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Hazardous waste

Interpretation of the definition and classification of hazardous waste



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SEPA, whilst supportive of the technical content of this guidance document, do not necessarily support and are not bound by the legal interpretations in this guidance, nor that of Environment Agency or other guidance mentioned within the text.

Statement of Use

This Technical Guidance on hazardous waste has a similar purpose to WM1 Special Wastes: A technical guidance note on their definition and classification. This document defines hazardous waste for regimes that refer to hazardous waste. WM1 will continue to be used to provide guidance on the assessment of waste according to the criteria contained in the Special Waste Regulations as appropriate in England, Wales, Scotland and Northern Ireland.

It is intended as a reference document for use by the waste management industry, producers, and regulators of hazardous waste. This Technical Guidance has been produced by the Environment Agency, SEPA and the Northern Ireland Environment Agency. In this document, they are known collectively as "the Agencies".

A consultation document was released externally by the Agencies in September 2002 and amendments made to the to version 1.0. The Second Edition updated this document, and has itself been updated three times.

Keywords

Hazardous waste, special waste, European Waste Catalogue, dangerous substances, chemicals

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List of Abbreviations

ASTM American Society for Testing and Materials	LEL Lower Explosive Limits
ATSDR Agency for Toxic Substances and Disease Registry	MEC Minimum effective concentration
BCF bioconcentration factor	MECA Minimum effective concentration in adult
BOD biological oxygen demand	MECD Minimum effective concentration in developing embryos
BSI British Standards Institute	MFSU Manufacture, formulation, supply and use
CAS Chemical Abstract Service	MSDS Material Safety Data Sheets
CD-ROM Compact Disk – Read Only Memory	NCEC National Chemical Emergency Centre
CDS Chemical Detection System	NFPA National Fire Protection Association
CFC chlorofluorocarbon	NIOSH National Institute of Safety and Health
CHIP Chemicals (Hazards Information and Packaging) [Regulations]	OHMTADS Oil and Hazardous Materials Technical Assistance Data Systems
CIS Chemical Information System	PAH polycyclic aromatic hydrocarbon
CLP European regulation on the classification, labelling and packaging of chemicals	PCBs polychlorinated biphenyls
DIN Deutsche Industrie Normen	rWFD revised Waste Framework Directive
DOSE The Dictionary of Substances and their Effects	RTECS Registry of Toxic Effects of Chemical Substances
EC European Communities	SCA Standing Committee of Analysts
ECB European Chemicals Bureau	SDSs Safety Data Sheet(s)
EEC European Economic Community	SEPA Scottish Environment Protection Agency
EHC Environmental Health Criteria	SIRI MSDS Safety Information Resources and Material Safety Data Sheets
EINECS European Inventory of Existing Commercial Chemical Substances	STP Standard temperature and pressure (25°C, 1 atmosphere pressure)
ESIS European chemical substances information system	TER transcutaneous Electrical Resistance
EU European Union	TSCA Toxic Substances Control Act
EWC European Waste Catalogue	UEL Upper Explosive Limits
HSDB Hazardous Substances Data Bank	UK United Kingdom
HSE Health and Safety Executive	UKEMS UK Environmental Mutagen Society
IARC International Agency for Research on Cancer	URL Uniform Resource Locator
IPCS INCHEM International Programme on Chemical Safety	USA United States of America
IRIS Integrated Risk Information System	USEPA United States Environmental Protection Agency
ISCS International Chemical Safety Cards	WAF Water-accomodated Fraction
ISO International Standards Organisation	WHO World Health Organisation
IUCLID International Uniform Chemical Information Database	
L/S Liquid to Solid	
LC Lethal concentration	
LD Lethal dose	

Introduction

This Technical Guidance document has been developed to provide guidance on the assessment and classification of hazardous waste based on the revised Waste Framework Directive¹ definition of hazardous waste.

It is intended to provide guidance to all involved in the production, management and control of hazardous waste and to be a reference document for all legislation related to hazardous waste and its management.

The guidance is structured as follows:

Chapter 1	Introduction.
Chapter 2	Regulatory Framework, setting out the legal framework for the definition of hazardous waste.
Chapter 3	Hazardous Waste Assessment Framework, outlines the methodology for assessing wastes based on the European Waste Catalogue (EWC).
Appendix A	Presents the EWC and provides guidance on its use.
Appendix B	(this appendix has now been deleted).
Appendix C	Hazardous Property Assessment, providing guidance on the assessment of hazardous properties H1 to H15.
Appendix D	Data Sources, providing users with information on data sources and origin of the information from different sources.
Glossary	A Glossary of terms (the index has been deleted)

¹ Council Directive 2008/98/EC

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Regulatory Framework

This chapter sets out:

- the legal context to the definition of hazardous waste as set out by the revised Waste Framework Directive; and
- how it is linked to chemicals legislation.

2.1 Revised Waste Framework Directive (2008/98/EC)

The revised Waste Framework Directive (rWFD) (2008/98/EC) replaced both the Waste Framework (75/442/EC) and Hazardous Waste (91/689/EEC) Directives.

The rWFD provides a European-wide definition of hazardous waste and requires the correct management and regulation of such waste. The starting point of the rWFD is to identify which wastes are considered to be hazardous.

Hazardous waste is defined as a waste possessing one or more of the 15 hazardous properties set out in Annex III of the rWFD. The hazardous properties are detailed here in Table 2.1.

The rWFD also provides for a list of wastes, known as the European Waste Catalogue (EWC), to classify wastes and identify those which are considered to be hazardous because of the hazardous properties set out in Annex III. This list is subject to periodic review.

2.2 European Waste Catalogue (EWC)

The EWC was implemented by Commission Decision 2000/532/EC and subsequently amended by Commission Decisions 2001/118/EC, 2001/119/EC and 2001/573/EC.

The EWC is a catalogue of all wastes, grouped according to generic industry, process or waste type. It differentiates between non-hazardous and hazardous by identifying hazardous waste entries with an asterisk (*).

Details of how to use the EWC and the steps that should be followed to identify a waste in the catalogue and whether that waste is hazardous are given in Commission Decision 2001/118/EC.

A Hazardous Waste Assessment Framework is set out in Chapter 3. This outlines the methodology for assessing wastes based on the EWC.

A consolidated version of the EWC, incorporating subsequent amendments, and a description of how to use the catalogue are set out in Appendix A.

2.2.1 Links to Chemical Legislation

The rWFD indicates that the classification of waste as hazardous waste should be based on the European legislation on chemicals.

Annex III of the rWFD attributes the 15 hazardous properties by reference to:

- The Dangerous Substances Directive (67/548/EEC), and
- The Dangerous Preparations Directive (1999/45/EEC)

The EWC links the classification of certain hazardous wastes to the concentrations of “dangerous substances” within the waste and threshold concentrations derived from these directives.

This chemicals legislation is implemented in the UK through the Chemicals (Hazard Information and Packaging for Supply) Regulations 2009, which are known as CHIP4. Details of how CHIP4 relates to the classification of hazardous waste are set out in the Hazardous Waste Assessment Framework in Chapter 3.

