOT RE 2	H373 **	H373 **				
Aquatic Acute 1	H400					
Aquatic Chronic 1	H410	H410				
Signal Words		Pictograms				
Danger		<div><div></div><div></div></div>				
		<div>Environment</div> <div>Health hazard</div>				

Figure 9: Exemplary harmonised entry for 'lead chromate' as displayed in the C&L Inventory

³ <http://echa.europa.eu/regulations/clp/cl-inventory>

As displayed in Figure 9, 'lead chromate' is classified as:

- Carc. 1B H350
- Repr. 1A H360Df
- STOT RE 2 H373**
- Aquatic Acute 1 H400
- Aquatic Chronic 1 H410

In order to assess if the waste in question displays hazardous properties (see chapter 3.2.2 and Annex C) due to its content of the hazardous substance 'lead chromate', the information on hazard class, hazard category and hazard statement codes of 'lead chromate' needs to be considered.

B.2 Information on composition, properties and waste management of products becoming waste

For some substances or mixtures, manufacturers and suppliers have to provide safety data sheets (SDS). SDS have to comply to a format defined in REACH Regulation, and must include information:

- on the classification of the substance or mixture in accordance with Title II of CLP Regulation (section 2 of the SDS); this may be a harmonised classification or a self-classification (see chapter B.1);
- on the composition / the ingredients (section 3 of the SDS);
- on 'disposal considerations' (section 13 of the SDS);
- on exposure scenarios (in the Annex).

With this information available, the SDS can be a useful information tool for steps during classification according to LoW once this particular product has become waste.

Note that in case the product is a mixture of two or more substances (e.g. a pot of varnish), the classifications of the individual component substances must be used, rather than the overall chemical classification of the product. In this case, it is recommended to complement the information gathering by means of a research at the C&L inventory (cf. chapter B.1.3).

Note that in the case of articles, voluntary product information sheets may be available that are not conforming to SDS but providing information on composition and disposal.

Additional checks are recommended where either:

- the information provided may be out of date (a product is discarded considerable time after it was last supplied);
- there is any reason to believe the information is incomplete, inadequate, or inaccurate.
- information on the waste-generating process suggests the assumption that additional substances (e.g. contaminants) may be present in the waste which are not covered by SDS.

B.3 Information on the classification of waste streams

In some Member States, information specifically on composition, physical-chemical properties of waste, and classification of waste streams are publicly available and provide waste-specific guidance for producers or holders of waste and/or competent authorities. An example of such a relevant data base is ABANDA⁴, managed by German regional authority LANUV.

Further / additional information may be available on data bases and tools managed at Member States level.

⁴ <http://www.lanuv.nrw.de/abfall/bewertung/abanda.htm>

Annex C: Specific approaches to determine hazard properties (HP1 to HP15)

The content of this Annex intentionally closely follows the content of Appendix C of [UK EA 2015].

C.1. Determining HP 1: Explosive

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 1 'Explosive' as:

'waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included.'

Regarding HP 1, to note that the scope of WFD excludes 'decommissioned waste explosives' (see chapter 3.1.1). Thus, it is recommended to check whether the relevant waste in question is subject to the rules of WFD and LoW in the first place.

The WFD further explains that:

'When a waste contains one or more substances classified by one of the hazard class and category codes and hazard statement codes shown in Table 1 [see Table 8], the waste shall be assessed for HP 1, where appropriate and proportionate, according to test methods. If the presence of a substance, a mixture or an article indicates that the waste is explosive, it shall be classified as hazardous by HP 1.'

Waste containing substances that are classified with the hazard class, category and statement codes in Table 9 can be tested to show whether it displays that hazardous property or not. Alternatively, a waste containing those substances can simply be assumed to be hazardous by HP 1.

Table 9: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents for the classification of wastes as hazardous by HP 1 Explosive

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description
Unst. Expl.	H 200	<i>Unstable explosives</i>
Expl. 1.1	H 201	<i>Explosive; mass explosion hazard.</i>
Expl. 1.2	H 202	<i>Explosive, severe projection hazard</i>
Expl. 1.3	H 203	<i>Explosive; fire, blast or projection hazard</i>
Expl. 1.4	H 204	<i>Fire or projection hazard</i>
Self-react. A	H 240	<i>Heating may cause an explosion</i>
Org. Perox. A		

Self-react. B	H 241	<i>Heating may cause a fire or explosion</i>
Org. Perox. B		

Where a product that has become waste is known to be explosive, it shall also be considered as HP 1.

Some substances may be explosive under certain conditions, e.g. those assigned Hazard statement Codes H205 *May mass explode in fire* or EUH001 *Explosive when dry*. These substances do not make a waste hazardous by HP 1, but their presence in a waste could make that waste exhibit hazardous property HP 15; see Section C.15 for further details.

A waste containing a substance classified as H240 or H241 should be considered for HP 3 flammable where the waste is not hazardous by HP 1.

Flow Chart

Figure 10 sets out the assessment process for the Hazard HP 1.

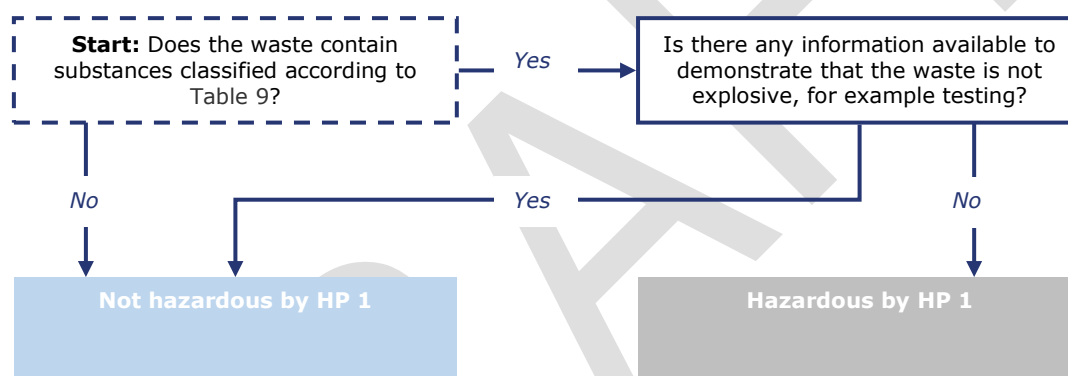


Figure 10: Flow chart for determination of HP 1

Test Methods

Wastes containing substances listed in Table 9 shall be tested for explosive properties in accordance with [ECHA 2013].

Separate sections are provided in [ECHA 2013] for testing of mixtures containing:

- organic peroxides (2.15)
- self-reactive substances and mixtures (2.8)
- explosives (2.1).

[ECHA 2013] classifies self-reactive substances and mixtures in one of the seven categories of 'types A to G'. Waste containing an organic peroxide or a self-reacting substance, where the waste is classified by testing as Type A (H240) or Type B (H241), displays HP 1. Where this is not the case, a waste classified as Type C, D, E or F (H242) displays HP 3.

A waste containing another substance listed in Table 9, where the waste is classified by testing as Unstable Explosive (H200), Division 1.1(H201), 1.2(H202), 1.3(H203) or 1.4(H204), displays HP 1.

A detailed example for an assessment of organic peroxides according HP 1 can be found in chapter A.5.7.

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C.2. Determining HP 2: Oxidising

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 2 'Oxidizing' as:

'waste which may, generally by providing oxygen, cause or contribute to the combustion of other materials'

The WFD further explains that:

'When a waste contains one or more substances classified by one of the hazard class and category codes and hazard statement codes shown in Table 2, the waste shall be assessed for HP 2, where appropriate and proportionate, according to test methods. If the presence of a substance indicates that the waste is oxidising, it shall be classified as hazardous by HP 2.'

A waste containing substances that are classified with the hazard class, category and statement codes in Table 10 can be tested to show whether it displays that hazardous property or not. Alternatively a waste containing those substances can simply be assumed to be hazardous by HP 2.

Table 10: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents for the classification of wastes as hazardous by HP 2 Oxidising

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description
Ox. Gas 1	H 270	<i>May cause or intensify fire; oxidiser</i>
Ox. Liq. 1	H 271	<i>May cause fire or explosion; strong oxidiser</i>
Ox. Sol. 1		
Ox. Liq. 2	H 272	<i>May intensify fire; oxidiser</i>
Ox. Liq. 3		
Ox. Sol. 2		
Ox. Sol. 3		

Where

- the waste contains only one of these substances;
- that substance is assigned a specific concentration limit in Annex VI Table 3.1 to CLP;
- that substance is present in the waste below that limit;

it can be assumed that the waste is not hazardous by HP 2.

An example is 'nitric acid' which is listed as H272, Ox. Liq. 3 with a specific concentration limit of $\geq 65\%$. Where 'nitric acid' is present in a waste above 65% that

waste has to be classified as HP 2.

Calculation method for oxidising gases

Where a waste contains a substance assigned H270 it is possible to calculate whether or not the waste displays HP 2. The calculation method is provided by ISO 10156 (as amended) and should be applied in accordance with section 2.4 of [ECHA 2013].

