

The Classification of Hazardous Waste

A guide to the Hazardous Waste Regulations and the List of Wastes Regulations
in Northern Ireland

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THE CLASSIFICATION OF HAZARDOUS WASTE

Aim of guide

This guide has been produced by the Environment and Heritage Service (EHS), an agency within the Department of the Environment for Northern Ireland to assist you as a producer, carrier or holder of waste to assess whether your waste is classified as hazardous, or not. This includes providing guidance on how to determine the appropriate European Waste Catalogue code (EWC) for your waste.

The Hazardous Waste Regulations (Northern Ireland) 2005 (HWR), and accompanying List of Waste Regulations (Northern Ireland) 2005 (LoWR) came into force on 16th July 2005. These regulations implement the European Hazardous Waste Directive (Directive 91/689/EC) in Northern Ireland legislation.

EHS, in collaboration with the Scottish Environment Protection Agency (SEPA) and the Environment Agency (EA) England and Wales have also produced a detailed technical guidance document called WM2 'Hazardous Wastes: Interpretation of the definition and classification of hazardous waste'.

This guide is not intended as a replacement for WM2 but aims to provide some of the principles behind hazardous waste assessment.

The information in this guide is based on what we currently know. It may be subject to change in the future if there is a change in the Law, guidance from the Government or as a result of our experience in regulating hazardous waste.

How do I determine whether my waste is hazardous?

EHS, EA and SEPA, have collectively developed an assessment system for the classification of hazardous waste using the principles described within the HW Regulations. The assessment system presents the key elements in a useful and practical manner rather than following the formal method described in the HW Regulations.

The assessment system uses a series questions and answers set out in the form of steps on a flowchart that lead the user through the classification procedure. A copy of the flowchart is reproduced on the next page (see figure 1.page 3).

Do I need to undertake expensive testing of my waste?

The classification system uses a "desk-based" approach which should eliminate the need to resort to chemical or other testing methods in the majority of cases.

Is the assessment procedure time consuming?

The procedure has been readily designed to minimise the time required by using readily available information.

The Classification of Hazardous Waste

The flowchart below shows the steps involved in finding out is hazardous or not.

