INDUSTRIAL WASTE RESOURCE GUIDELINES

SOLID INDUSTRIAL WASTE HAZARD CATEGORISATION AND MANAGEMENT

CONTENTS

INTRODUCTION

This guideline will assist waste generators and treaters in categorising their solid industrial waste based on the hazard posed by those wastes.

It provides guidance on determining the hazard category of prescribed industrial wastes (PIWs) that come from manufacturing sources, that are not contaminated soils and that are destined for disposal at a landfill.

WHAT THIS MEANS FOR YOU

If you are a generator or treater of manufacturing waste, you will be required to categorise the waste prior to disposal. There are four waste categories: A, B, C and industrial waste (IW). The category chosen will determine what management options are available for that material.

The waste generator will need to categorise wastes that are transported directly from their premises for disposal. If wastes are treated off-site, they will need to be categorised by the waste treater prior to disposal. Waste treaters will require information from the waste generator on the nature of the waste, so that it can be treated appropriately.

WASTE CHARACTERISATION

Waste characterisation will involve identification of contaminants likely to be present in the waste, as well as sampling and analysis for each of the contaminants. Documented evidence to support the categorisation must include the results of a sampling and analysis program.

The nature of the waste characterisation study will vary, depending on factors such as the process that generated the waste. For example, solid wastes from processes with variable inputs will require more regular testing than waste streams where the inputs and processes are consistent and repeatable results can be demonstrated. Each study must, therefore, be tailored specifically for the waste that is to be characterised.

The waste characterisation study may be integrated into existing environmental management systems or environment improvement plans (EIPs) implemented by waste generators and waste treaters.

Thorough characterisation of a waste stream may enable waste generators to identify opportunities to manage wastes higher up the waste management hierarchy. For example: by identifying cleaner production opportunities that would result in a reduction in the volume of waste generated.

Waste generators and waste treaters may seek to characterise a waste stream by undertaking an assessment of the process that generated the waste. By doing this, all contaminants, or waste components, that are likely to be present in the waste, can be identified in conjunction with a waste sampling and analysis program.

The following information may assist in undertaking a process assessment:

1. process flow diagrams or plans
2. determination of process inputs and outputs (including secondary chemical reactions and products)
3. physical state of the waste
4. quantity of the waste produced
5. process variations which may produce a different waste composition.

This guidance forms part of the Industrial Waste Resource Guidelines, which offer guidance for wastes and resources regulated under the *Environment Protection (Industrial Waste Resource) Regulations 2009*. Publication IWRG631 – June 2009.

Relevant information may also be obtained through literature reviews and/or industry associations. Material safety data sheets (MSDS) might provide additional information, however most MSDS do not contain information on all components found in a waste.

The process assessment must be accompanied by waste sampling and analysis results. A sampling and analysis program may include all or some of the following steps, depending on what is appropriate for the particular waste being characterised. A waste generator or waste treater may use alternative steps to characterise their waste, if appropriate. However, they should seek advice from EPA, if in doubt about the appropriateness of the waste characterisation study.

Broad screen: An analysis of a small number of samples for a wide screen of likely components in the waste. This screening process seeks to confirm that all components of the waste have been identified by the process assessment.

Specific sampling and analysis: A short term intensive sampling and analysis program that seeks to achieve repeatable results for each component of the waste that was identified in both the process assessment and the broad screen, and that is likely to influence the classification of the waste. This step allows the total and leachable concentration of waste contaminants to be determined and should include relevant statistical measures of uncertainty.

Ongoing sampling and analysis: Periodic sampling and analysis of the waste for the purposes of confirming that it remains within the range identified by the specific sampling and analysis step. This may also include periodic screening for a broader range of contaminants to confirm that no new contaminants are present.

Contingency planning: A plan developed to ensure the appropriate management of wastes in cases where the ongoing sampling and analysis program indicates changes to the waste characteristics that would result in the waste classification changing.

Review: The results of the waste characterisation study should be regularly reviewed to assess any changes in waste composition. Should the nature of the process generating the waste change, for example, through a change in raw materials or supplier, it may be necessary to conduct further sampling and analysis.