Flow chart

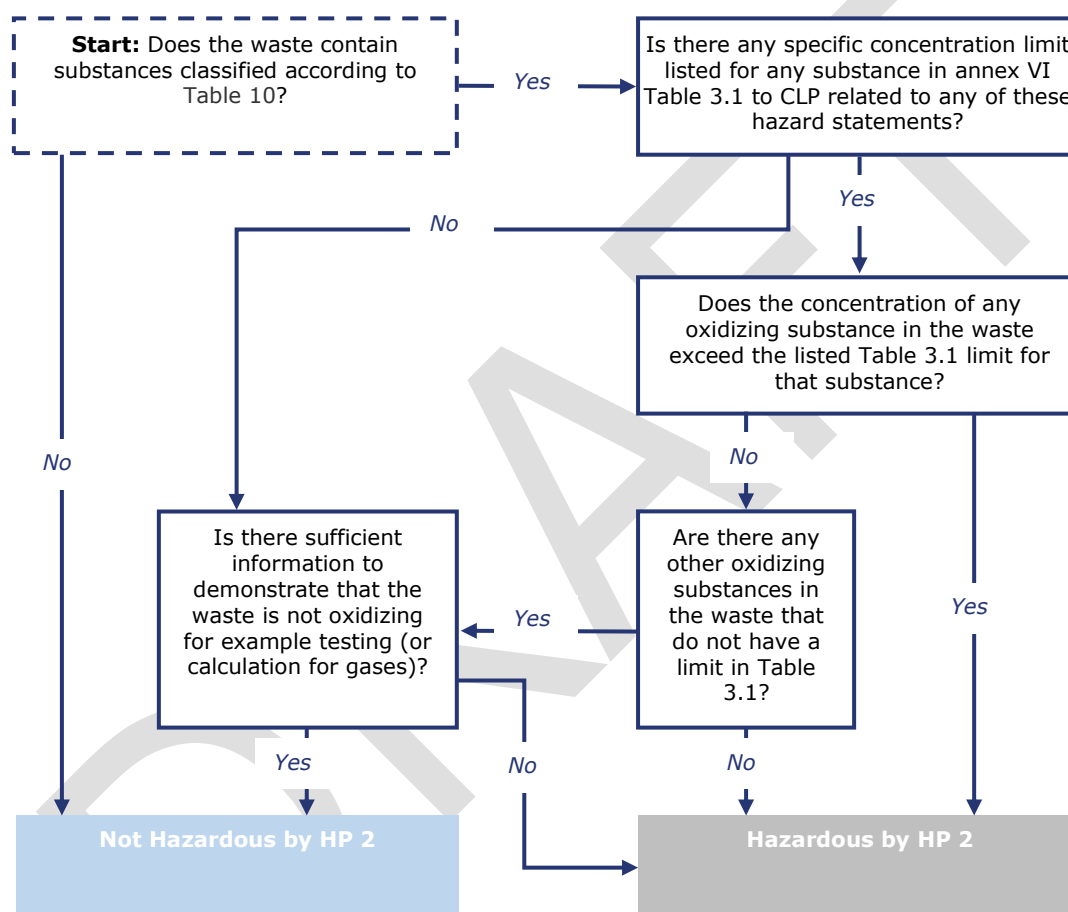


Figure 11: Flow chart for determination of HP 2

Test Methods

Wastes containing substances listed in Table 10 should be tested oxidising properties in accordance with [ECHA 2013]. Separate sections are provided in [ECHA 2013] for testing of mixtures containing:

- Oxidising gases (2.4)
- Oxidising liquids (2.13)
- Oxidising solids (2.14).

1779 A waste containing an oxidising substance, where the waste is classified by testing as
1780 H270, H271, or H272, displays HP 2.

1781

DRAFT

C.3. Determining HP 3: Flammable

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 3 'Flammable' over 6 indents:

- 'flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C;
- flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air;
- flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction;
- flammable gaseous waste: gaseous waste which is flammable in air at 20°C and a standard pressure of 101.3 kPa;
- water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities;
- other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste.'

The WFD further explains that:

'When a waste contains one or more substances classified by one of the following hazard class and category codes and hazard statement codes shown in Table 3 [see Table C3.1], the waste shall be assessed, where appropriate and proportionate, according to test methods. If the presence of a substance indicates that the waste is flammable, it shall be classified as hazardous by HP 3'

A waste containing substances that are classified with the hazard class, category and statement codes in Table 11 can be tested to show whether it displays that hazardous property or not. Alternatively a waste containing those substances can simply be assumed to be hazardous by HP 3.

Table 11: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents for the classification of wastes as hazardous by HP 3 Flammable

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description
Flam. Gas 1	H220	Extremely flammable gas
Flam. Gas 2	H221	Flammable gas
Aerosol 1	H222	Extremely flammable aerosol
Aerosol 2	H223	Flammable aerosol
Flam. Liq. 1	H224	Extremely flammable liquid and vapour
Flam. Liq.2	H225	Highly flammable liquid and vapour
Flam. Liq. 3	H226	Flammable liquid and vapour

Flam. Sol. 1 Flam. Sol. 2	H228	Flammable solid
Self-react. CD Self-react. EF Org. Perox. CD Org. Perox. EF	H242	Heating may cause a fire
Pyr. Liq. 1 Pyr. Sol. 1	H250	Catches fire spontaneously if exposed to air
Self-heat.1	H251	Self-heating: may catch fire
Self-heat. 2	H252	Self-heating in large quantities; may catch fire
Water-react. 1	H260	In contact with water releases flammable gases which may ignite spontaneously
Water-react. 2 Water-react. 3	H261	In contact with water releases flammable gases

1813

1814 Where a waste contains substances assigned H220 or H221 it is possible to calculate
 1815 whether or not the waste displays HP 3 (fourth indent). The calculation method is
 1816 provided by ISO 10156 and should be applied in accordance with section 2.2 of [ECHA
 1817 2013].

1818 Where a waste contains substance assigned H260 or H261, i.e. a substance which is
 1819 capable of releasing a highly flammable gas at a rate in excess of 1 litre of gas per
 1820 kilogram of substance per hour when water is added, it is possible to calculate the
 1821 minimum concentration of the substance in the waste that would make it hazardous
 1822 by HP 3 (fifth indent). Below this concentration the waste is not considered hazardous
 1823 pursuant to HP 3 (fifth indent). At or above the concentration the waste is considered
 1824 to be HP 3, or tested. Examples of substances and calculation is provided by [UK EA
 1825 2015].

1826 A brief example for an assessment of organic peroxides according HP 3 based on
 1827 assessing HP1 can be found in chapter A.5.7.

1828

1829

Flow chart

Figure 12 sets out the determination process for the Hazard HP 3.

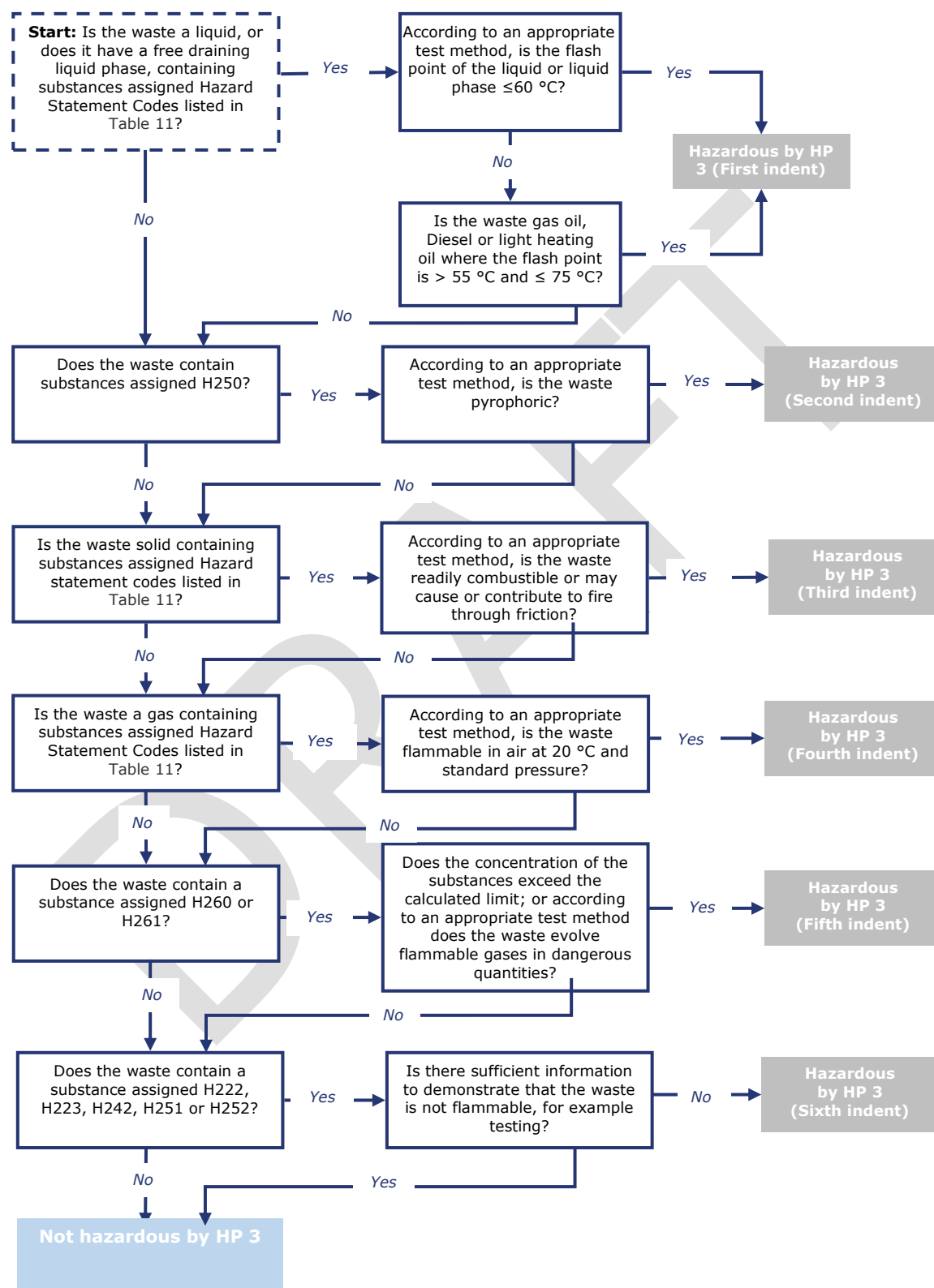


Figure 12: Flow chart for determination of HP 3

Test Methods

Wastes containing substances listed in Table 11 should be tested for flammable properties in accordance with [ECHA 2013]. Separate sections are provided in [ECHA 2013] for testing of mixtures containing:

- flammable gases (2.2)
- aerosols (2.3)
- flammable liquids (2.6)
- flammable solids (2.7)
- self-reactive substances and mixtures (2.8)
- pyrophoric liquids (2.9)
- pyrophoric solids (2.10)
- self-heating substances and mixtures (2.11)
- water reactive substances (2.12)
- organic peroxides (2.15).

A waste possesses the hazardous property HP 3 where testing indicates that the waste displays one or more of the hazard statements listed in Table 11.

C.4. Determining HP 4: Irritant – skin irritation and eye damage

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 4 'Irritant' as:

'waste which on application can cause skin irritation or damage to the eye'

HP 4 is linked to HP 8 'Corrosive', since both HPs refer to the potential for harm or damage to tissue at different levels of severity. Regarding HP 8, consult chapter C.8 for further details.

Note that:

- Hazardous waste containing irritant substances displays irritant properties;
- Hazardous wastes containing corrosive substances can display either corrosive or irritant properties dependent upon concentration.