From 1st June 2015 Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP), replaces Directives 67/548/EEC and 1999/45/EC. However it is being implemented in stages leading up to that date with substantial amendments to those Directives.

2.2.2 Domestic Legislation

The implementation of the rWFD and the EWC in England, Northern Ireland, Scotland and Wales may differ. Further guidance on each regulatory regime is published by the Agencies on their respective websites.

This document provides the common technical basis for the definition of Hazardous Waste in the United Kingdom.

Table 2.1: Hazardous Properties (Waste Directive Annex III) ¹

H1	“Explosive”: substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.
H2	“Oxidizing”: substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.
H3-A	“Highly flammable” <ul style="list-style-type: none">- liquid substances and preparations having a flash point below 21°C (including extremely flammable liquids), or- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or- solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or be consumed after removal of the source of ignition, or- gaseous substances and preparations which are flammable in air at normal pressure, or- substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.
H3-B	“Flammable”: liquid substances and preparations having a flash point equal to or greater than 21°C and less than or equal to 55°C.
H4	“Irritant”: non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.
H5	“Harmful”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.
H6	“Toxic”: substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.
H7	“Carcinogenic”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.
H8	“Corrosive”: substances and preparations which may destroy living tissue on contact.
H9	“Infectious”: substances and preparations containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.
H10	“Toxic for reproduction”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.
H11	“Mutagenic”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.
H12	Waste which releases toxic or very toxic gases in contact with water, air or an acid.
H13	“Sensitizing”: substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced. [As far as testing methods are available].
H14	“Ecotoxic”: waste which presents or may present immediate or delayed risks for one or more sectors of the environment.
H15	Waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics above.

¹ see Appendix C for Hazardous Property Assessments

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Hazardous Waste Assessment

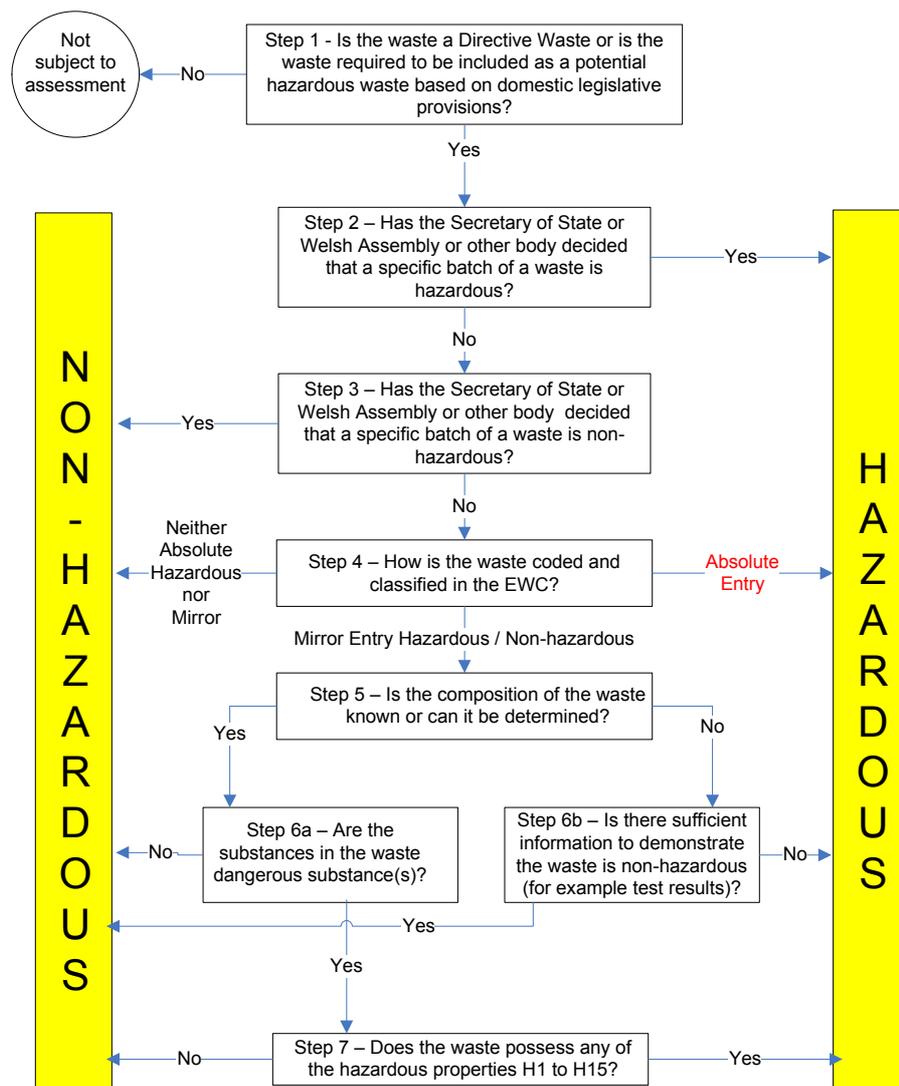
This chapter provides a practical approach to classifying hazardous waste by:

- outlining the methodology for assessing wastes based on the European Waste Catalogue; and
- highlighting where to find more detailed advice in this Technical Guidance Note.

3.1 Hazardous Waste Assessment Methodology

There are a number of steps involved in determining if a waste is hazardous or non-hazardous. These steps are set out in a flowchart in Figure 3.1. The flowchart is cross-referenced to sections within the text that explain the issues underlying each decision and where to find more detailed advice in this Technical Guidance Note.

Figure 3.1 | Hazardous Waste Assessment Methodology



The flowchart and the text below is provided for the following purposes:

- to determine what type of code(s) in the EWC a waste is classified under - absolutely hazardous, absolutely non-hazardous or whether the waste is a “mirror” entry (when it might be hazardous or non-hazardous), and
- then to assign the appropriate EWC code to a waste.

Steps 5 to 7 are used to support this and assign hazardous properties to a waste. They must be used to determine hazardous properties for completion of consignment notes.

The flowchart must not be used in isolation. The supporting text must be considered.

3.1.1 Step 1: Is the waste Directive waste or is the waste required to be included as a potential hazardous waste based on domestic legislative provisions ?

Nearly all household, commercial and industrial waste is “Directive Waste” and should be assessed to determine if they are hazardous waste.

“Directive waste” is the term given to wastes which are regulated under the rules given in the revised Waste Framework Directive.

Directive waste is any waste that is not excluded from the scope of the revised Waste Framework Directive by Article 2 of that Directive.

“Waste” is defined in Article 3 of that Directive as any substance or object which the holder discards or intends or is required to discard.

If waste is not Directive Waste, it cannot be hazardous waste. This should be determined prior to proceeding to step 2 of the flowchart.