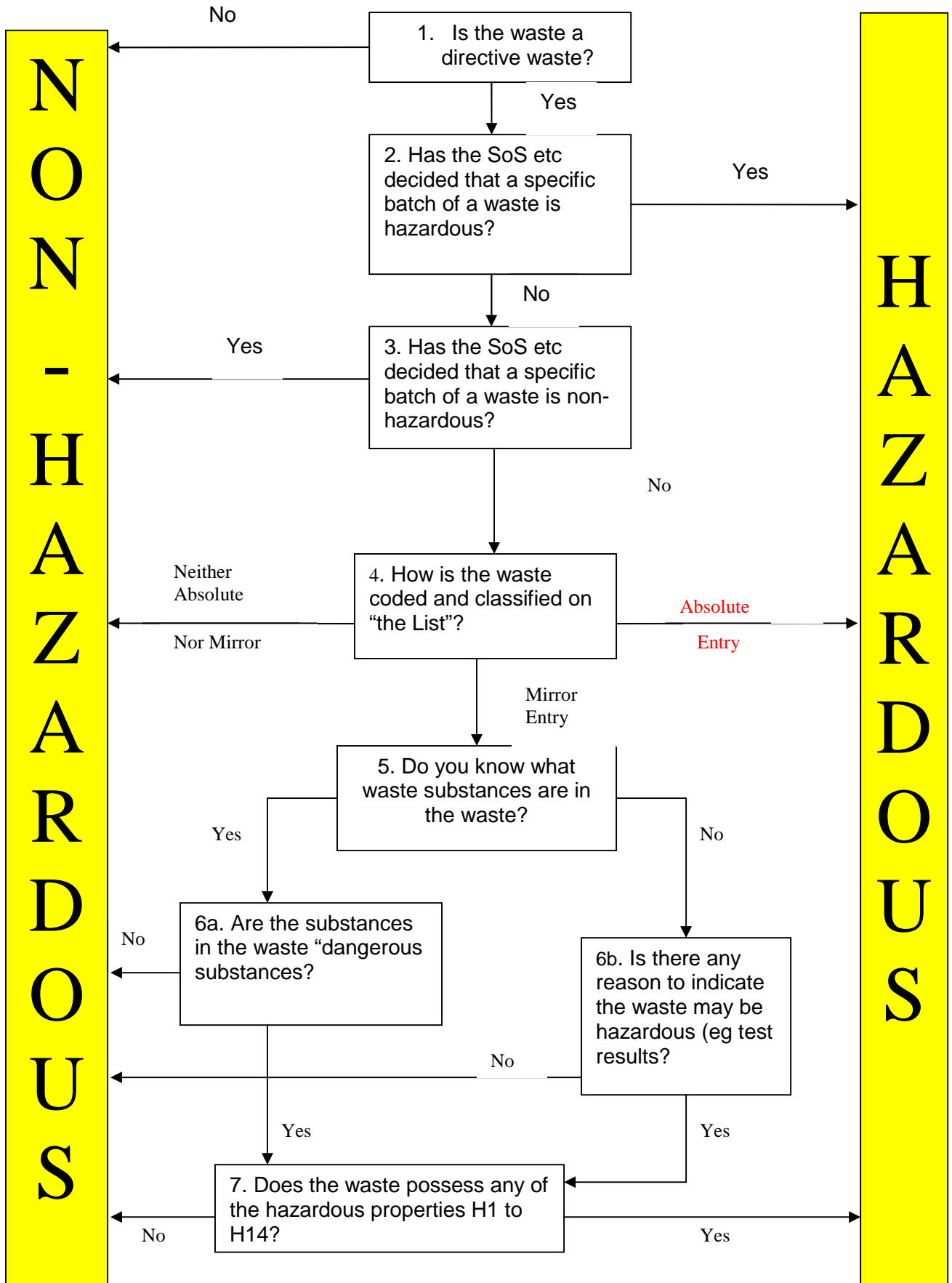


Figure 1: Hazardous Waste Assessment Methodology flowchart

What information do I require before I begin?

It is advisable that you have access to copies of the following documents for reference purposes:

The Hazardous Waste Regulations (Northern Ireland) 2005
ISBN 0-337-96064-X

List of Wastes Regulations (Northern Ireland) 2005
ISBN 0-337-96095-X

These Regulations may be obtained from: The Stationery Office, Government Bookshop, 6 Arthur Street, Belfast,
BT1 4GD
(028 9023 8451 Fax 028 9023 5401)

Approved Supply List (8th Edition) – Information approved for the classification and labelling of substances and preparations dangerous for supply, HSE Books, ISBN 0-7176-6138-5

Approved Guide to the Classification and Labelling of Dangerous Substances and Dangerous Preparations (The Approved Classification and Labelling Guide) 5th Edition, HSE Books
ISBN 0-7176-2369-6

Copies of the last two publications can be obtained from: Health and Safety Executive (HSE) Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS.
(01787 881165, Fax: 01787 313995)

More advanced data sources will not normally be required. However, should this be the case a list of further publications is provided at the end of this document.

General advice on wastes

General advice on many commonly produced wastes may be obtained from the EHS office:

**Hazardous Waste/TFS Section
Environment & Heritage Service
1st Floor
Klondyke Building
Cromac Avenue
Gasworks Business Park
Lower Ormeau Road
Belfast
BT7 2JA**

Tel: 02890 569710

Fax: 02890 569310

STEP 1

Is the waste Directive waste?

The phrase “Directive Waste” refers to European legislation called the Waste Framework Directive. This Directive identifies the environmental protection principles behind waste regulation. It also identifies which wastes are covered by these principles and those which are not.

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

The following wastes are not Directive wastes:

- radioactive waste (see note 1.)
- waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries;
- animal carcasses and the following agricultural waste: faecal matter and other natural, non-dangerous substances used in farming;
- waste waters, with the exception of waste in liquid form;
- decommissioned explosives e.g. ammunition, fireworks, flares.