Mechanical irritation produced by some substances is not included within the definition of HP 4.

The WFD further explains that:

When a waste contains one or more substances in concentrations above the cut-off value, that are classified by one of the following hazard class and category codes and hazard statement codes and one or more of the following concentration limits is exceeded or equalled, the waste shall be classified as hazardous by HP 4.

The cut-off value for consideration in an assessment for Skin corr. 1A (H314), Skin irrit. 2 (H315), Eye dam. 1 (H318) and Eye irrit. 2 (H319) is 1 %.

If the sum of the concentrations of all substances classified as Skin corr. 1A (H314) exceeds or equals 1 %, the waste shall be classified as hazardous according to HP 4.

If the sum of the concentrations of all substances classified as H318 exceeds or equals 10 %, the waste shall be classified as hazardous according to HP 4.

If the sum of the concentrations of all substances classified H315 and H319 exceeds or equals 20 %, the waste shall be classified as hazardous according to HP 4.

Note that wastes containing substances classified as H314 (Skin corr.1A, 1B or 1C) in amounts greater than or equal to 5 % will be classified as hazardous by HP 8. HP 4 will not apply if the waste is classified as HP 8.

Table 12: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 4

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (total of substances)
Skin Corr. 1A	H314	Causes severe skin burns and eye damage	$\geq 1\%$ and $< 5\%$
Eye Dam. 1	H318	Causes serious eye damage	$\geq 10\%$
Skin irrit. 2 and Eye irrit. 2	H315 and H319	Causes skin irritation and Causes serious eye irritation	$\geq 20\%$

An example for the assessment of wastes containing CaO and Ca(OH)₂ according HP 4 can be found in chapter A.5.4.

Where a waste contains a substance that is H314 Skin Corr.1A, 1B or 1C at a concentration $\geq 5\%$ see also HP 8 Corrosive (chapter C.8 of this document).

Above mentioned concentration limits are applied to the known components of a waste. It may be difficult to identify all specific substances present in certain wastes. Where the waste is not 'Irritant' as a result of the known substances and some substances are still unknown, the pH value of the waste should be used for assessment (see Figure 13).

A waste with a pH ≤ 2 or ≥ 11.5 should be considered HP 8 Corrosive unless both:

- an acid or alkali reserve test suggests that the classification as 'Corrosive' is not warranted, and
- further in vitro testing has confirmed that classification (as 'Irritant' or neither 'Irritant'/'Corrosive')

The acid/ alkali reserve test measures the buffering capacity of the waste. More information on acid/alkali reserve test can be found within Regulation 440/2008.

Cut-off values

The following cut-off values apply to the assessment:

- for H314, H315, H318 and H319 the cut off value is 1 %.

An individual substance present at a concentration below this cut off value is not included in the total concentrations given in Table 12 and Figure 13.

Flow chart

Figure 13 sets out the assessment process for the Hazard HP 4.

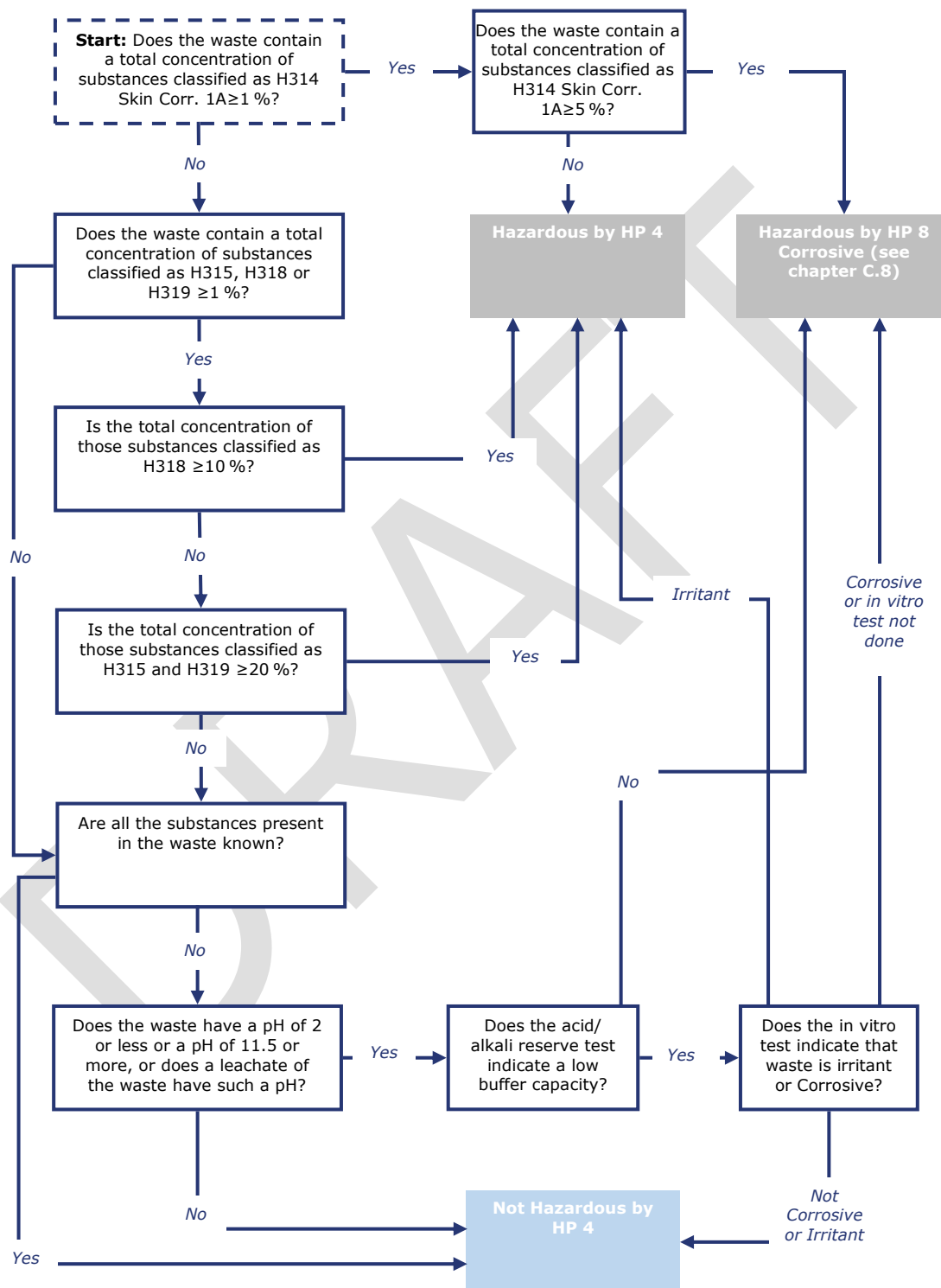


Figure 13: Flow chart for the determination of HP 4

Test Methods

A HP 4 assessment of a waste is to be done on the basis of

- identification of the individual substances in the waste;
- their classification;
- reference to concentration limits in Annex III to the WFD.

Where this is not possible, waste containing substances listed in Table 12 should be tested for irritant properties in accordance with the section 3.2 of [ECHA 2013]. A mixture assigned H315, H318 or H319 by this assessment is considered HP 4. Test methods should only be considered where indicated by that guidance.

An example of application of the acid/ alkali reserve and in-vitro test can be found in [UK EA 2015].

C.5. Determining HP 5: Specific Target Organ Toxicity (STOT) / Aspiration Toxicity

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 5 'Specific Target Organ Toxicity (STOT)/ Aspiration Toxicity' as:

'waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration'

The WFD further explains that:

'When a waste contains one or more substances classified by one or more of the following hazard class and category codes and hazard statement codes shown in Table 4 [see Table 13 of this document], and one or more of the concentration limits in Table 4 [see Table 13 of this document] is exceeded or equalled, the waste shall be classified as hazardous according to HP 5. When substances classified as STOT are present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by HP 5.'

'When a waste contains one or more substances classified as Asp. Tox. 1 and the sum of those substances exceeds or equals the concentration limit, the waste shall be classified as hazardous by HP 5 only where the overall kinematic viscosity (at 40°C) does not exceed 20.5 mm²/s.[Footnote: The kinematic viscosity shall only be determined for fluids]'

Table 13: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 5

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit
STOT SE 1	H370	Causes damage to organs	≥ 1 % (Indiv.)
STOT SE 2	H371	May cause damage to organs	≥ 10 % (Indiv.)
STOT SE 3	H335	May cause respiratory irritation	≥ 20 % (Indiv.)
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure	≥ 1 % (Indiv.)
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure	≥ 10 % (Indiv.)
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways	≥ 10 %(total)

An example for the assessment of wastes containing CaO and Ca(OH)₂ according HP 5 can be found in chapter A.5.4.

Flow chart

Figure 14 sets out the determination process for the Hazard HP 5.