HAZARD CHARACTERISTICS

A hazard characteristic assessment is used to determine whether a waste displays any of the specific hazard characteristics listed in Table 1.

Any solid industrial waste which displays one or more of the hazard characteristics listed in the following table is a Category A.

Table 1: Specific hazard characteristics

Hazard characteristic	Definition[1]
Explosive wastes	An explosive waste is a solid waste (or mixture of wastes) which is in itself capable, by chemical reaction, of producing gas at such a temperature, pressure and speed as to cause damage to the surroundings. Note – This includes wastes classified as 'Class 1' under the provisions of the Road Transport (Dangerous Goods) Act 1995 and/or classified as 'Goods Too Dangerous to be Transported' under the Australian Dangerous Goods Code.
Flammable solid wastes	Waste solids, other than those classified as explosives, which, under conditions encountered in transport or containment, are readily combustible, or may cause or contribute to fire through friction. Note – This includes wastes classified as 'Class 4.1' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Wastes liable to spontaneous combustion	Wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up in contact with air and liable to catch fire. Note – This includes wastes classified as 'Class 4.2' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Wastes which, in contact with water, emit flammable gases	Wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities. Note – This includes wastes classified as 'Class 4.3' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Oxidising wastes	Wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause or contribute to the combustion of other materials. Note – This includes wastes classified as 'Class 5.1' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Organic peroxide wastes	Organic wastes which contain the bivalent-O-O-structure and which are thermally unstable and may undergo exothermic self-accelerating decomposition. Note – This includes wastes classified as 'Class 5.2' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Infectious wastes	Wastes containing viable microorganisms or their toxins which are known or suspected to cause disease in animals or humans. Note – This includes clinical and related wastes as prescribed in the Environment Protection (Prescribed Waste) Regulations 1998, and further defined in Addendum for Victoria Only, Additional Operational Guidance, 4th Edition, ANZCWMIG, Code of Practice for the Management of Clinical and Related Wastes, Version 1 2004 as amended from time to time, and includes wastes classified as 'Class 6.2' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Corrosive wastes	Wastes which, by chemical action, will cause severe damage when in contact with living tissue, or in the case of leakage, will materially damage, or even destroy, other goods or the means of transport or containment. They may also cause other hazards. Where corrosivity testing data is not available, pH may be used to determine if the material is Category A. • pH value of 2 or less • pH value of 12.5 or more Note – This includes wastes classified as 'Class 8' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Wastes that liberate toxic gases in contact with air or water	Wastes which, by liberation with air or water, are liable to give off toxic gases in dangerous quantities. Note – This includes wastes liable to give off toxic gases that are classified as 'Class 2.3' under the provisions of the Road Transport (Dangerous Goods) Act 1995.
Wastes capable of yielding another material which possesses any of the characteristics above	Wastes capable, by any means, after containment, of yielding another material, for example, leachate, which possesses any of the characteristics listed above and/or is a flammable liquid.

Notes:

1. Definitions are adopted from the Industrial Waste Management Policy (Movement of Controlled Wastes between States and Territories) 2001.
2. In this table the word 'flammable' has the same meaning as 'inflammable'. Flammable liquid wastes are waste liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc.) which give off flammable vapour at temperatures of not more than 60.5 degrees Celsius, closed-cup test, or not more than 65.6 degrees Celsius, open-cup test. Note – The definition of flammable liquid wastes includes wastes classified as 'Class 3' under the provisions of the Road Transport (Dangerous Goods) Act 1995.

SAMPLING AND ANALYSIS

The following procedures must be used to sample and analyse the waste stream:

1. wastes must be sampled, collected, preserved and analysed as specified in IWRG *Sampling and Analysis of Waters, Wastewater, Soils and Waste*.
2. sampling must be representative of the waste and account for variability in the waste composition (see IWRG Waste Sampling for Solid Prescribed Industrial Waste).
3. samples must be submitted to an analytical laboratory accredited by the National Association of Testing Authorities (NATA) to undertake the analyses

When determining the leachate concentrations for waste, two buffer solutions must be used (as outlined in Australian Standards AS 4439.2 and 4439.9 using class 3b leaching fluids).