If waste is not a Directive Waste, the HWR do not apply to it, so such wastes cannot be hazardous Waste.

STEP 2

Has the Department of the Environment (NI) decided that a specific batch of a waste is hazardous?

Regulation 8 of the HWR allows Department of the Environment in Northern Ireland, [Secretary of State (SoS) in England, Scottish Executive in Scotland, and Welsh Assembly in Wales] to determine that a specific batch of waste identified as non-hazardous on the List of Wastes Regulations (LoWR) should be hazardous waste, because it possesses hazardous properties.

If you feel that you can identify a waste that is non-hazardous but should be hazardous, then you should contact the Waste Unit within Planning and Environmental Policy Group in the Department of the Environment and provide detailed evidence to support this.

The Planning and Environmental Policy Group can be contacted by telephone on (02890) 257374.

Note 1. Most radioactive waste is not Directive Waste, but comes under the provisions of the Radioactive Substances Act 1993 (RSA) and is thus exempt from the provisions of the HWR Only radioactive waste which is exempt from the requirements of sections 13 or 14 of the RSA *and* possesses one or more of the hazardous properties above threshold levels will be classified as hazardous waste

STEP 3:**Has the Department of the Environment (NI) decided that a specific batch of waste is non-hazardous?**

Regulation 9 of the HWR allows Department of Environment in Northern Ireland to determine that a specific batch of waste identified as hazardous on the LoWR does not display any of the properties listed in Annex III to the Hazardous Waste Directive and is therefore non-hazardous waste.

If you feel that you can identify a waste that is hazardous but should be non-hazardous, then you should contact the Policy Group in the Department of the Environment and provide detailed evidence to support this – see above for contact details.

Waste will only be classified after the appropriate organisations have been consulted. We will publish any decisions made by the Department of the Environment Northern Ireland.

STEP 4:**How is the waste coded and classified on the EWC 2002?**

In accordance with Duty of Care Regulations, waste producers have a duty to describe their waste correctly; this includes selecting the most appropriate code from the European Waste Catalogue (EWC 2002). The EWC 2002 details a series of steps for identifying wastes in the catalogue and determining whether a waste may be covered by a hazardous waste entry.

The EWC 2002 consists of 20 chapters that relate to the processes that generated the waste or to the specific waste types. The chapters are given two-digit number ranging from 01 to 20. These chapters must be used in a specific order of preference to classify your waste.

Each 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.

The following steps must be used to identify the correct 6-digit code for a waste:

1. Find out whether the waste was produced from the source described in chapters 01 to 12 or 17 to 20. If so, work out the appropriate six-digit code of the waste. At this point, codes ending in '99' cannot be chosen.
2. If there is no appropriate waste code in 01 to 12 or 17 to 20, you must now look at chapters 13, 14 and 15 to identify the waste.
3. If none of these codes apply, use chapter 16 to identify the waste.
4. 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 that matches the activity identified above in 1.

The different wastes produced by one organisation may be described in several of the chapters.

Some of the 6-digit codes in the List of Wastes have an asterisk next to them. These are the hazardous wastes. Wastes without an asterisk are not hazardous waste. The List of Wastes is reproduced in Appendix A of our technical guidance WM2: *Interpretation of the definition and classification of hazardous waste*.

In WM2 some entries are coloured red and blue:

- the entries in red are known as “**Absolute**” hazardous wastes;
- the entries in blue are known as “**Mirror**” hazardous wastes;

“Absolute Entries” Certain wastes marked with an asterisk (*) are deemed by the agencies to be hazardous regardless of their composition or the concentration of any “dangerous substance” within the waste – they are automatically considered hazardous. Such wastes have been termed “absolute” entries in WM2 and are coloured **red** for clarity, e.g.

13 07 01* fuel oil and diesel

“Mirror Entries” Some wastes have the potential to be hazardous or not, depending on whether they contain “dangerous substances” at or above certain thresholds. These wastes are covered by linked (usually paired) entries, collectively called “mirror” entries. These wastes have:

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

“Mirror” entry hazardous wastes are colour-coded **blue** in WM2 Appendix A and are identified because they refer to dangerous substance(s). They can do this in one of two ways:

A General Reference: e.g.