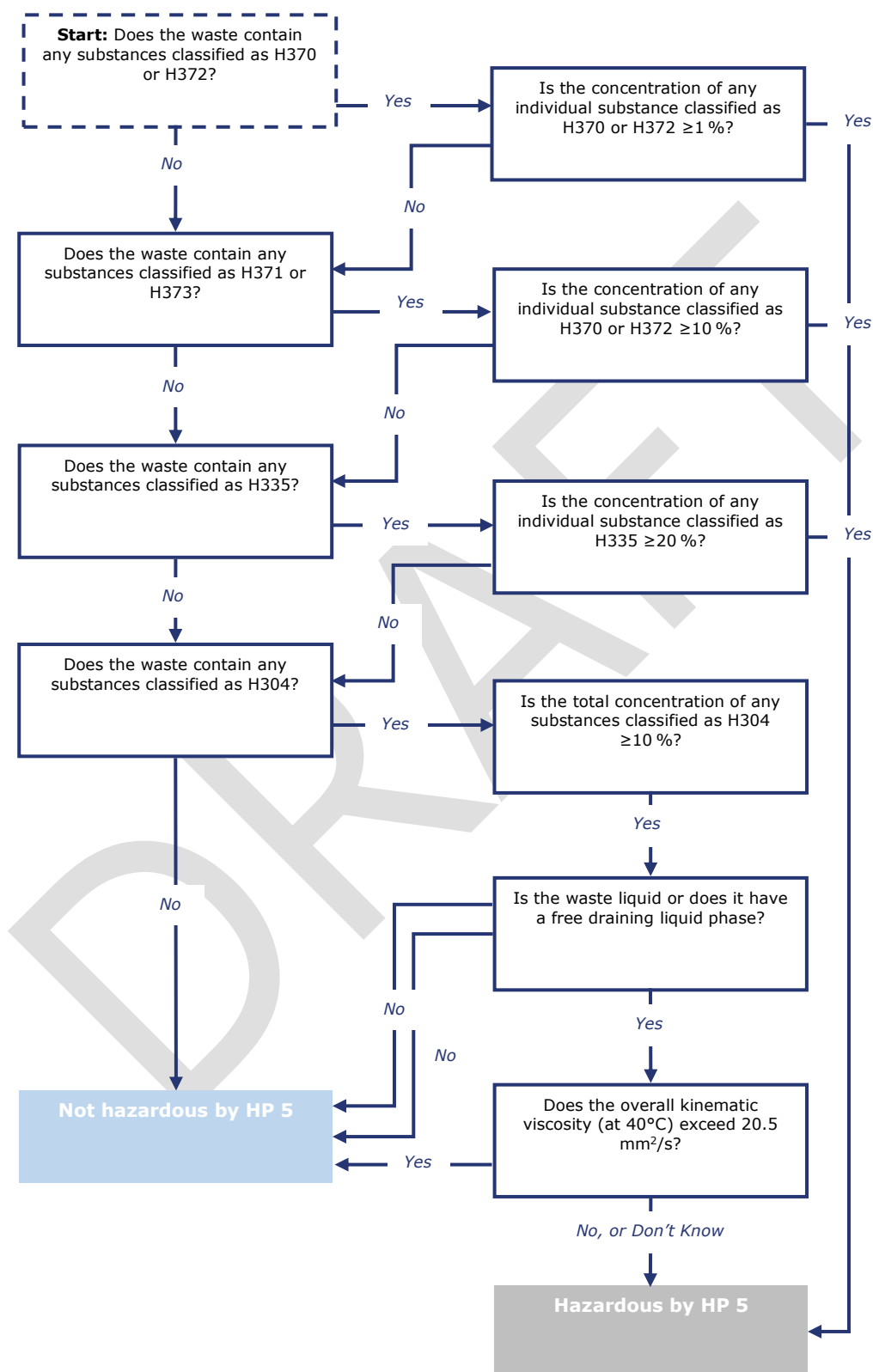


Figure 14: Flow chart for the assessment of HP5

1967

1968

Test Methods

1969

A HP 5 assessment of a waste is made based

1970

- on the identification of the individual substances in the waste;

1971

- their classification;

1972

- reference to concentration limits.

1973

1974

1975

1976

Where this is not possible, waste containing substances listed in Table 13 should be assessed for specific target organ toxicity and aspiration toxicity properties in accordance with the section 3.8 of [ECHA 2013]. Test methods should only be considered where indicated by that guidance.

1977

1978

Test methods given in Regulation 440/2008 that rely on animal testing are not appropriate.

1979

1980

C.6. Determining HP 6: Acute Toxicity

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 6 'Acute Toxicity' as:

'waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure'.

The WFD further explains that:

If the sum of the concentrations of all substances contained in a waste, classified with an acute toxic hazard class and category code and hazard statement code given in Table 5 [see Table 14 of this document], exceeds or equals the threshold given in that table, the waste shall be classified as hazardous by HP 6. When more than one substance classified as acute toxic is present in a waste, the sum of the concentrations is required only for substances within the same hazard category.

Cut-off values

The following cut-off values apply to the assessment:

- for H300, H310, H330, H301, H311, and H331 : 0.1 %
- for H302, H312, H332): 1 %.

An individual substances present at a concentration below the cut off, for a hazard statement code assigned to it, is not included in the sum of the concentrations for that hazard class and category code.

Table 14: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 6

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (sum of substances)
Acute Tox.1 (Oral)	H300	Fatal if swallowed	$\geq 0.1 \%$
Acute Tox. 2 (Oral)	H300	Fatal if swallowed	$\geq 0.25 \%$
Acute Tox. 3 (Oral)	H301	Toxic if swallowed	$\geq 5 \%$
Acute Tox.4 (Oral)	H302	Harmful if swallowed	$\geq 25 \%$
Acute Tox.1 (Dermal)	H310	Fatal in contact with skin	$\geq 0.25 \%$
Acute Tox.2	H310	Fatal in contact with skin	$\geq 2.5 \%$

(Dermal)			
Acute Tox.3 (Dermal)	H311	Toxic in contact with skin	$\geq 15 \%$
Acute Tox. 4 (Dermal)	H312	Harmful in contact with skin	$\geq 55 \%$
Acute Tox.1 (Inhal.)	H330	Fatal if inhaled	$\geq 0.1 \%$
Acute Tox.2 (Inhal.)	H330	Fatal if inhaled	$\geq 0.5 \%$
Acute Tox. 3 (Inhal.)	H331	Toxic if inhaled	$\geq 3.5 \%$
Acute Tox. 4 (Inhal.)	H332	Harmful if inhaled	$\geq 22.5 \%$

2006

Flow chart

Figure 15 sets out the determination process for the Hazard HP 6.

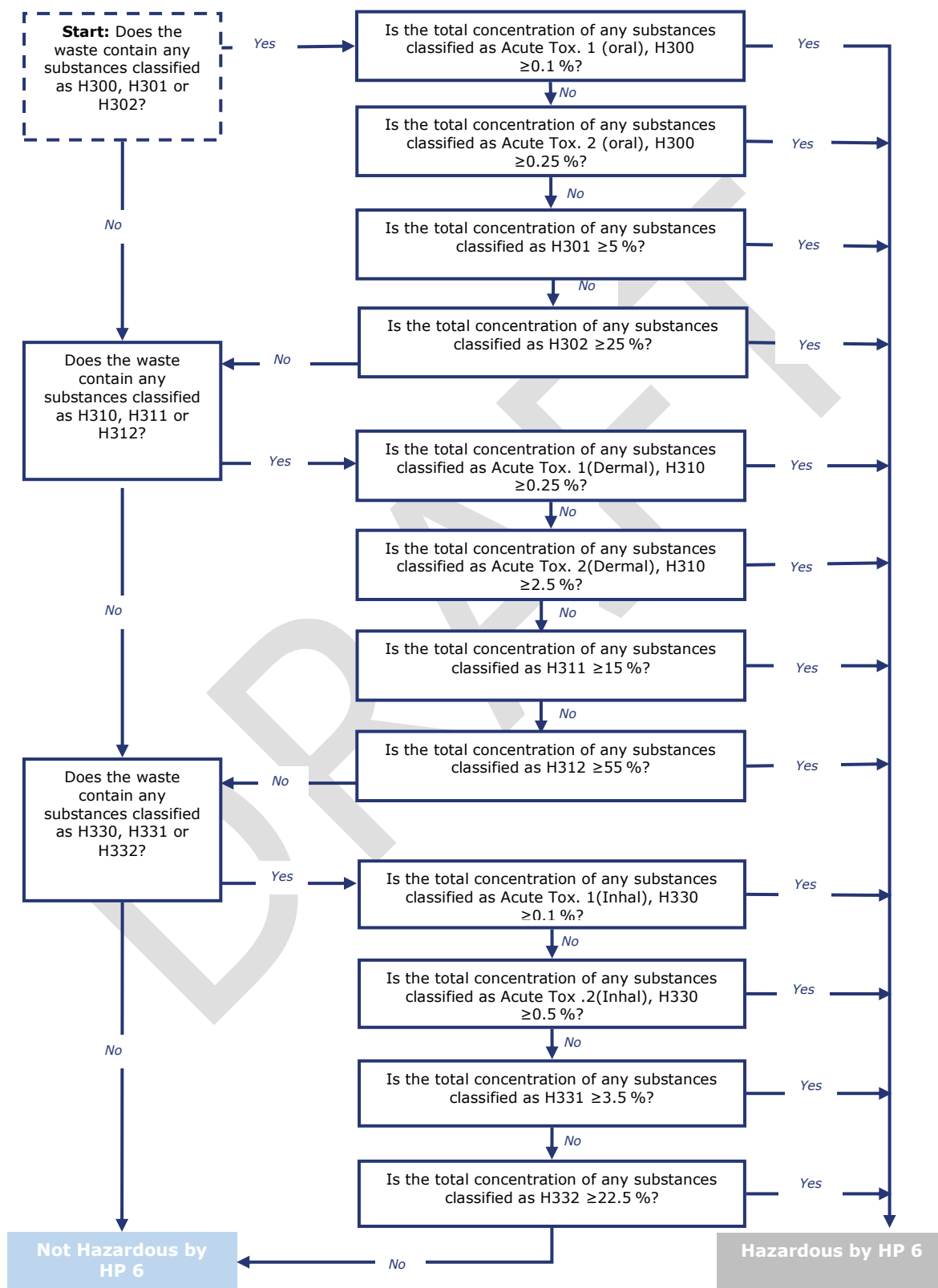


Figure 15: Flow chart for the determination of HP 6

2011

2012 **Test Methods**

2013 A HP 6 assessment of a waste is to be made on the basis of

- 2014 ▪ the identification of the individual substances in the waste;
- 2015 ▪ their classification;
- 2016 ▪ reference to concentration limits.

2017 Where this is not possible, waste containing substances listed in Table 14 should be
2018 assessed for acute toxicity properties in accordance with the section 3.1 of [ECHA
2019 2013]. Test methods should only be considered where indicated by that guidance.

2020 Test methods given in Regulation 440/2008 that rely on animal testing are not
2021 appropriate.

2022

C.7. Determining HP 7: Carcinogenic

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 7 'Carcinogenic' as:

'waste which induces cancer or increases its incidence'

The WFD further explains that:

'When a waste contains a substance classified by one of the following hazard class and category codes and hazard statement codes and exceeds or equals one of the following concentration limits shown in Table 6 [see Table 15 of this document], the waste shall be classified as hazardous by HP 7. When more than one substance classified as carcinogenic is present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by HP 7.'

Table 15: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 7

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (Individual substance)
Carc. 1A	H350	May cause cancer	$\geq 0.1 \%$
Carc. 1B			
Carc. 2	H351	Suspected of causing cancer	$\geq 1.0 \%$

An example for the assessment of asbestos according HP 7 can be found in chapter A.5.3

Flow chart

Figure 16 sets out the determination process for the HP 7.