It is recommended that a two-step analytical process be followed when determining the hazard category of waste.

- Initially total concentrations should be determined and if, and only if, the total concentration (TC) is less than twenty times the ASLP1 value, leachable testing is not necessary for Category C (this is due to the twenty times dilution factor involved in the ASLP leaching test method).
- In all other situations ASLP must be determined.
- Leachability testing is required to determine if the waste is Industrial Waste.

RECOMMENDED METHODS

The recommended methods for solid industrial waste are provided in the EPA Victoria recommended NATA-accredited methods for the analysis of total contaminant levels in solid waste, which can be found in IWRG *Sampling and Analysis of Waters, Wastewater, Soils and Waste*. EPA have no plans to mandate methods for 'totals', but the method that is used must be appropriate to determine the 'total concentration' of the contaminants.

Further information on these methods can be found on the USEPA website Test Methods SW-846 http://www.epa.gov/epaoswer/hazwaste/test/main.htm and from the National Environment Protection (Assessment of Site Contamination) Measure 1999 Guideline on Laboratory Analysis of Potentially Contaminated Soils http://www.ephc.gov.au/pdf/cs/cs_03_lab_analysis.pdf

SPECIFIC CONTAMINANTS

For the contaminant formaldehyde, it will only be necessary to determine leachable concentrations. This is due to the lack of an effective method to determine the total concentration of formaldehyde.

For the contaminant boron, it will only be necessary to determine leachable concentrations using the acetate buffer.

Many laboratories conduct Total Recoverable Hydrocarbon (TRH) analysis and report this as Total Petroleum Hydrocarbon (TPH). A number of people have raised concerns with using the TRH result and reporting these as TPH due to the presence of other hydrocarbon substances, not related to petroleum hydrocarbons, being included in the TRH test. Until there is a routine test developed exclusive for TPH, it may be necessary to discuss with clients what options are available to remove non petroleum based hydrocarbons prior to analysis.

To provide consistency in the approach of summing grouped contaminants and interpreting results that are below the limit of reporting, EPA recommends all positive values for the individual components be summed together.

Acids in solid form with a pH value of 4 or less and alkaline solids with a pH of 9 or more are considered to be PIW. Table 1 provides further information on pH values that are applicable to Category A.

Results for total concentrations are to be reported on a dry weight basis.

WASTE CATEGORIES

A hazard category of either A, B, C or IW must be applied to all solid industrial wastes. The hazard category determines the type of facility able to accept such wastes. Management options for each of the hazard categories are summarised in Table 3 of this document.

The hazard categorisation framework (Figure 1) outlines the process for attributing a hazard category to solid PIWs. The framework specifies the following requirements:

1. Solid industrial wastes that display any specific hazard characteristic listed in Table 1 are Category A PIW.
2. Solid industrial wastes must be assessed against the total concentration (TC0, TC1 and TC2) and leachable concentration (ASLP0, ASLP1 and ASLP2) thresholds specified in Table 2
3. PIWs with any contaminant level above the TC2 or ALSP2 thresholds are categorised as Category A. PIW with any contaminant level greater than TC1 but below TC2, or greater than ASLP1 but below ASLP2 are categorised as Category B. Wastes

with any contaminant level greater than ASLP0 but below the TC1 and ALSP1 thresholds are categorised as Category C. Solid industrial wastes with all contaminant levels below both the TC0 and ASLP0 thresholds are categorised as IW.

4. If a component of the waste is, in its pure form, poisonous (acute), toxic (delayed or chronic) and/or ecotoxic and is not listed in Table 2, or if, after containment the waste is capable (by any means) of yielding another material, for example leachate, which is poisonous (acute), toxic (delayed or chronic) and/or ecotoxic and is not listed in Table 2, the waste generator must apply to EPA for a determination of hazard category.
5. Assessment must be for all chemical substances known and reasonably expected to be present in the waste. Contact EPA for further guidance on contaminants not listed in Table 2.