07 03 11* sludges from on-site effluent treatment containing dangerous substances

These wastes are classified as hazardous by looking for any dangerous substance(s) in the waste. This entry is chosen if this waste contains any dangerous substance(s) at the required levels.

A Specific Reference: e.g

17 03 11* bituminous mixtures containing coal tar

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 if the waste contains coal tar at the required levels.

In the two examples above, if the waste doesn't contain the dangerous substance(s) at the required levels, it is not hazardous and the non-hazardous 6-digit of the pair should be chosen, e.g.

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

07 03 02 bituminous mixtures other than those mentioned in 17 03 01

“Non-Hazardous Entries”: Where a waste is not listed in the EWC 2002 with an asterisk, then it is not hazardous. However, where the non-hazardous entry forms part of a “mirror entry” assessment is required to determine whether the hazardous or non-hazardous waste entry is applicable.

This is an entry in the List of Wastes without an asterisk so it is not hazardous e.g.

03 01 01 waste bark and cork

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

STEP 5:

What substances are in the Waste?

An easy method of checking whether a waste covered by a “mirror entry” is hazardous is to identify the chemical composition of the waste and then determine if the concentrations of chemicals within the waste are sufficient to render the waste hazardous.

The composition of the waste could be identified using:

- knowledge of the process or activity that produced the waste; and/or
- chemical/microbiological analysis of the waste; and/or
- information on the Safety Data Sheets.

Usually, the company producing or storing a “mirror entry” waste will have enough information regarding the chemical substances in their waste, from the above sources, to know if it is hazardous or not. If they do not they will need to test the waste for hazardous properties (see step 6b).

STEP 6a:

Are the substances in the waste “dangerous substances”?

There are three ways to find out if the substances in a “mirror entry” waste are dangerous:

1. Using the ASL

‘The Approved Supply List (8th Edition) – Information approved for the labelling of substances and preparations dangerous for supply’ (‘the ASL’) The Approved Supply List Supplement provides a risk phrase and classification for substances listed. This should be used to classify the hazard of each substance in the waste by looking up the substance in the alphabetic listing in the ASL – Part 1 and then cross referencing this entry in Part V.

Column 2 of Part V of the ASL gives the classification as a risk phrase(s) for that substance. The risk phrase(s) can be linked to the hazardous properties in the HW Regulations by reference to

‘The Approved Guide to the classification and labelling of substances and preparations dangerous for supply’ (‘the AG’).

2. Can a hazard(s) be identified from other data sources?

If no entry is found in the ASL, then further research is required using the other data sources listed at the end of this Guide. The internet can also be used

These other data sources may be used in conjunction with the AG to determine the hazardous property for the substance contained in the waste. This is a technically complex process that is described in more detail in WM2 Appendix D.

3. Use Safety Data Sheets

Use the information from the Safety Data Sheets to find out whether the waste contains any dangerous substances.

The classification of the substance(s) shows:

- The categories of danger exhibited by the substance; and
- The risk phrase(s), which describe the hazards the substance possesses.

The risk phrases are used to set the levels that the dangerous substance must be present at in the waste for it to be classified as hazardous or not. The hazards described in Appendix A all have risk phrases associated with them. WM2 identifies all the risk phrases that are relevant to hazardous waste and provides the thresholds (levels that they must be at in the waste for it to be hazardous) or criteria that relate them to the hazard.

If none of the substances in the waste are classified as “dangerous substances”, the waste will not be hazardous and the non-hazardous EWC code can be used.

STEP 6b:

Is there any reason to indicate the waste may be hazardous (e.g. test results)

If hazardous properties cannot be identified from the ASL or other data sources then the consignor should seek guidance from EHS. If, however, the consignor feels certain beyond doubt that the waste is not ‘hazardous’ then he may choose to treat it as not being a hazardous waste without further discussion. However, if EHS arrive at a different interpretation the following steps will need to be followed

1. Agreement

Discussions with EHS may lead to agreement as to whether or not the waste should be treated as a hazardous waste.