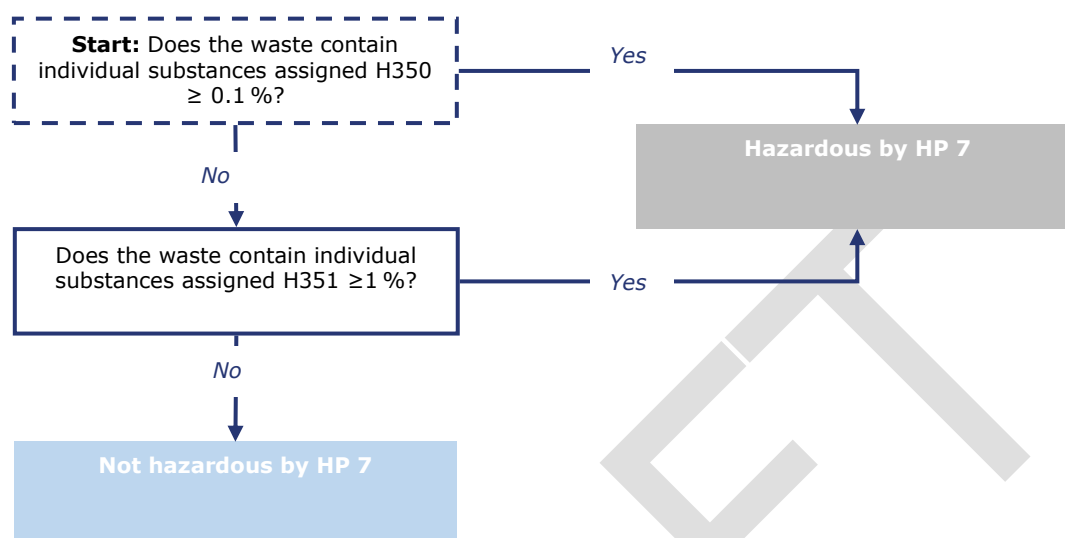


Figure 16: Flow chart for the determination of HP 7

Test Methods

A HP 7 assessment of a waste is to be done based on

- the identification of the individual substances in the waste;
- their classification;
- reference to concentration limits.

Where this is not possible, waste containing substances listed in Table 15 should be assessed for carcinogenic properties in accordance with the section 3.6 of [ECHA 2013]. Test methods should only be considered where indicated by that guidance.

Test methods given in Regulation 440/2008 that rely on animal testing are not appropriate.

C.8. Determining HP 8: Corrosive

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 8 'Corrosive' as:

'waste which on application can cause skin corrosion'

Hazards HP 8 and HP 4 are linked because they refer to the potential for harm or damage to tissue at different levels of severity. See C.4 for further details.

The WFD further explains that:

'When a waste contains one or more substances classified as Skin corr.1A, 1B or 1C (H314) and the sum of their concentrations exceeds or equals 5 %, the waste shall be classified as hazardous by HP 8.'

Table 16: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 8

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (Sum of substances)
Skin corr. 1A, 1B, or 1C	H314	Causes severe skin burns and eye damage	≥ 5 %

For cases where a waste contains

- a substance to be classified as H314 Skin Corr.1A
- at a concentration $\geq 1\%$ and $\leq 5\%$

see also HP 4 Irritant (chapter C.4 of this document).

Cut-off values

The following cut-off values apply to the assessment:

- For H314 : 1 %.

An individual substance present at a concentration below this cut off value is not included in the sum of the concentrations for H314.

Flow chart

Figure 17 sets out the determination process for Hazards HP 8.

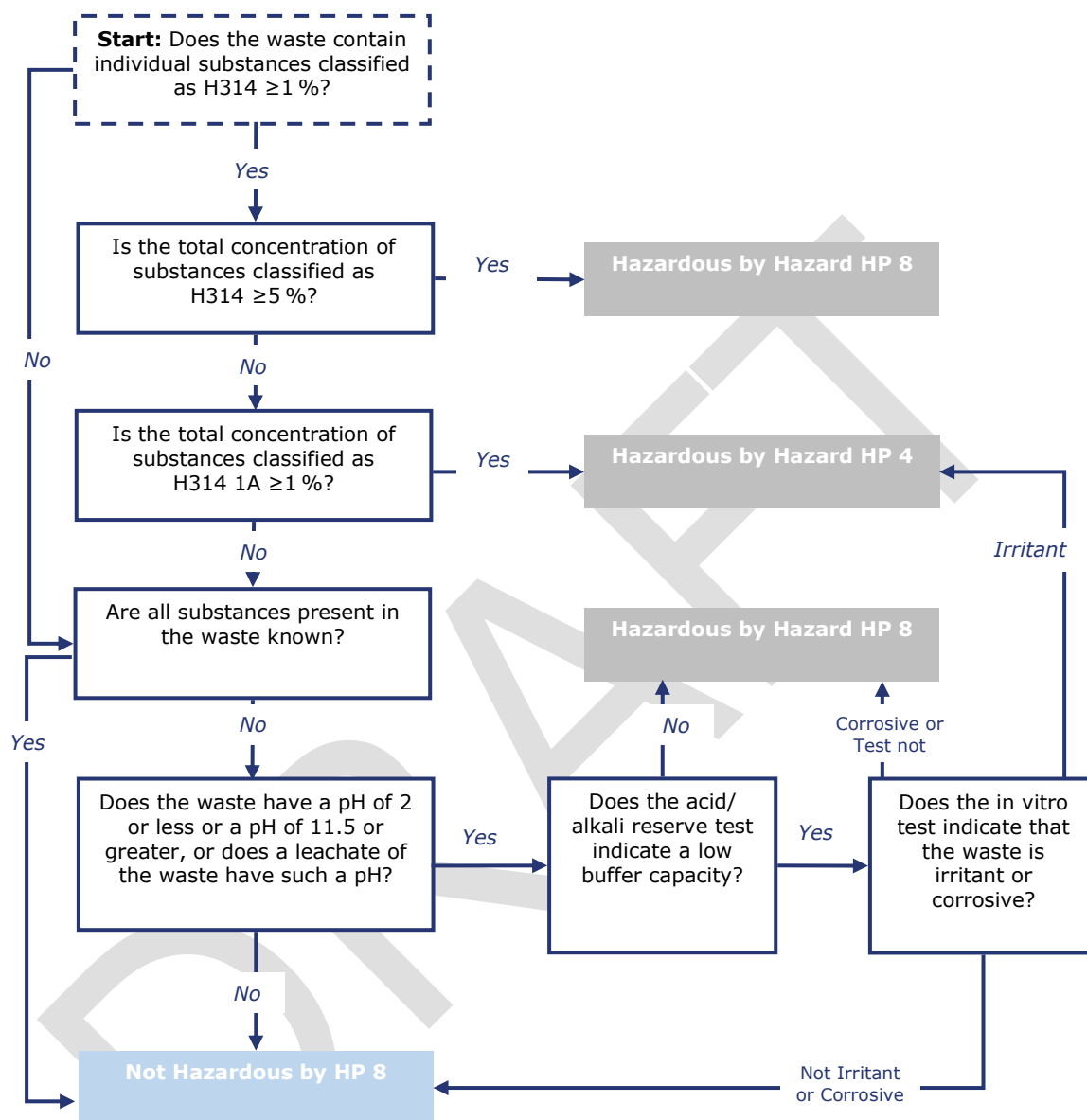


Figure 17: Flow chart for the determination of HP 8

Test Methods

A HP 8 assessment of a waste is made on the basis of

- identification of the individual substances in the waste;
- their classification;
- reference to concentration limits in Annex III of the Waste Framework Directive.

Where this is not possible, waste containing substances listed in Table 16 should be assessed for corrosive and irritant properties in accordance with the section 3.2 of

[ECHA 2013]. Test methods should only be considered where indicated by that guidance. A mixture assigned H314 by this assessment is considered as hazardous by HP 8.

Test methods given in Regulation 440/2008 that rely on animal testing are not appropriate.

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C.9. Determining HP 9: Infectious

Annex III to the WFD defines HP 9 'Infectious' as:

'waste containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.'

The WFD further explains that:

'The attribution of HP 9 shall be assessed by the rules laid down in reference documents or legislation in the Member States.'

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C.10. Determining HP 10: Toxic for reproduction

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 10 'Toxic for reproduction' as:

'waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring'

The WFD further explains that:

'When a waste contains a substance classified by one of the following hazard class and category codes and hazard statement codes and exceeds or equals one of the following concentration limits shown in Table 7 [see Table 17 of this document], the waste shall be classified hazardous according to HP 10. When more than one substance classified as toxic for reproduction is present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by HP 10.'

Table 17: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 10

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (Individual substance)
Repr. 1A	H360	May damage fertility or the unborn child	≥ 0.3 %
Repr. 1B			
Repr. 2	H361	Suspected of damaging fertility or the unborn child	≥ 3.0 %

Flow chart

Figure 18 sets out the assessment process for the Hazard HP 10.

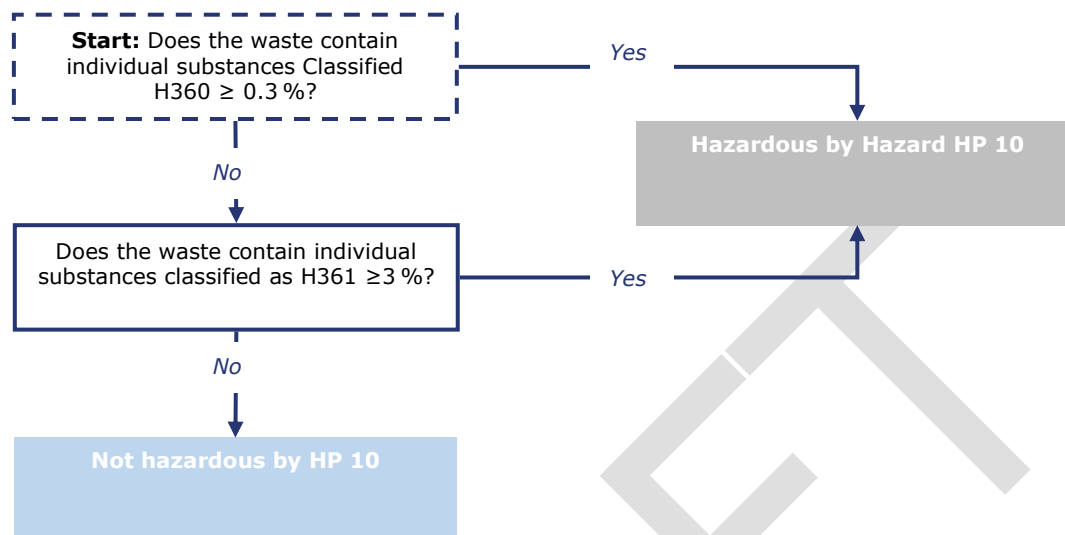


Figure 18: Flow chart for the determination of HP 10

Test Methods

A HP 10 assessment of a waste is to be made on the basis of

- the identification of the individual substances in the waste;
- their classification;
- reference to concentration limits.