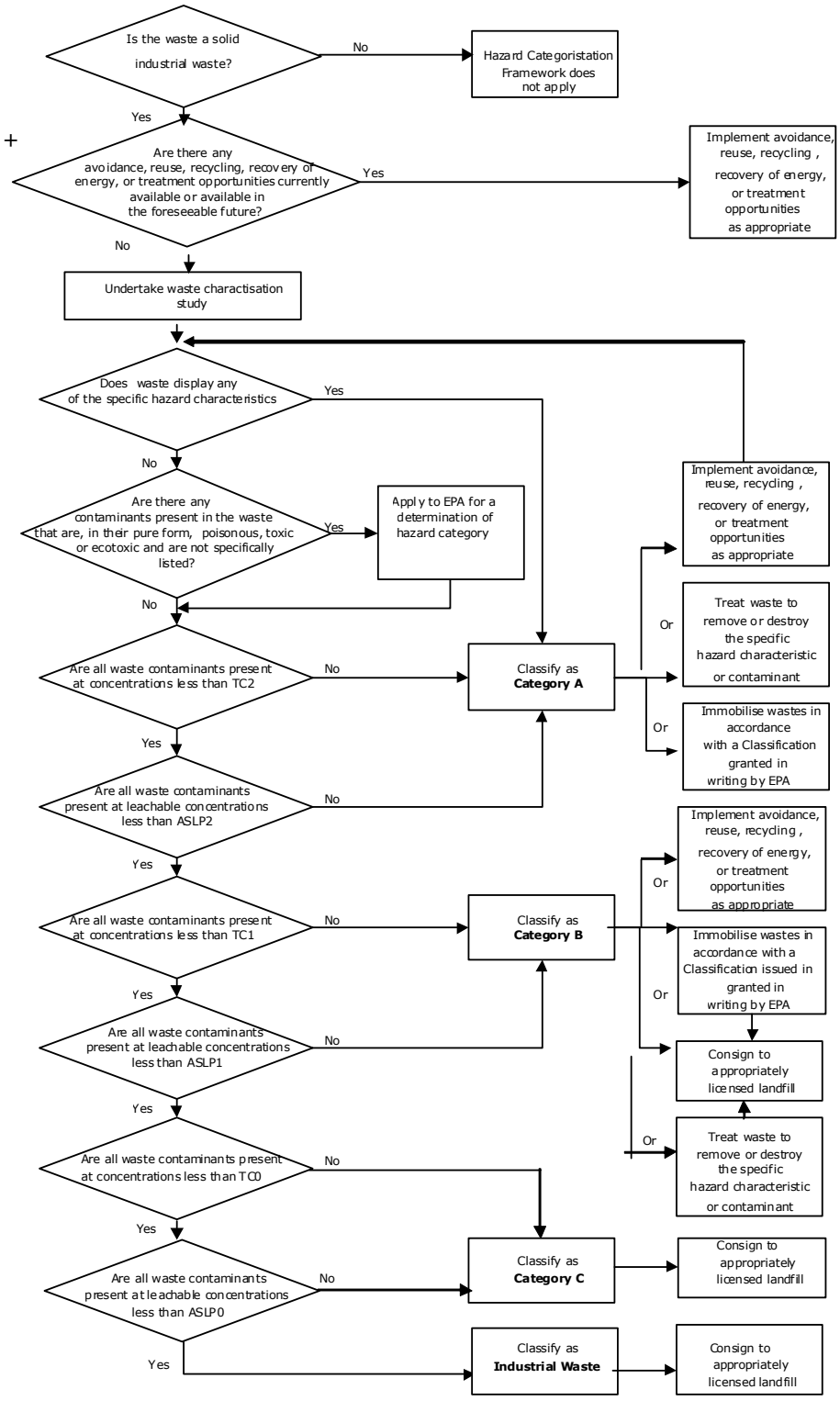

Figure 1: Hazard categorisation framework

Table 2: Solid industrial waste hazard categorisation thresholds

Category	Industrial waste upper limits		Category C upper limits		Category B upper limits		
Contaminant concentration thresholds (dry weight)	ASLP0	TC0	ASLP1[1]	TC1[2]	ASLP2	TC2	
Units	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	
Inorganic species	**Inorganic species**		**Inorganic species**		**Inorganic species**		
Antimony[3,8]	1	75	2	75	8	300	
Arsenic	0.35	500	0.7	500	2.8	2,000	
Barium[3]	35	6,250	70	6,250	280	25,000	
Beryllium[5]	0.5	100	1	100	4	400	
Boron	15	15,000	30	15,000	120	60,000	
Cadmium	0.1	100	0.2	100	0.8	400	
Chromium (VI)	2.5	500	5	500	20	2,000	
Copper	100	5,000	200	5,000	800	20,000	
Lead	0.5	1,500	1	1,500	4	6,000	
Mercury	0.05	75	0.1	75	0.4	300	
Molybdenum[6]	2.5	1,000	5	1,000	20	4,000	