The following are not Directive Waste:

- a) gaseous effluents emitted to atmosphere.
- b) land (in situ) including unexcavated contaminated soil and buildings permanently connected to 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. (Most radioactive waste is not Directive Waste. However, if radioactive waste is exempt from requiring an environmental permit by virtue of Section 15 of the Radioactive Substances Act 1993, and has one or more of the hazardous properties listed in Appendix A, this waste can be classified as hazardous waste according to domestic legislation.)
- e) decommissioned explosives
- f) faecal matter, if not covered by (h) below, 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.

The following are not Directive waste where they are regulated by other Community legislation:

- g) waste waters
- h) 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;
- i) 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;

- j) 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. If you hold mining waste that is covered by the mining waste directive you may use the guidance in this document to identify an EWC code for your waste and its hazardous properties for the purposes of categorising your site in accordance with the Mining Waste Directive.

Household waste is Directive waste and is not excluded from the scope of the Directive. Article 20 of the revised Waste Framework Directive indicates that mixed municipal waste from households is not subject to certain controls applicable to hazardous waste. Separated fractions of hazardous household waste are subject to controls on recording keeping and labelling once they have been accepted at a collection point.

3.1.2 Step 2: Has the Secretary of State, the Welsh Assembly, Scottish Executive or Northern Ireland Department of the Environment decided that a specific batch of waste is hazardous?

3.1.3 Step 3: Has the Secretary of State, the Welsh Assembly, Scottish Executive or Northern Ireland Department of the Environment decided that a specific batch of waste is non-hazardous?

The EWC lists wastes using a six-digit code and general description. It also includes an Annex which details the steps to be used to decide which code to use for any particular waste.

The entries in the EWC can be automatically hazardous (absolute hazardous waste), automatically non-hazardous (absolute non-hazardous waste), or possibly hazardous / possibly not hazardous (mirror entries). This is described in 3.1.4 below.

The Secretary of State, the Welsh Assembly, Scottish Executive or Northern Ireland Department of the Environment can decide that a waste identified as absolute non-hazardous on the EWC should be hazardous waste, because it possesses hazardous properties.

They can also decide that a waste identified as absolute hazardous on the EWC should be non-hazardous waste, because it does not possess any hazardous properties.

They will make any decisions in consultation with other parties. The Agencies will publish decisions that are accepted by the Secretary of State, the Welsh Assembly, Scottish Executive or Northern Ireland Department of the Environment on their websites.

The Secretary of State, the Welsh Assembly, Scottish Executive or Northern Ireland Department of the Environment will not make decisions that mirror entries are absolute hazardous or absolute non-hazardous.

3.1.4 Step 4: How is the waste coded and classified on the EWC?

The EWC consists of 20 chapters that are related either to the process that generated the waste or to specific waste types. The chapters are given a two-digit number. These chapters must be used in a certain order of precedence which is described in detail in Appendix A.

Each EWC chapter contains sub-chapters that are identified by four-digits. Within each sub-chapter is a list of unique six digit codes for each waste, for example:

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

This six-digit entry 20 01 01 is paper and cardboard, kept separately from other wastes, collected from a householder (or is waste similar to that produced by a householder) but which is not packaging waste (which would be coded in sub-chapter 15 01).

Some of the six-digit codes in the EWC have an asterisk next to them. These are hazardous wastes. Wastes without an asterisk are not hazardous waste.

In Appendix A, some entries are known as:

- “Absolute” hazardous entries;
- “Mirror” hazardous entries;
- “Mirror” non-hazardous entries;
- “Absolute” non-hazardous entries.

“Absolute” hazardous

These wastes are marked in the EWC with an asterisk (*), but the waste description next to the six-digit code does not have a specific or general reference to “*dangerous substances*” in the waste description. They are automatically considered hazardous. You do not need to work out what chemicals are in the waste to find out if it is hazardous or not. You must still find out if what hazardous properties the waste has for consignment and transport purposes.

We call these “*absolute entries*”, these are coloured red and are labelled with an ‘A’ in Appendix A. For example:

13 07 01* fuel oil and diesel A

“Mirror” hazardous and “Mirror” non-hazardous

Some wastes can be either hazardous or not, depending on whether it contains “*dangerous substances*” at or above certain levels. This waste is covered by linked (usually, but not always, two paired) 6-digit entries in the List of Wastes, called “*mirror*” entries.

These wastes have:

- a hazardous waste entry (or entries) marked with an asterisk (*), and
- an alternative paired non-hazardous waste entry (or entries) not marked with an asterisk.

“*Mirror*” entry hazardous wastes, colour-coded blue and are labelled with an ‘M’ in Appendix A, are identified because they refer to dangerous substances. They can do this in one of two ways:

1. a “*general*” reference to a dangerous substance(s), for example:

07 01 11* sludges from on-site effluent treatment containing dangerous substances M

This entry is chosen if this waste contains any dangerous substance(s) at the required levels.

2. a “*specific*” reference to a dangerous substance(s), for example:

17 03 01* bituminous mixtures containing coal tar M

These wastes are classified as hazardous by looking for a specific dangerous substance in the waste; in the example above that substance is coal tar. This entry is chosen only if this waste contains coal tar at the required levels.

In the two examples above, if the “*mirror*” entry waste doesn’t contain general or specific dangerous substance(s) at the required levels, it is not hazardous and the appropriate non-hazardous six-digit mirror code should be chosen. The non-hazardous mirrors for our examples above are:

07 01 12 sludges from on-site effluent treatment other than those mentioned in 07 01 11; and

17 03 02 bituminous mixtures other than those mentioned in 17 03 01

“Absolute” non-hazardous (neither Absolute Hazardous nor Mirror Hazardous)

This is an entry in the EWC without an asterisk so it is not hazardous, for example:

03 01 01 waste bark and cork

Steps 5 to 7 below only apply to finding out if waste, listed as “*mirror*” entries, is hazardous or not.

It is important to establish whether a non-hazardous entry is part of a mirror entry, and therefore needs further assessment, prior to assigning the non-hazardous code.

3.1.5 Step 5: Is the composition of the waste known or can it be determined?

One of the simplest methods of identifying whether a “mirror entry” waste is hazardous or not is to identify the chemical composition of the waste.

The composition of the waste could be identified using:

- for products that become waste, and whose composition is not altered during storage/use, information on the product Safety Data Sheet will give the composition; otherwise
- chemical/microbiological analysis of the waste, which may be supported by knowledge of the process or activity that produced the waste.

Chemical analyses (particularly for inorganic substances) do not always identify the components within a waste, but the individual species such as anions (for example, sulphate, chloride) and cations (for example, metals). In such cases the waste holder would need to determine what substances are likely to be present either by further analysis or on knowledge of the process/activity that produced the waste and the anions and cations present.

If the holder cannot decide which substances might be present, they should assume the worst-case scenario for each component and assess the waste accordingly. The worst case scenario is the substance, or combination of substances, that may reasonably exist within the waste and will make the waste hazardous at the lowest concentration.