Where this is not possible, waste containing substances listed in Table 17 should be assessed for toxic for reproduction properties in accordance with the section 3.7 of [ECHA 2013]. Test methods should only be considered where indicated by that guidance.

Test methods given in Regulation 440/2008 that rely on animal testing are not appropriate.

C.11. Determining HP 11: Mutagenic

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 11 'Mutagenic' as:

'waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell'

The WFD further explains that:

'When a waste contains a substance classified by one of the following hazard class and category codes and hazard statement codes and exceeds or equals one of the following concentration limits shown in Table 8 [see Table 18 of this document], the waste shall be classified hazardous according to HP 11. When more than one substance classified as toxic for reproduction is present in a waste, an individual substance has to be present at or above the concentration limit for the waste to be classified as hazardous by HP 11.'

Table 18: Hazard Class, Category Code(s) and Hazard Statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 11 Mutagenic

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (Individual substance)
Muta. 1A	H340	May cause genetic defects	≥ 0.1 %
Muta. 1B			
Muta. 2	H341	Suspected of causing genetic defects	≥ 1.0 %

Flow chart

Figure 19 sets out the determination process for the Hazard HP 11.

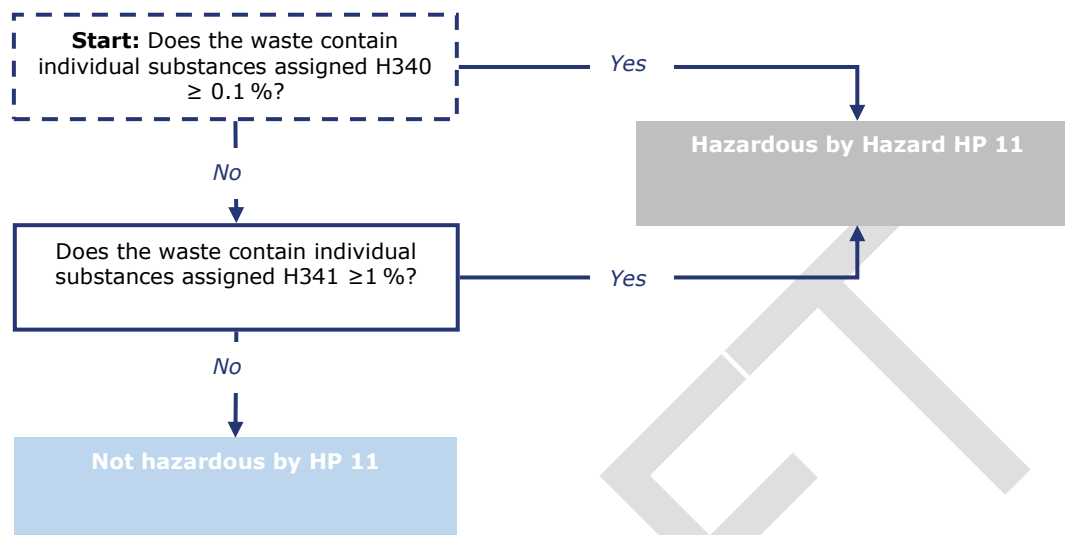


Figure 19: Flow chart for the determination of HP 11

Test Methods

A HP 11 assessment of a waste is to be made on the basis of

- the identification of the individual substances in the waste;
- their classification;
- reference to concentration limits.

Where this is not possible, waste containing substances listed in Table 18 should be assessed for mutagenic properties in accordance with the section 3.5 of the [ECHA 2013]. Test methods should only be considered where indicated by that guidance.

Test methods given in Regulation 440/2008 that rely on animal testing are not appropriate.

C.12. Determining HP 12: Release of an acute toxic gas

Definition and further description of Annex III to WFD

Annex III to the WFD defines HP 12 'Release of an acute toxic gas' as:

'waste which releases acute toxic gases (Acute Tox. 1, 2 or 3) in contact with water or an acid'

The WFD further explains that:

'When a waste contains a substance assigned to one of the following supplemental hazards EUH029, EUH031 and EUH032, it shall be classified as hazardous by HP 12 according to test methods or guidelines.'

A waste containing substances that are assigned EUH029, EUH031 and EUH032 can be tested to show whether it displays that hazardous property or not. Otherwise a waste containing those substances can simply be assumed to be hazardous by HP 12.

Table 19: Hazard statements and supplemental hazards for waste constituents for the classification of wastes as hazardous by HP 12

Hazard Statement(s) / Supplemental Hazard(s)	
Contact with water liberates toxic gas	EUH029
Contact with acids liberates toxic gas	EUH031
Contact with acids liberates very toxic gas	EUH032

Flow chart

Figure 20 sets out the assessment process for the Hazard HP 12.

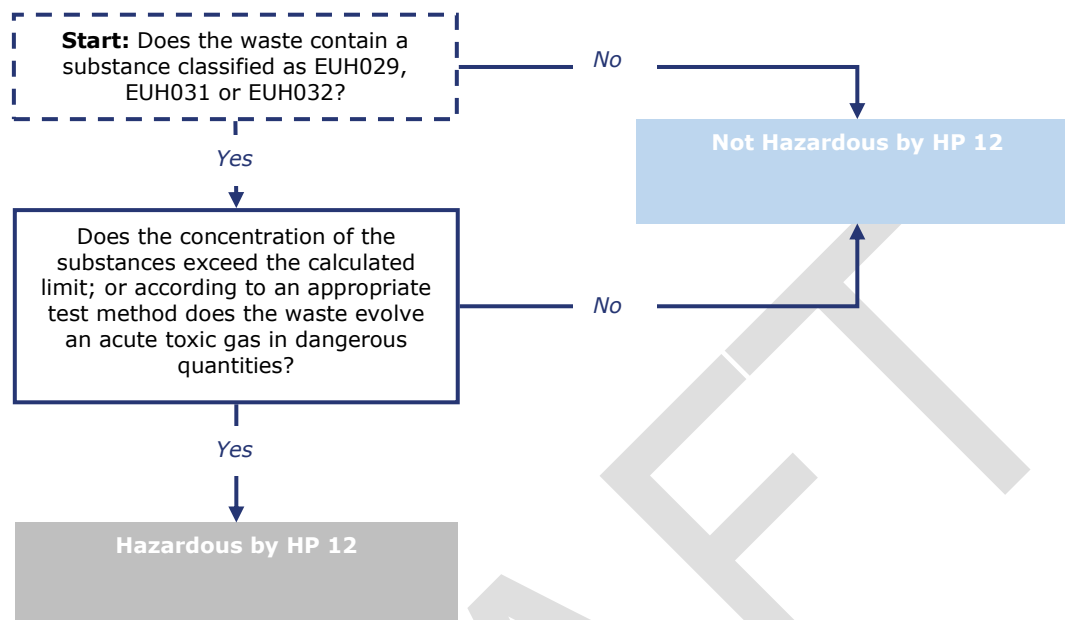


Figure 20: Flow chart for the determination of HP 12

A detailed example on the calculation method for HP 12 can be found in [UK EA 2015].

Test Methods

There are no direct test methods for HP 12.

Where a test is necessary the test method for emission of flammable gas provided in section 2.12 of [ECHA 2013] should be used. Where the waste contains EUH031 or EUH032 substances a 1 M hydrochloric acid solution can be used to replace the water in the test.

C.13. Determining HP 13: Sensitising

Definition and further description of Annex III to WFD

Annex III of the Waste Framework Directive defines HP 13 'Sensitising' as:

'waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs'

The WFD further explains that:

'When a waste contains a substance classified as sensitising and is assigned to one of the hazard statement codes H317 or H334 and one individual substance equals or exceeds the concentration limit of 10 %, the waste shall be classified as hazardous by HP 13.'

Table 20: Hazard Class and Category Code(s) and Hazard statement Code(s) for waste constituents and the corresponding concentration limits for the classification of wastes as hazardous by HP 13 Sensitising

Hazard Class and Category Code(s)	Hazard statement Code(s)	Description	Concentration limit (Individual substance)
Skin Sens. 1, 1A, and 1B	H317	May cause an allergic skin reaction	≥ 10 %
Resp. Sens. 1, 1A and 1B	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	≥ 10 %

Flow chart

Figure 21 sets out the assessment process for the Hazard HP 13.

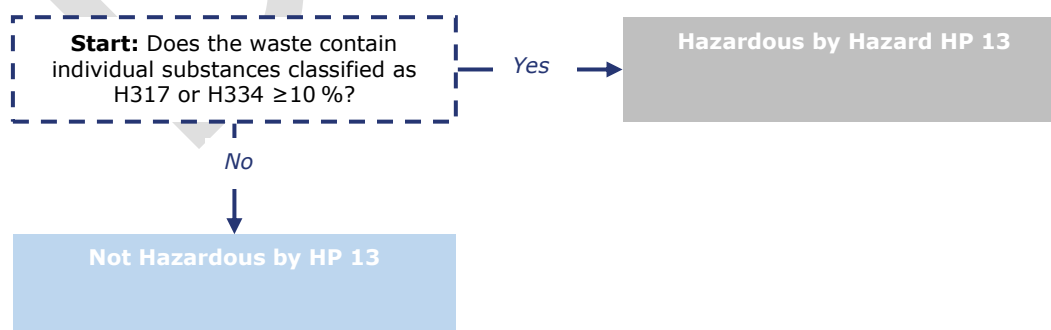


Figure 21: Flow chart for the assessment of HP13

Test Methods

A HP 13 assessment of a waste is to be made on the basis of

- the identification of the individual substances in the waste;
- their classification;
- reference to concentration limits.

Where this is not possible, waste containing substances listed in Table 20 should be assessed for sensitising properties in accordance with the section 3.4 of [ECHA 2013]. Test methods should only be considered where indicated by that guidance.