Nickel	1	3,000	2	3,000	8	12,000	
Selenium[6]	0.5	50	1	50	4	200	
Silver[6]	5	180	10	180	40	720	
Tributyltin oxide[3]	0.05	2.5	0.1	2.5	0.4	10	
Zinc	150	35,000	300	35,000	1,200	140,000	
Anions	**Anions**		**Anions**		**Anions**		
Chloride	12,500	N/A	25,000	N/A	N/A	N/A	
Cyanide (amenable) [5]	1.75	1,250	3.5	1,250	14	5,000	
Cyanide (total)	4	2,500	8	2,500	32	10,000	
Fluoride[6]	75	10,000	150	10,000	600	40,000	
Iodide	5	N/A	10	N/A	40	N/A	
Nitrate	2,500	N/A	5,000	N/A	20,000	N/A	
Nitrite	150	N/A	300	N/A	1,200	N/A	
Organic species	**Organic species**		**Organic species**		**Organic species**		
Benzene	0.05	4	0.1	4	0.4	16	
Benzo(a)pyrene[7]	0.0005	5	0.001	5	0.004	20	
C6-C9 petroleum hydrocarbons[6]	N/A	325	N/A	650	N/A	2,600	
C10-C36 petroleum hydrocarbons[6]	N/A	5,000	N/A	10,000	N/A	40,000	
Carbon tetrachloride	0.15	12	0.3	12	1.2	48	