In the majority of cases the company producing or storing a “mirror” entry waste should have enough information about the chemical substances in their waste to know if it is hazardous or not (for example from safety data sheets, or knowing how the waste was produced). If they do not know what substances are in their waste and they cannot find this out, they will need to test the waste (see Step 6b). This may not be appropriate for all hazardous properties (see Appendix C).

3.1.6 Step 6a: Are the substances in the waste “dangerous substances”?

Where the composition of a “mirror entry” waste is known, it can be assessed to determine if the substances in the waste are “dangerous substances” or not.

A “substance” is “dangerous” if it is given a “risk phrase”. There are three ways to find out the “risk phrase” for a substance:

1. use Annex VI, Table 3.2 to the Classification, Labelling and Packaging of Substances Regulation (CLP)¹. This shows risk phrases for many common chemicals². Annex VI is the most important source for risk phrases;
2. obtain or derive risk phrases from reliable data sources such as reference books or the internet. These sources must be ‘peer reviewed’, which means that other professionals have looked at and approved the data;
3. get risk phrases from Safety Data Sheets or other data sources.

If none of the substances in the waste have “risk phrases” the waste is not hazardous³ and the non-hazardous “*mirror*” EWC code can be used. If any substances do have risk phrases you will need to go to Step 7.

¹ EC No 1272/2008

² Chemical is the common term for substances (a chemical element or one of its compounds, including any impurities) and preparations (a mixture of substances).

³ One of two exceptions to this is clinical waste which could be H9 infectious as there are no risk phrases for infectious agents (see Appendix C - C9). The other exception is H15 which should also be considered (see Appendix C - C15).

Box 3.1: Example of an entry Table 3.2 of the CLP

Index Number	International Chemical Identification	EC No	CAS No
048-010-00-4	Cadmium Sulphide	215-147-8	1306-23-6

Classification	Labelling	Concentration Limits	Notes
Carc. Cat. 2; R45 Muta. Cat. 3; R68 Repr. Cat. 3; R62-63 T; R48/23/25 Xn, R22 R53	T; R: 45-22-48/23/25- 62-63-68-53 S: 53-45-61	Xn; R22: C ≥ 10 % T; R48/23/25: C ≥ 10 % Xn; R48/2022: 0,1 % ≤ C < 10 %	E 1

The **classification** required for the assessment of hazardous wastes

Some substances have their own specific concentration limits; These are **NOT USED** for hazardous waste assessment unless Appendix C indicates otherwise for a specific hazardous property (for example H14 Ecotoxic).

Supplementary notes that may affect assessment

The **classification** of cadmium sulphide is therefore:

- Carc Cat 2 (Carcinogenic Category 2), Muta Cat 3 (Mutagenic Category 3), Repr Cat 3 (Toxic for Reproduction Category 3), T (Toxic) and Xn (Harmful) indicating the Categories of Danger or hazards; and
- R45, R68, R62,63, R48/23/25, R22 and R53 being the risk phrases.

A full description of all risk phrases is set out in Annex III of Council Directive 67/548/EEC

The **Concentration limits** are not used for assessment.

There are two supplementary **Notes**;

- Note E that has no effect on hazardous waste assessment; and
- Note 1 that indicates that cadmium element concentration is used in the assessment rather than compound concentration.

Note E (Table 3.2):

Substances with specific effects on human health (see Chapter 4 of Annex VI to Directive 67/548/EEC) that are classified as carcinogenic, mutagenic and/or toxic for reproduction in categories 1 or 2 are ascribed Note E if they are also classified as very toxic (T+), toxic (T) or harmful (Xn). For these substances, the risk phrases R20, R21, R22, R23, R24, R25, R26, R27, R28, R39, R68 (harmful), R48 and R65 and all combinations of these risk phrases shall be preceded by the word 'Also'.

Note 1 :

The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.

Using Table 3.2 of the CLP

Table 3.2 of the CLP gives hazard classifications (risk phrases) for many common chemicals. Where a chemical is listed in the CLP (as amended by adaptations to technical progress ATPs) the classification given therein takes precedence over a classification found elsewhere.

An example of the classification of a chemical given in Table 3.2 of the CLP is set out in Box 3.1. To aid identification, each CLP entry provides alternative chemical names and the Chemical Abstract Service (CAS) number. The CAS number is the most accurate identification of a substance that may have many non-standard names. In some cases the CLP shows risk phrases joined together by comma (,) or an oblique stroke (/), to indicate how information should be presented on a label. For the purpose of assessing hazardous waste the comma and oblique stroke are interchangeable. A hyphen (-) is used to represent an 'and' in the case of Ecotoxic risk phrases, for example R50-R53 represents R50 and R53.

The CLP contains two series of supporting notes for, and indicated in, Table 3.2, these may also be amended by ATP's:

- The alphabetic (**substance**) series (Note A, B, etc.) are only relevant to hazardous waste where they alter the classification of the substance to which they relate. The assessment of hazardous wastes is based upon the classification.
- The numeric (**preparation**) series (Note 1, 2, etc.) relate to how the concentration limits for a substance are applied to a mixture. These notes can be used where appropriate, but are applied to the concentration limits given in this document for waste assessment, rather than those listed in the CLP.

Approved Classification and Labelling Guide and Other Data Sources

Table 3.2 of the CLP only covers a small proportion of the substances on the European Chemical Substances Information System (ESIS). If a substance is not listed in the CLP then further work is required to determine the substance classification. There are two options:

- Determine the classification using the criteria set out in the Approved Classification and Labelling Guide; or
- Use classification information from other data sources (for example Safety Data Sheets).

The Approved Classification and Labelling Guide provides information on:

- the type and sources of data that can be used, which include results of testing, information required by international rules on the transport of dangerous goods, reference works or scientific and technical literature and practical experience;
- the criteria for each category of danger; and
- how to assign risk phrases.

The criteria for the categories of danger specify the data or test method necessary to assign each category. The criteria for health effects are usually based on human or animal toxicological data with physico-chemical effects generally based on test results. The criteria also assign the appropriate risk phrase.

To classify a **substance** that is not on the CLP, the available data must be collected and compared against the criteria specified and the appropriate risk phrase assigned. It should be remembered that substances could have more than one category of danger and a number of risk phrases. Therefore each criteria should be considered in turn.

Where a substance is not listed in Table 3.2 of the CLP, other data sources may be considered. Information published on databases supported by the European Chemicals Agency (for example ESIS) or contained in published ATPs arise from a review of available data and a determination in accordance with European Chemical legislation. These take precedence over other data sources.

Other databases supported by the European Commission may provide additional information (for example the [Footprint Project pesticide properties database](#) (PPDB) is a useful source of

data for H14 Ecotoxic). Consideration must be given to whether any alternative database is consistent with current European chemicals legislation.

CHIP4 requires chemical suppliers to provide Safety Data Sheets to the recipient of a chemical. The Safety Data Sheets must contain sufficient information to allow the user to decide how to protect people and the environment, and this includes providing the classifications of the substances within a preparation.