Test methods given in Regulation 440/2008 that rely on animal testing are not appropriate.

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C.14. Determining HP 14: Ecotoxic

Definition of Annex III to WFD

Annex III of the Waste Framework Directive defines HP 14 'Ecotoxic' as:

'waste which presents or may present immediate or delayed risks for one or more sectors of the environment'

HP 14 is not further explained by Annex III to the WFD.

HP 14 describes the ecotoxicological potential or environmental hazards as an intrinsic property of waste, by indicating whether the waste presents or may present immediate or delayed risks for one or more sectors of the environment. At the present time, no guidelines or recommendations on EU level exist for a specific assessment methodology concerning the HP14 property [BIO 2015]. Therefore currently the assessment methods for HP 14 available on Member State level needs to be considered.

C.15. Determining HP 15: Waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste

Definition and further description of Annex III to WFD

Annex III of the Waste Framework Directive defines HP 15 as:

'waste capable of exhibiting a hazardous property listed above not directly displayed by the original waste'

The WFD further explains that:

'When a waste contains one or more substances assigned to one of the hazard statements or supplemental hazards shown in Table 9 [see Table 21 of this document], the waste shall be classified as hazardous by HP 15, unless the waste is in such a form that it will not under any circumstance exhibit explosive or potentially explosive properties.'

In addition, Member States may characterise a waste as hazardous by HP 15 based on other applicable criteria, such as an assessment of the leachate.'

A waste containing substances that are assigned hazard statement or supplemental hazard codes in Table 21 can be tested to show whether it exhibits that hazardous property or not. Alternatively a waste containing those substances can simply be assumed to be hazardous by HP 15.

Member States may characterise a waste as hazardous by HP 15 based on other applicable criteria, such as an assessment of the leachate.

Table 21: Hazard statements and supplemental hazards for waste constituents for the classification of wastes as hazardous by HP 15

Hazard Statement(s) / Supplemental Hazard(s)	
<i>May mass explode in fire</i>	<i>H205</i>
<i>Explosive when dry</i>	<i>EUH001</i>
<i>May form explosive peroxides</i>	<i>EUH019</i>
<i>Risk of explosion if heated under confinement</i>	<i>EUH044</i>

Decision Tree

Figure 22 sets out the assessment process for the Hazard HP 15.

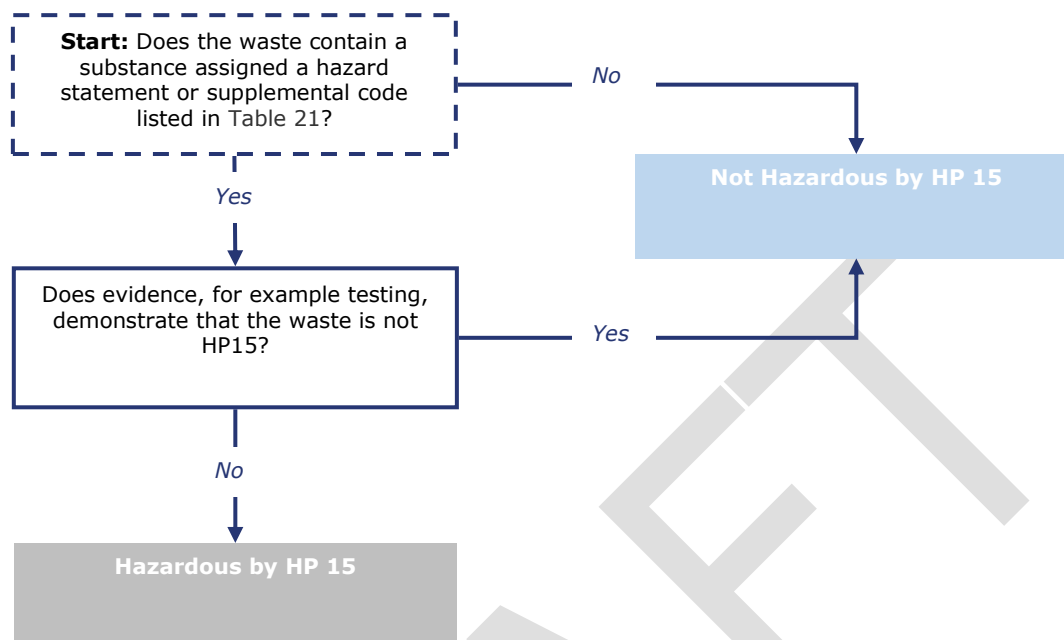


Figure 22: Flow chart for the assessment of HP15

Test Methods

Wastes containing substances listed in Table 21 should be assessed or tested for in accordance with [ECHA 2013]. Section 2.1 provides guidance on the classification of mixtures for EUH001, EUH044 and H205.

A waste that would be labelled with a hazard statement or supplementary hazard code as a result assessment for EUH001, EUH019, EUH044 or H205 possesses the hazardous property HP 15.

Annex D: Sampling and sample preparation

In many cases, sufficient information on the waste in question will be available without a need for testing. Where sampling is required as a basis for testing, this Annex will present a brief overview on waste sampling according to European standards. Basic concepts are mentioned. For more details please refer to the presented standard documents.

D.1. Introduction

The European Committee for Standardization (CEN) developed several standards, Technical Reports/Specifications, and state of the art documents for the characterisation of waste. Available documents need to be considered in a coordinated manner. The following list contains relevant standard documents on the 'characterisation of waste and – Sampling of waste materials':

- **EN 14899**
Framework for the preparation and application of a sampling plan;
- **CEN/TR 15310-1:2006**
Guidance on selection and application of criteria for sampling under various conditions;
- **CEN/TR 15310-2:2006**
Guidance on sampling techniques;
- **CEN/TR 15310-3:2006**
Guidance on procedures for sub-sampling in the field;
- **CEN/TR 15310-4:2006**
Guidance on procedures for sample packaging, storage, preservation, transport and delivery;
- **CEN/TR 15310-5:2006**
Guidance on the process of defining the sampling plan.

To obtain accurate and representative results, a testing programme needs to be set up before the first sample is taken. This way it is ensured that all necessary factors are considered to enable representative conclusions for the whole waste based on sample(s) [UK EA 2015]. EN 14899 describes this testing programme in detail. In particular seven steps are defined which are displayed in Figure 23.

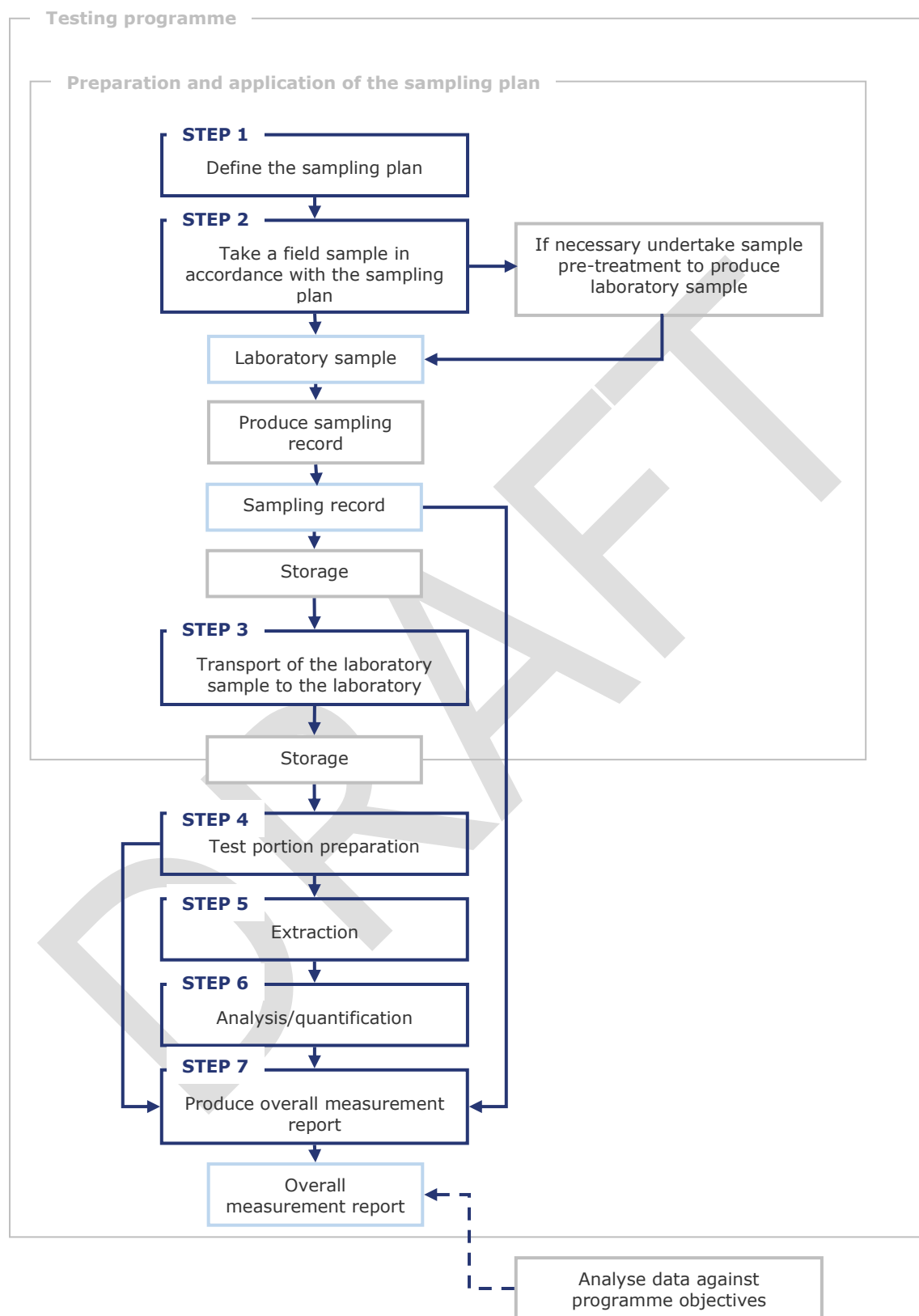


Figure 23: Testing programme adapted from EN 14899:2005

D.2. Sampling methodology

As Figure 23 covers the whole testing programme according to EN 14899:2005 in general, a more detailed focus shall be drawn on the sampling methodology, which consists of three key elements as displayed in Figure 24:

1. define the sample plan;
2. take a field sample in accordance with the sample plan;
3. transport the laboratory sample to the laboratory.