2. Arbitration by testing

If agreement cannot be reached then the testing of the waste may have to be arranged (see test methods in WM2 Appendix C)

Do the tests show the waste to be hazardous waste?

Results from the tests specified in WM2 should provide data sufficient to allow a determination as to whether or not the waste should be classified as a hazardous waste.

STEP 7:

Does the waste possess any of the Hazardous Properties H1 to H14?

For a waste by a “*mirror entry*” to be hazardous it must “display” a hazardous property. The hazardous properties are listed in Appendix A.

There are two methods of determining if a “mirror” entry waste has a hazardous property:

1. where the waste contains “dangerous substances”, their concentrations (that is the levels they are present at in the waste) are compared against appropriate thresholds; or

2. a test is carried out to find if the waste has a hazardous property. This mainly applies to physical properties e.g. flashpoint for hazard H3- Flammable.

The waste will be hazardous if:

- it contains a dangerous substance(s) with a concentration at or above the appropriate threshold; and/or
- a test shows a hazardous property

If it is hazardous, then the hazardous part of the “mirror” entry pair must be used.

Waste will not be hazardous if it contains a dangerous substance(s) provided these are present in the waste at levels that are below the threshold(s); or tests do not show a hazardous property. If this is the case the non-hazardous part of the “mirror” entry should be used.

The LoWR gives the thresholds for only some of the hazards that are listed in Appendix A. We have included these in Appendix B. Full details of each hazard and the thresholds or criteria that are relevant to it, including those not referenced in Appendix B, are given in WM2.

Appendix A – Hazardous Properties

Properties of wastes which render them hazardous - as defined in the Hazardous Waste Directive Annex III

- 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.
- H3A** **'Highly flammable'** (first indent) liquid substances and preparations having a flash point below 21°C (including extremely flammable liquids), or
- H3A** **'Highly flammable'** (second indent) Substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or
- H3A** **'Highly flammable'** (third indent) substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or
- H3A** **'Highly flammable'** (fourth indent) gaseous substances and preparations which are flammable in air at normal pressure, or
- H3A** **'Highly flammable'** (fifth indent) substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.
- H3B** **'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 and ingested, or if they penetrate the skin, may involve limited health risks.
- H6** **'Toxic'**: substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.
- H7** **'Carcinogenic'**: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.
- H8** **'Corrosive'**: substances and preparations which may destroy living tissue on contact
- H9** **'Infectious'**: substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.
- H10** **'Teratogenic'**: substances and preparation which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.
- H11** **'Mutagenic'**: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.
- H12** Substances and preparations which release toxic or very toxic gases in contact with water, air or an acid.
- H13** Substances and preparations capable by any means, after disposal, of yielding another substance, e.g., a leachate, which possesses any of the characteristics listed above.
- H14** **'Ecotoxic'**: substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.

Appendix B – Relevant Thresholds

Properties and characteristics of dangerous substances classified as hazardous waste

The following are the thresholds or criteria that are set in the HWR. Where the text refers e.g. “R35”, this is a reference to a risk phrase for a particular dangerous substance.



DATA SOURCES AND OTHER RELEVANT LEGISLATION

Data Sources

The following list provides sources of data and information that may be of assistance to users of this Guide in the classification of their wastes.

The Approved Supply List (8th Edition), as revised by the Approved Supply List Supplement, and associated guidance from the Health and Safety Commission produced in accordance with the CHIP Regulations.

Royal Society of Chemistry: Chemical Safety Data Sheets

Vol. 1 – Solvents (1989)
ISBN 0-85186-903-3

Vol. 2 – Main Group Metals and their
Compounds (1990)
ISBN 0-85186-913-0

Vol. 3 – Corrosives and Irritants (1990)
ISBN 0-85186-923-8

Vol. 4A – Toxic Chemicals (A-L) (1991)
ISBN 0-85186-311-6

Vol. 4B – Toxic Chemicals (M-Z) (1992)
ISBN 0-85186-321-3

Vol.5 – Flammable Chemicals (1992)
ISBN 0-85186-411-2

Royal Society of Chemistry
Agrochemicals Handbook (3rd Edition)
And Updates
ISBN 0-85186-416-3