If the Safety Data Sheets for a chemical indicate a chemical risk phrase, then a waste containing that chemical has the potential to be hazardous. Waste holders need to consider if:

- the concentrations of “dangerous substances” in the waste, after storage or use of the product, remain sufficient to be hazardous; or
- any reactions take place during the storage or use of the product which may remove the hazard or create new/different hazards from those of the product.

Note: considerable care must be taken when using Safety Data Sheets because they may:

- predate current European chemicals legislation and criteria;
- be produced in a country where these European criteria are not in use or fully understood;
- be incomplete, for example “*no information available*” means unknown or not checked rather than no chemical risk phrase applies; or
- be inaccurate or contradict other Safety Data Sheets;

We would always advise that several Safety Data Sheets from different sources are checked and, if in any doubt, the worst case is used.

Labels on chemical containers are not as comprehensive as the information provided on Safety Data Sheets and should not be used for hazardous waste assessment.

Appendix D identifies some of the sources of data available and discusses data quality issues.

3.1.7 Step 6b: Is there sufficient information to demonstrate the waste is non-hazardous (for example test results)?

Waste holders have a duty to determine if a “mirror entry” waste is hazardous or non-hazardous. The waste can only be classified as non-hazardous where there is sufficient information to support assessment and demonstrate that the waste has no hazardous properties.

Where:

- there are any reasons to indicate the waste may be hazardous, such as test results, knowledge of the production process or the raw materials used; and/or
- the composition of a waste is not known, cannot be determined or is insufficient to allow classification using Table 3.2 of the CLP or other sources (and considering worst case compounds); or
- for any reason there is insufficient information to assess one or more hazardous properties;

the waste needs to be tested, where appropriate, to determine if it possesses any hazardous properties.

The ACLG identifies the test methods contained in European Commission Regulation (EC) No 440/2008 as the methods to be used to test for chemical risk phrases. Note that the ACLG provides different advice for pure substances than for preparations (mixtures). Most wastes are preparations, and should be tested as such. Note : It may not be appropriate to test for some hazardous properties (see ACLG and Appendix C).

Where a test method in Regulation 440/2008 is a non-mammalian test, that test should be performed on the waste. Where the test is mammalian-based, the Agencies’ views are that such tests should not be performed. The Agencies consider that there are two options:

- perform a surrogate non-mammalian biological effect test; or

- if no means of non-mammalian testing is available, do not test, but ascertain from the producer or other previous waste holders information on the waste before you assume the waste is hazardous.

There are some tests that can assess a waste as hazardous without recourse to testing the waste on animals. These include simple inexpensive tests, such as flashpoint or pH determination that can be used to indicate that a waste is flammable or irritant/corrosive. Some tests do not define specific hazards but indicate that a waste is hazardous. Standard tests that are acceptable to the Agencies are given in the individual hazard assessments in Appendix C. Where a non-standard test is used the findings should be agreed with the Agencies.

It is not expected that a waste holder will assume an unknown waste is hazardous (or not) without rudimentary testing of the components of the waste, or ascertaining the nature of the waste from informed sources.

3.1.8 Step 7: Does the waste possess any of the hazardous properties H1 to H15?

In order for a waste identified by a “mirror entry” to be hazardous it must “display” a hazardous property. The Hazardous Properties are listed in Table 2.1.

There are two methods of determining if a “mirror entry” waste is hazardous or not. These are:

- calculating whether the hazardous property is appropriate by referring to a threshold limit for a particular risk phrase; or
- testing to prove whether a particular hazardous property is present or not.

Calculating

For many wastes the most appropriate method is to identify the hazardous constituents/chemicals in the waste and then to use their concentrations in the waste to identify whether they confer hazardous properties on the waste.

- If a waste contains a dangerous substance(s) at a concentration at or above a threshold concentration for any of the hazardous properties H1 to H15, the waste will be hazardous and is categorised as the hazardous “mirror entry”.
- If a waste contains a dangerous substance(s) at a concentration below the threshold for all of the hazardous properties, the waste will not be hazardous and is categorised as the non-hazardous “mirror entry”.

Testing

For some hazards testing of physical properties might be the most appropriate method. For example, to identify whether a liquid waste is flammable or not, for which the threshold is 55°C, a flashpoint determination is probably the simplest method. This is because the flashpoint depends upon the concentration of the flammable chemicals in the waste. Other examples of hazards where a test could be the simplest option are H1 “Explosive” and H2 “Oxidising”.

As discussed in Step 6b, sometimes testing may be the only option to determine whether a waste is hazardous because of the complex nature of a waste; this is discussed in more detail in Appendix C. However testing may not be appropriate for all wastes or all hazardous properties.

Threshold concentrations

Article 2 of the EWC sets out thresholds for hazardous properties H3-A(first indent), H3-B, H4 to H8, H10 and H11,

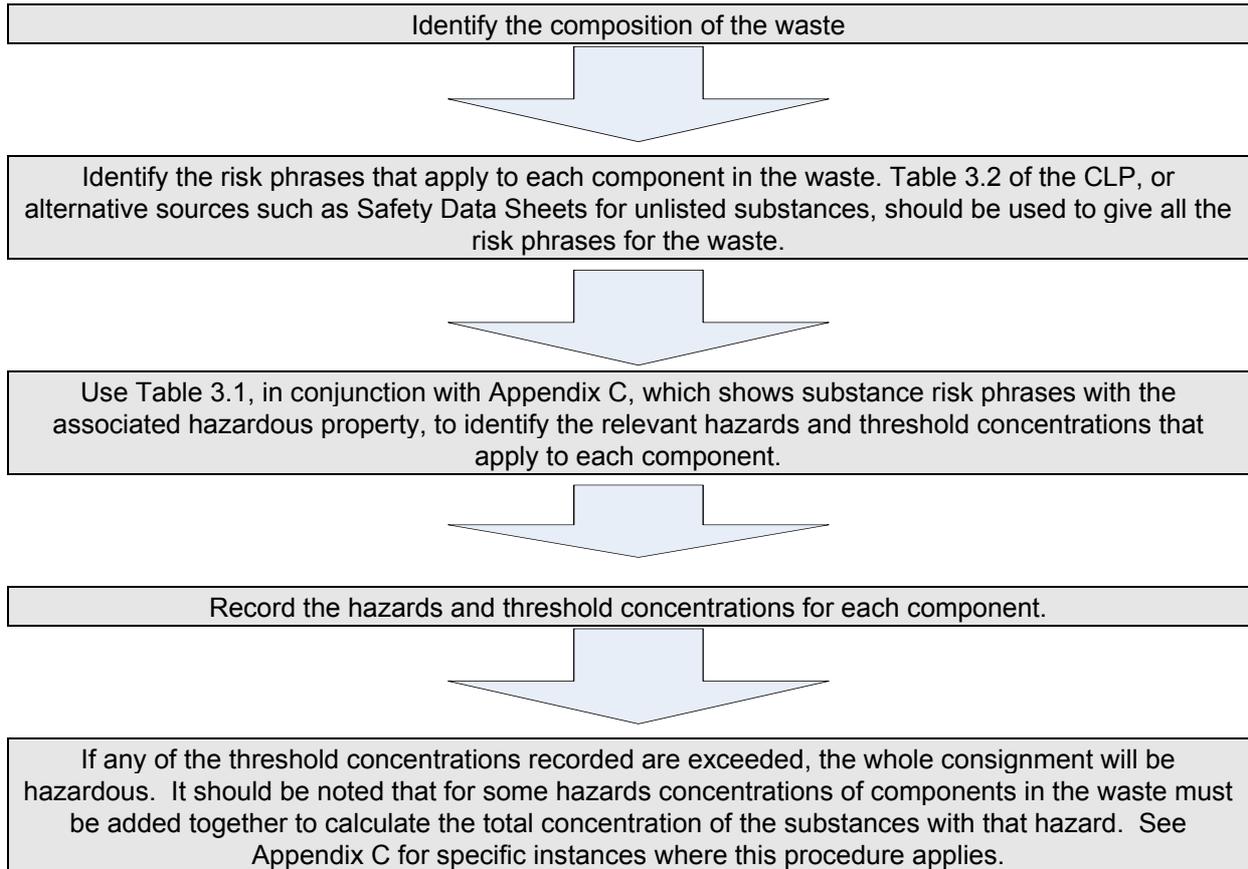
Threshold concentrations for the hazardous properties not covered by Article 2 (H1, H2, H3-A (second to fifth indents), H12, H13, H14 and H15), have been developed based on the classification and risk phrases from CHIP. The thresholds for some of these hazards can be calculated, while others require testing of physical properties. The assessment of H9 has been developed based on the presence of infectious agents and this is set out in Appendix C9.