Each key element is divided in further sub-elements one should follow to obtain standardised sampling results.

Especially for defining the sample plan several steps have to be performed. Figure 24 presents all sub-elements according to EN 14899:2005 and references to the corresponding technical report, where more detailed information can be found. Please note that Figure 24 (key elements including the definition of a sample plan) has to be considered as a more detailed segment of the overall testing programme as presented in Figure 23.

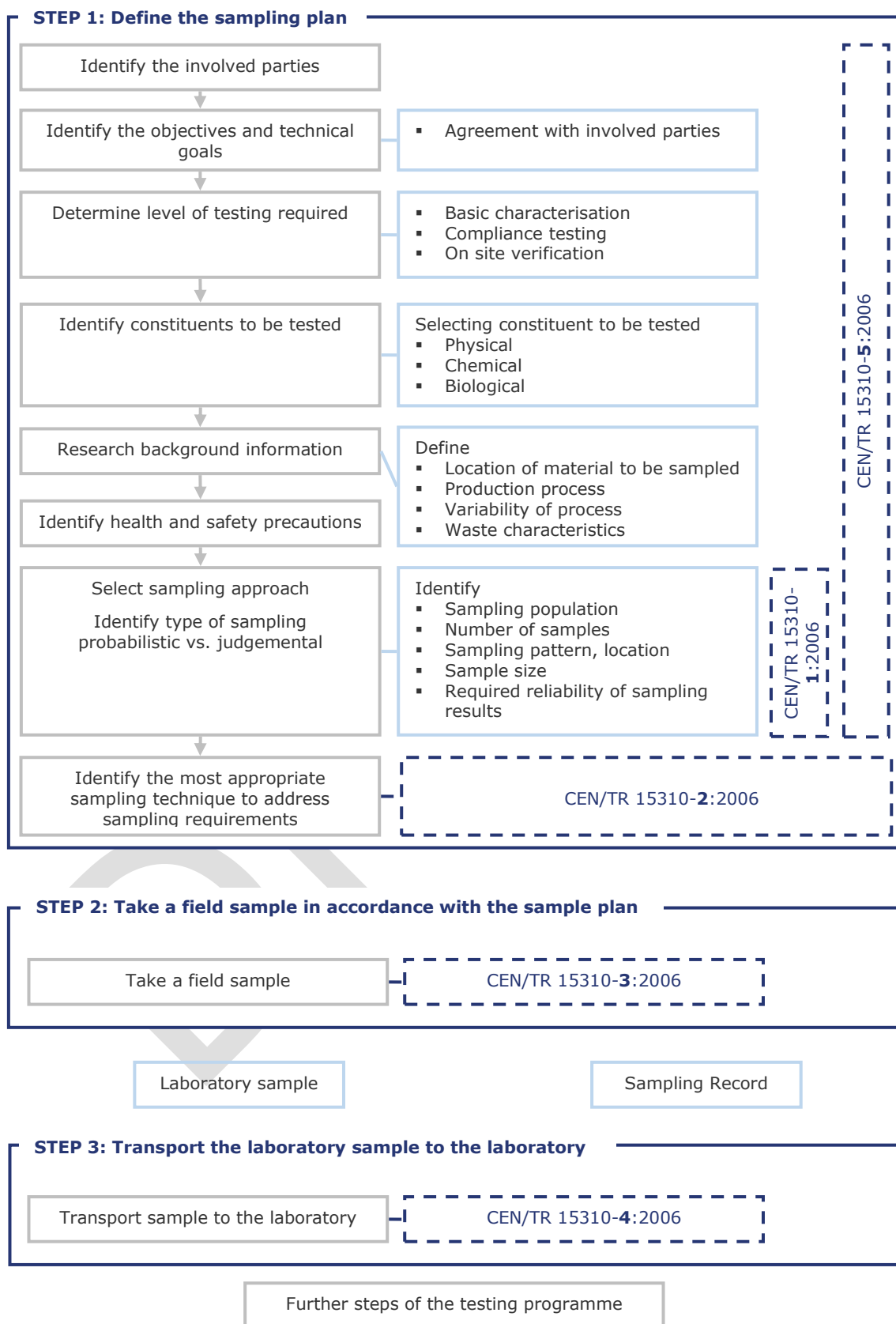


Figure 24: Key elements of sampling methodology according to EN 14899:2005

D.3. Standards for different waste types

Waste can be present in a large variety of composition and consistency. To ensure reliable results, sampling methods need to be adapted according the sampled waste's consistency. CEN/TR 15310-2:2006 provides detailed information on sampling methods and standards for different waste types while considering different circumstances. The following materials are referred to:

- mobile or viscous liquids
- sludge or paste-like substances
- powders granules and small crystals
- coarse or lumpy solids.

For most aforementioned materials CEN/TR 15310-2:2006 refers to the following circumstances:

- drums, bags, kegs, blocks, cask or small or flexible walled containers
- vertical uniform or irregular, or horizontal cylindrical tanks
- moving liquids in a pipeline
- lagoons or pits
- hoppers, heaps, stockpiles and silos, falling streams and band or screw conveyors
- massive or large pieces.

Complementary, **CEN/TR 15310-3:2006** describes relevant aspects for preparation of sampling and sub-sampling in the field considering different consistencies of the waste in question.

Please note that technical guidance on sampling methods for waste may be available on MS specific level.

D.4. Sampling strategies to deal with homogeneity/heterogeneity

A basic condition for reliable results from sampling is that samples are representative for the waste composition. In the case of waste this is often complex since on the one hand pollutants may be distributed non homogenously throughout the waste and on the other hand certain wastes additionally show a heterogenic matrix [LAGA 2012].

Following EN 14899:2005, heterogeneity is the degree to which one constituent is non-uniformly distributed across the sample population. By contrast, homogeneity can be seen as the degree to which one constituent is uniformly distributed across the sample population.

The first measure to prevent problems resulting from a heterogeneous distribution of hazardous substances within the waste, is to separate different waste fractions according to technical standards while using Best Available Technologies. Therefore please refer to the respective Best Available Techniques Reference Documents (BREFs). Additionally, MS specific technical guidelines may exist which provide further information. [LAGA 2004] for example provides additional guidelines applied in Germany for examining the waste on its heterogeneity. In particular liquid, pumpable and dusty wastes as well as wastes where homogeneity can be assured via a visual

inspection are considered to be homogeneous. Whereas all other wastes are considered to be heterogenic [LAGA 2004].

If the heterogeneity of the waste is minimized as far as feasible, CEN/TR 15310-1:2006 and partly also CEN/TR 15310-2:2006 provide a holistic overview on sampling strategies to deal with heterogeneous and homogeneous waste types. It is important to already adapt the sampling plan to the heterogeneity of the waste to be sampled.

D.5. Statistical approach of sampling

The overall statistical approach of sampling including statistical basics applied to the special case of waste sampling is provided by CEN/TR 15310-1:2006. An excerpt of presented information within the technical report can be found below:

- Definition of population to be sampled

- Overall population

- Sub-population

- Variability

- Spatial variability

- Temporal variability

- Random variability

- Different sampling approaches

- Probabilistic sampling

- Judgemental sampling

- Sampling patterns

- Simple random sampling

- Stratified random sampling

- Systematic sampling

- Judgemental sampling

- Sample size

- Frequency of sampling

- Reliability of sampling results

- Confidence limits

Annex E: References

E.1 General references

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- [**EC JRC 2013**] European Commission, Joint Research Centre (2013): *Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances – Guidance on technical implementation issues*, available at: http://www.unece.org/fileadmin/DAM/env/documents/2013/TEIA/QA_2011_review_2013.pdf, Access on 04/14/2015

[EC JRC 2014] European Commission, Joint Research Centre (2014): *End of waste criteria for waste plastics for conversion. Technical proposal. Final draft report*, DG JRC, IPTS, Seville, Spain.

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[EEA 2014] European Environmental Agency (2014): *Ozone-depleting substances 2013 – Aggregated data reported by companies on the import, export, production, destruction and feedstock and process agent use of ozone-depleting substances in the European Union*, available at: <http://www.eea.europa.eu/publications/ozone-depleting-substances-2013>, Access on: 13/04/2014

[ETSA 2015] European Environmental Agency (EEA) - Environmental Terminology and Discovery Service (ETSA) (2015), available at: <http://glossary.eea.europa.eu/>, Access on 04/07/2014

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<http://www.epa.gov/osw/hazard/wastemin/minimize/factshts/pahs.pdf>, Access on 04/09/2015

E.2 Legal acts cited in the document

Citation	Full reference	Link
WFD	Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p. 3).	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1428929775225&uri=CELEX:32008L0098
LoW	Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1429545485347&uri=CELEX:32000D0532
WSR	Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste (OJ L 190, 12.7.2006, p. 1).	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1428929927187&uri=CELEX:32006R1013
Mining Waste Directive	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC — Statement by the European Parliament, the Council and the Commission (OJ L 102, 11.4.2006, p. 15).	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1428929962432&uri=CELEX:32006L0021
REACH Regulation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1428930012264&uri=CELEX:32006R1907R(03)
CLP Regulation	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC,	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1428930051039&uri=CELEX:32008R1272R(02)

	and amending Regulation (EC) No 1907/2006 (OJ L 353, 31.12.2008, p. 1).	
POP Regulation	Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC (OJ L 158, 30.4.2004, p. 7).	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1429545513272&uri=CELEX:32004R0850
Seveso III Directive	Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1429545561491&uri=CELEX:32012L0018
ODS Regulation	Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer (OJ L 286, 31.10.2009, p. 1-30)	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1428930262325&uri=CELEX:32009R1005
Scrap Metal Regulation	Council Regulation (EU) No 333/2011 of 31 March 2011 establishing criteria determining when certain types of scrap metal cease to be waste under Directive 2008/98/EC of the European Parliament and of the Council	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1429545659392&uri=CELEX:32011R0333
Copper Scrap Regulation	Commission Regulation (EU) No 715/2013 of 25 July 2013 establishing criteria determining when copper scrap ceases to be waste under Directive 2008/98/EC of the European Parliament and of the Council	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1429545719391&uri=CELEX:32013R0715
Dangerous Preparations Directive	Directive 1999/45/EC 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	
Dangerous Substances Directive	Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.	
Regulation 440/2008	Council Regulation (EC) No 440/2008 of 30 May 2008 laying down test methods pursuant to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1432296681885&uri=CELEX:32008R0440

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