Handbook of Reactive Chemical Hazards
(3rd Edition) L. Bretherick
ISBN 0-408-013887-5

BDH – Hazard Data Sheets (1990) + Addendum
BDH Product No 57053 1S and 57053 2T
Merck Ltd, Broom Road, Poole, BH12 4NN

Sax's Dangerous properties of Industrial Materials (9th Edition) Edition by R J Lewis Snr
Van Nostrand Rheinhold, London (1992)
ISBN 0-442-02025-2 (3 volumes)

The Merck Index
Merck and co. Inc., Rahway, NJ, USA
ISBN 911910-28X

Handbook of Chemistry and Physics (74th Edition)
Edited by D. R. Lide – CRC Press, London
ISBN 0-8493-0474-1

Compendium of Safety Data Sheets for Research and Industrial Chemicals – Vols I-III
VCH Publishers Inc., Deerfield Beach, Florida, USA
ISBN 0-89573-313-7 (3 volumes)

NFPA – Fire Protection Guide to Hazardous Materials (1994)
National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, Maryland, USA
ISBN 0-87765-400-X
Copies can be obtained from Customer Services Dept, ILI, Index House, Ascot, Berks SL% 7BR

NIOSH – Register of Toxic Effects of Chemical Substances (RTECHS)
Available in paper, microfiche or CD-Rom format from: Microinfo Ltd, PO Box 3, Omega Park,
Hants GU34 2PG

Environmental Hazard Assessment
A series of papers prepared by the Building Research Establishment (BRE) and the Institute of
Terrestrial Ecology for the DoE.
Available from BRE Bookshop, BRE, Gaston, Watford, ED" 7JR. Telephone: (01923) 664444

Environmental Health Criteria Documents (EHCs) and Health and Safety Guides prepared under
the International Programme of Chemical Safety.

Materials Safety Data Sheets on substances and preparations are available from the
manufacturers and/or suppliers.

The Waste Management Information Bureau (WMIB) part of the National Environmental
Technology Centre (NETCEN) can provide information on environmental hazards from its
bibliographic database 'WasteInfo'
WMIB, AEA Technology,
F6 Culham, Oxon, OX14 3DB
Telephone (01235) 463162

MIMS – Monthly Index of Medical Specialities,
174 Hammersmith Road, London, W6 7JP
Telephone: (020) 7413 4095

Other Relevant Legislation and Advice

Transport Regulations – Advice about moving Dangerous Goods

Further information on the application of the following legislation may be obtained from the Health & Safety Inspectorate, 83 Ladas Drive, Belfast BT6 9FJ.

*The Carriage of Dangerous Goods by Road Regulations (Northern Ireland) 1997
ISBN 0-337-93145-7

*The Carriage of Dangerous Goods by Rail Regulations (Northern Ireland) 1998
ISBN 0-337-93145-3

*The Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations (Northern Ireland) 1997
ISBN 0-337-92847-9

*The Carriage of Dangerous Goods by Road (Driver Training) Regulations (Northern Ireland) 1997
ISBN 0-337-92849-5

The Carriage of Dangerous Goods (Safety Advisers) Regulations (Northern Ireland) 2000
ISBN 0-337-93884-9

The Carriage of Dangerous Goods (Amendment) Regulations (Northern Ireland) 2002
ISBN 0-337-10509-X

The Dangerous Substances in Harbour Areas Regulations (Northern Ireland) 1991
ISBN 0-337-10509-X

Approved Carriage List – Information Approved for the Classification, Packaging and Labelling of Dangerous Goods for Carriage by Road and Rail Other Than Explosive and Radioactive Material
ISBN 0-7176-1681-9

Approved Requirements and Test Methods for the Classification and Packaging of Dangerous Goods for Carriage
ISBN 0-7176-1221-X

* Amended by the Carriage of Dangerous Goods (Amendment) Regulations (Northern Ireland) 2002

You can obtain copies of any of the above publications from The Stationery Office, Government Bookshop, 16 Arthur Street, Belfast.
Telephone (O28) 9023 8451