An assessment methodology for each hazardous property is set out Appendix C, and includes:

- definition of the hazardous property;
- relevant risk phrases;
- thresholds;
- a flow diagram setting out the assessment process for that hazardous property; and
- information on test methods.

Table 3.1 summarises the concentration thresholds for each risk phrase or group of risk phrases, how they relate to hazardous properties and when testing of physical properties should be used to determine the hazard.

In summary, for Steps 5 to 7:



Theoretical Example of Hazardous Waste Assessment Methodology

Waste A, produced in England, from a manufacturing process contains 10% of chemical X and 18% of chemical Y with the remainder being water.

Step 1: Waste A is a Directive Waste. The domestic legislation does not contain specific provisions that relate to this waste.

Steps 2 and 3 : No decisions relating to this waste have been made by the Secretary of State.

Step 4: Waste A is listed as part of a “mirror entry” in the EWC.

Step 5: The composition of the waste is known.

Step 6a: The waste does contain dangerous substances because:

Chemical X is listed in Table 3.2 of the CLP and is classified as F; R11, Xn: R20/22; and

Chemical Y, which is not listed in Table 3.2 of the CLP has the classification of Xi: R36, Xn: R21 and N: R50-53, on its Safety Data Sheets.

Water is not listed in Table 3.2 of the CLP and is not considered to be dangerous.

Step 7: Based on the classifications of the chemicals, waste A could display the hazardous properties H3-A/H3-B (Highly Flammable/Flammable), H4 (Irritant), H5 (Harmful) and H14 (Ecotoxic):

A test is performed on the waste and the flashpoint is 75°C. H3-A “Highly Flammable” and H3-B “Flammable” can be discounted.

The threshold for Xi: R36 identified from Table 3.1 and Appendix C4 is 20%. This is not exceeded as the concentration of chemical Y is 18% and the waste will not be classified as H4 “Irritant”.

Classifications Xn: R20/22 and Xn: R21 are applicable to hazardous property, H5 “Harmful”. The risk phrases for harmful are additive and the total concentration of substances with harmful risk phrases is 28%. The threshold concentration for harmful chemicals is 25% as given in Table 3.1 and Appendix C5. This threshold is exceeded. The waste should be classified as H5 “Harmful”.

Risk phrase N: R50-53 is appropriate to hazardous property H14 “Ecotoxic”. The generic threshold concentration limit (see Appendix C14) for a single N: R50-53 chemical is 0.25%. This threshold is exceeded and the waste should be classified as H14 “Ecotoxic”.

Therefore Waste A is hazardous by H5 “Harmful” and H14 “Ecotoxic” and the hazardous “mirror entry” should be used.

Table | Classifications, Risk Phrases, Hazards and Hazardous Waste Threshold Limits

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
n/a	R1	Explosive when dry	H15 (by H1)	n/a	A waste containing substances with risk phrase R1 is a candidate for hazard H15 because it may become dry during disposal.
E	R2	Risk of explosion by shock, friction, fire	H1	Test for explosive	Tests are given in Appendix C1.
E	R3	Extreme risk of explosion by shock, friction, fire or other sources of ignition			
n/a	R4	Forms very sensitive explosive metallic compounds	H15 (by H1)	n/a	A waste containing substances with these risk phrases is a candidate for hazard H15
	R5	Heating may cause an explosion			
	R6	Explosive with or without contact with air			
O	R7	May cause fire	H2	Test and / or calculation	Tests are given in Appendix C2, however test does not apply to organic peroxides
	R8	Contact with combustible material may cause fire			
	R9	Explosive when mixed with combustible material			
n/a	R10	Flammable	H3-B	Flashpoint >21°C to 55°C	Tests are given in Appendix C3

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
F	R11	Highly flammable	H3A(i) (H3B) H3A(iii)	H3A(i) fpt ≤21°C H3A(iii) test	H3A(i) applies to liquids H3A(iii) applies to solids. H3A(iv) applies to gases Tests are given in Appendix C3
F+	R12	Extremely flammable	H3A(i) (H3B) H3A(iv)	H3A(i) fpt ≤21oC H3A(iv) test	
n/a	R14	Reacts violently with water	n/a	n/a	This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous.
F	R15	Contact with water liberates extremely flammable gases	H3A(v)	Test and / or calculation	Applies to solids and liquids in the waste. Test is given in Appendix C3.
n/a	R16	Explosive when mixed with oxidising substances	H15 (by H1)	n/a	A waste containing substances with these risk phrases is a candidate for hazard H15.
F	R17	Spontaneously flammable in air	H3A(ii)	Test	Applies to solids, liquids and gases. Test is given in Appendix C3.
n/a	R18	In use may form flammable / explosive vapour–air mixture	H15 (by H1, H2 or H3)	n/a	A waste containing substances with these risk phrases is a candidate for hazard H15
	R19	May form explosive peroxides			
Xn	R20	Harmful by inhalation	H6	≥ 25%	Threshold limit applies to the total concentration of substances classified as Harmful by CHIP. You should add together the concentrations of substances with risk phrases R20, R21, R22 and R65 to see if the threshold is exceeded. This includes where R20, R21 and R22 are combined together or with R48 or Xn: R68.
	R21	Harmful in contact with skin			
	R22	Harmful if swallowed			

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
T	R23	Toxic by inhalation	H6	≥3%	Threshold limit applies to the total concentration of substances classified as Toxic by CHIP. You should add together the concentrations of substances with risk phrases R23, R24 and R25 to see if the threshold is exceeded. This includes where R23, R24 and R25 are combined together or with R39 or R48.
	R24	Toxic in contact with skin			
	R25	Toxic if swallowed			
T+	R26	Very toxic by inhalation	H6	≥0.1%	Threshold limit applies to the total concentration of substances classified as Very Toxic by CHIP. You should add together the concentrations of substances with risk phrases R26, R27 and R28 to see if the threshold is exceeded. This includes where R26, R27 and R28 are combined together or with R39.
	R27	Very toxic in contact with skin			
	R28	Very toxic if swallowed			
n/a	R29	Contact with water liberates toxic gas	H12	Test and / or calculation	Test is given in Appendix C12.
n/a	R30	Can become highly flammable in use	n/a	n/a	This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous.
n/a	R31	Contact with acids liberates toxic gas	H12	Test and / or calculation	Test is given in Appendix C12.
	R32	Contact with acids liberates very toxic gas			
n/a	R33	Danger of cumulative effects	n/a	n/a	R33 is used when R48 is not warranted due to the degree of danger posed and will not constitute a hazardous waste in isolation.
C	R34	Causes burns	H8 (H4)	≥5%	The concentrations of substances with R34 are additive. However, they are not additive with corrosive substances assigned R35.
C	R35	Causes severe burns	H8 (H4)	≥1%	The concentrations of substances with R35 are additive. However, they are not additive with corrosive substances assigned R34.

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
Xi	R36	Irritating to the eyes	H4	≥20%	The concentrations of substances with these risk phrases are additive. However, they are not additive with irritant substances assigned R41.
	R37	Irritating to the respiratory system			
	R38	Irritating to the skin			
T T+	R39	Danger of very serious irreversible effects	n/a	n/a	R39 is only used in conjunction with combinations of R23, R24, R25 or R26, R27, R28, which are used to identify the exposure route. Refer to the thresholds given for those risk phrases.
Carc.Cat.3	R40	Limited evidence of a carcinogenic effect	H7	≥1%	The concentration of an individual substance assigned R40 must be above the threshold limit.
Xi	R41	Risk of serious damage to the eyes	H4	≥10%	The concentrations of substances with R41 are additive. However, their concentrations cannot be added with irritant substances assigned R36, R37 or R38.
Xn	R42	May cause sensitisation by inhalation	H13	See Appendix C13	The concentration of an individual substance assigned R42 must be above the threshold limit.
Xi	R43	May cause sensitisation by skin contact	H13	See Appendix C13	The concentration of an individual substance assigned R43 must be above the threshold limit.
n/a	R44	Risk of explosion if heated under confinement	H15 (by H1)	n/a	A waste containing substances with these risk phrases is a candidate for hazard H15.
Carc.Cat.1 Carc.Cat.2	R45	May cause cancer	H7	≥0.1%	The concentration of an individual substance assigned R45 must be above the threshold limit.
Muta.Cat.1 Muta.Cat.2	R46	May cause heritable genetic damage	H11	≥0.1%	The concentration of an individual substance assigned R46 must be above the threshold limit.

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
Xn T	R48	Danger of serious damage to health by prolonged exposure	n/a	n/a	R48 is only used in conjunction with combinations of R20, R21, R22 or R23, R24, R25, which are used to identify the exposure route. Refer to the thresholds given for those risk phrases.
Carc.Cat.1 Carc.Cat.2	R49	May cause cancer by inhalation	H7	≥0.1%	The concentration of an individual substance assigned R49 must be above the threshold limit.
N	R50	Very toxic to aquatic organisms	H14	See Appendix C14	The interrelationship between these risk phrases is complex, with different combinations of risk phrases being additive depending on the particular effect being considered. Therefore if a waste contains a range of substances with a range of these risk phrases, it is recommended that the detailed guidance in Appendix C14 is used to consider the additive effects.
N	R50-53	Very toxic to aquatic organisms and may cause long-term effects in the aquatic environment	H14	See Appendix C14	
N	R51-53	Toxic to aquatic organisms and may cause long-term effects in the aquatic environment	H14	See Appendix C14	
n/a	R52-53	Harmful to aquatic organisms and may cause long-term effects in the aquatic environment	H14	See Appendix C14	
N	R52	Harmful to aquatic organisms	H14	See Appendix C14	
n/a	R53	May cause long-term effects in the aquatic environment	H14	See Appendix C14	

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
N	R54	Toxic to flora	H14	n/a	Criteria for preparations containing substances with risk phrases relating to the terrestrial environment, i.e. R54 to R58, are not currently included in the Dangerous Preparation Directive (DPD). The classification of preparations using these risk phrases will be included in the DPD when detailed criteria for use of these risk phrases have been developed for the Dangerous Substances Directive. Therefore until the detailed criteria have been developed risk phrases R54 to R58 should not be considered when assessing hazardous waste.
	R55	Toxic to fauna			
	R56	Toxic to soil organisms			
	R57	Toxic to bees			
	R58	May cause long-term adverse effects in the environment			
N	R59	Dangerous for the ozone layer	H14	≥0.1%	Substances that are listed in Annex I to Council Regulation (EC) No 1005/2009 on substances that deplete the ozone layer and its subsequent amendments are classified as R59.
Repr.Cat.1 Repr.Cat.2	R60	May impair fertility	H10	≥0.5%	The concentration of an individual substance assigned R60 or R61 must be above the threshold limit.
	R61	May cause harm to the unborn child			
Repr.Cat.3	R62	Possible risk of impaired fertility	H10	≥5%	The concentration of an individual substance assigned R62 or R63 must be above the threshold limit.
	R63	Possible risk of harm to the unborn child			
n/a	R64	May cause harm to breast-fed babies	n/a	n/a	This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous.
Xn	R65	Harmful: may cause lung damage if swallowed	H6	≥25%	Threshold limit applies to the total concentration of substances classified as Harmful. Therefore the concentrations of substances with R65 are additive with the concentrations of substances with risk phrases R20, R21, R22 and those with combined / joint risk phrase with R48 and Xn: R68.

Classification		Substance Risk	Hazards	Hazardous Waste Threshold Limits	Comments
Category of Danger	Risk Phrase				
n/a	R66	Repeated exposure may cause skin dryness or cracking	n/a	n/a	This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous.
n/a	R67	Vapour may cause drowsiness and dizziness	n/a	n/a	This is an additional risk phrase and such a risk phrase alone will not cause a waste to be hazardous.
Muta.Cat.3	R68	Possible risk of irreversible effects	H11	≥1% (H11)	The concentration of an individual substance assigned Muta.Cat.3; R68 must be above the threshold limit.
Xn			n/a	n/a	Xn: R68 is only used in conjunction with combinations of R20, R21, R22, which are used to identify the exposure route. Refer to the thresholds given for those risk phrases.

KEY

n/a not applicable

H3A (i) H3A (first indent) "Highly flammable": liquid substances and preparations having a flashpoint ≤21°C (including extremely flammable liquids).

H3A (ii) H3A (second indent) "Highly flammable": substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy.

H3A (iii) H3A (third indent) "Highly flammable": solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition

H3A (iv) H3A (fourth indent) "Highly flammable": gaseous substances and preparations which are flammable in air at normal pressure.

H3A (v) H3A (fifth indent) "Highly flammable": substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.

3.1.9 Notes on using Table 3.1

Hazardous waste holders should be aware of the following issues when using Table 3.1.

Concentration effects

The classification assigned to a substance relates to the substance in its pure (100%) form. If a substance is not pure or is present as a component of a complex mixture the same hazard may not apply. As an example, ethanol is classified in the CLP as F: R11, which indicates that at 100% concentration it will have a flashpoint less than 21°C. However, an aqueous (“mirror entry”) waste containing 4% w/w ethanol, will have a flashpoint greater than 55°C, and so will not be hazardous. At higher concentrations of ethanol, the flashpoint will reduce to between 21°C and 55°C so the waste will be hazardous by H3-B “Flammable”. At even higher concentrations the flashpoint will be less than 21°C so the waste will be hazardous by H3-A (first indent) “Highly Flammable”. As discussed above where wastes are concerned a flashpoint determination is probably appropriate to identify whether the waste is flammable or highly flammable. Table 3.1 shows the effect of such dilution by listing the subsidiary hazard in brackets for example H3-A (first indent) (H3-B).

Linked hazardous properties

Some hazardous properties are linked because they relate to the same effect:

- H4 “Irritant” and H8 “Corrosive” are linked because they both refer to the potential for harm or damage to tissue. Preparations containing corrosive substances can exhibit either corrosive or irritant properties dependent upon concentration of the corrosive substance. However, substances classified as irritant cannot become corrosive.

Concentrations of irritant and corrosive chemicals and concentrations of chemicals with the classification C: R34 and C: R35 are not additive when assessing hazardous waste.

- H5 “Harmful” and H6 “Toxic” (including “Very Toxic”) are linked because they both relate to acute lethal effects. Preparations containing toxic or very toxic substances can exhibit either toxic or harmful properties dependent upon concentration of the toxic or very toxic substance. Substances classified as harmful, however, cannot be toxic at any concentration.

Concentrations of very toxic, toxic and harmful chemicals are not additive when assessing hazardous waste.

Testing and calculation

For certain risk phrases the indicated option is testing and/or calculating: that is, testing; or calculating; or both testing and calculating. In such cases the testing relates to the physical properties of a waste. The relevant hazards are:

- H1 “Explosive”: the explosive nature of a waste cannot be determined by calculation, therefore testing is required. See Appendix C1 for details of test methods.
- H2 “Oxidising”: for organic peroxides a calculation method is available, with testing required for other substances that may potentially exhibit hazard H2. See Appendix C2 for details of both calculation and test methods.
- H3-A (fifth indent) “Highly Flammable” and H12: a calculation or test is always required. If the composition of the waste is available the gas evolution should be calculated. Alternatively, the waste can be tested to determine whether 1 kg of the waste will evolve 1 litre of a highly flammable gas (the test for H3A (fifth indent)) or a toxic/very toxic gas (the test for H12) in one hour, on addition of water or acid as appropriate. See Appendices C3 and C12 for details of both calculation and test methods.

Additional risk phrases

The Approved Classification and Labelling Guide identifies a number of “additional risk phrases”. When substances are classified with an “additional risk phrase” such a risk phrase alone will not cause a waste to be hazardous. As an example, red phosphorus is given risk phrases F: R11 (highly flammable) and R16 (explosive when mixed with oxidising substances) in Table 3.2 of CLP. Red phosphorus is hazardous by virtue of H3A (third indent) “Highly Flammable”, due to risk phrase R11 but is not hazardous due to R16. However, if mixed with oxidising substances the resulting mixture might be classified as H1 “Explosive”, for which a test would be required.

Other risk phrases that are similar to R16 in this respect are R4, R5, R6, R14, R18, R19, R30, R44 and R64. Some of these risk phrases may give rise to hazard H15 (waste capable by any means, after disposal, of yielding another substance which possesses hazards H1 to H14).

3.1.10 Other important notes on the use of CHIP to assess hazardous waste

Waste producers familiar with CHIP must be aware of the differences when using CHIP to assess hazardous waste.

- The “conventional method” used in CHIP to determine the classification of preparations must not be used for determining the classification of a hazardous waste. The methodology given here differs in many instances. For example, the concentrations of a “very toxic” substance and a “toxic” substance cannot be added when assessing hazardous properties whereas they may be for CHIP4 purposes. See “Linked hazardous properties” in Section 3.1.8.
- Articles such as electronic equipment are not classified as hazardous by CHIP. However, determining if such wastes are hazardous means determining whether they, or their components, possess any hazardous properties. This should be done by considering the classifications of the substances within the article, or component, and their threshold concentrations with reference to the weight of the article or component. The availability of substances is not considered when assessing hazardous waste.
- Table 3.2 of the CLP classifies some preparations, such as blends of oils, as substances. These preparation are also treated as substances for the purposes of classifying hazardous wastes.
- Threshold concentrations given in Table 3.2 of CLP do not normally apply when classifying hazardous waste. This is because the EWC provides its own legislative thresholds for many properties. Any exceptions to this are indicated in Appendix C.
- Categories of danger and indications of danger should not be confused. An indication of danger is a symbol used for labelling purposes only and does not specify the category of danger or hazard, which is the information required to assess hazardous waste.

Table 3.2: How Categories of danger from Table 3.1 of the CLP relate to Hazardous Properties

Categories of danger	Hazardous Property	Hazardous Waste Threshold Limit (refer to appendix C)
Explosive, E	H1	See Appendix C
Oxidising, O	H2	See Appendix C
Extremely Flammable, F ⁺	H3-A	See Appendix C
Highly Flammable, F	H3-A	See Appendix C
Flammable, F	H3-B	See Appendix C
Irritant, X _i	H4	≥ 10% or ≥ 20% depending upon risk phrase
Harmful, X _n	H5	≥ 25%
Toxic, T	H5/H6	≥ 3%
Very toxic, T ⁺	H5/H6	≥ 0.1%
Carcinogenic, Carc.Cat. 1, 2 & 3	H7	≥ 0.1% or ≥ 1% depending upon risk phrase
Corrosive, C	H4/H8	≥ 1% or ≥ 5% depending upon risk phrase
Toxic for reproduction, Repr.Cat. 1, 2 & 3	H10	≥ 0.5% or ≥ 5% depending upon risk phrase
Mutagenic, Muta.Cat. 1, 2 & 3	H11	≥ 0.1% or ≥ 1% depending upon risk phrase
Sensitising, X _n , X _i	H13	≥ 0.1% or ≥ 1% depending upon risk phrase
Dangerous for the Environment, N	H14	See Appendix C