INDUSTRIAL WASTE

CATEGORY C PRESCRIBED INDUSTRIAL WASTE

CATEGORY B PRESCRIBED INDUSTRIAL WASTE

CATEGORY A PRESCRIBED INDUSTRIAL WASTE

Category	Industrial waste upper limits		Category C upper limits		Category B upper limits		
Contaminant concentration thresholds (dry weight)	ASLP0	TC0	ASLP1[1]	TC1[2]	ASLP2	TC2	
Units	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	
Chlorobenzene	15	1,200	30	1,200	120	4,800	
Chloroform[5]	3	240	6	240	24	960	
2 Chlorophenol	15	1,200	30	1,200	120	4,800	
Cresol (total)[5]	100	8,000	200	8,000	800	32,000	
Di (2 ethylhexyl) phthalate	0.5	40	1	40	4	160	
1,2-Dichlorobenzene	75	6,000	150	6,000	600	24,000	
1,4-Dichlorobenzene	2	160	4	160	16	640	
1,2-Dichloroethane	0.15	12	0.3	12	1.2	48	
1,1-Dichloroethene	1.5	120	3	120	12	480	
1-2-Dichloroethene	3	240	6	240	24	960	
Dichloromethane (methylene chloride)	0.2	16	0.4	16	1.6	64	
2,4-Dichlorophenol	10	800	20	800	80	3,200	
2,4-Dinitrotoluene[5]	0.065	5.2	0.13	5.2	0.52	21	
Ethylbenzene	15	1,200	30	1,200	120	4,800	
Ethylene diamine tetra acetic acid (EDTA)	12.5	1,000	25	1,000	100	4,000	
Formaldehyde	25	2,000	50	2,000	200	8,000	
Hexachlorobutadiene	0.035	2.8	0.07	2.8	0.28	11	
Methyl ethyl ketone[5]	100	8,000	200	8,000	800	32,000	
Nitrobenzene[5]	1	80	2	80	8	320	
PAHs (total)[7,10]	N/A	50	N/A	100	N/A	400	
Phenols (total, non-halogenated)[5,11]	7	560	14	560	56	2,200	
Polychlorinated biphenyls[4]	N/A	2	see note 4		see note 4		
Styrene	1.5	120	3	120	12	480	
1,1,1,2-Tetrachloroethane[5]	5	400	10	400	40	1,600	
1,1,2,2-Tetrachloroethane[5]	0.65	52	1.3	52	5.2	210	
Tetrachloroethene	2.5	200	5	200	20	800	
Toluene	40	3,200	80	3,200	320	12,800	
Trichlorobenzene (total)	1.5	120	3	120	12	480	
1,1,1-Trichloroethane[5]	15	1,200	30	1,200	120	4,800	
1,1,2-Trichloroethane[5]	0.6	48	1.2	48	4.8	190	
Trichloroethene[5]	0.25	20	0.5	20	2	80	
2,4,5-Trichlorophenol[5]	200	16,000	400	16,000	1600	64,000	

INDUSTRIAL WASTE

CATEGORY C PRESCRIBED INDUSTRIAL WASTE

CATEGORY B PRESCRIBED INDUSTRIAL WASTE

CATEGORY A PRESCRIBED INDUSTRIAL WASTE

Category	Industrial waste upper limits		Category C upper limits		Category B upper limits	
Contaminant concentration thresholds (dry weight)	ASLP0	TC0	ASLP1[1]	TC1[2]	ASLP2	TC2
Units	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
2,4,6-Trichlorophenol	1	80	2	80	8	320
Vinyl chloride	0.015	1.2	0.03	1.2	0.12	4.8
Xylenes (total)	30	2,400	60	2,400	240	9,600
Pesticides	Pesticides		Pesticides		Pesticides	
Aldrin + dieldrin	0.015	1.2	0.03	1.2	0.12	4.8
DDT + DDD + DDE[9]	1	50	2	50	N/A	50
2,4-D	1.5	120	3	120	12	480
Chlordane	0.05	4	0.1	4	0.4	16
Heptachlor	0.015	1.2	0.03	1.2	0.12	4.8

Notes

1. Where not otherwise specified, ASLP1 criteria are derived from the *NHMRC Australian Drinking Water Guidelines (1996) Guideline Health Values*, multiplied by 100.
2. Where not otherwise specified, TC1 criteria for 'Inorganic species' and 'Anions' has been adopted as the *National Environment Protection Measure on the Assessment of Site Contamination 1999, Health Investigation Level for Commercial/Industrial land*.
3. TC1 adopted from the Risk-based *Assessment of Soil and Groundwater Quality in the Netherlands, Intervention Values for soil*.
4. Waste containing polychlorinated biphenyls (PCBs) must be managed in accordance with the *Notifiable Chemical Order for Polychlorinated Biphenyls*. Industrial Waste Guidelines section *Polychlorinated Biphenyls (PCBs)* provides further information.
5. ASLP1 adopted from $TCLP_2$ value specified in Department of Environment and Climate Change NSW, *Waste Classification Guidelines Part 1: Classifying Waste*, 2008.
6. TC1 adopted from SCC_2 value specified in Department of Environment and Climate Change NSW, *Waste Classification Guidelines Part 1: Classifying Waste*, 2008.
7. TC1 value adopted from the *National Environment Protection Measure on the Assessment of Site Contamination 1999, Health Investigation level for Commercial/ Industrial Land*.
8. ASLP1 adopted from *World Health Organisation (WHO), Antimony in drinking water. Background document for development of WHO guidelines for Drinking-water quality* 2003, multiplied by 100.
9. TC1 and TC2 values adopted from the *ANZECC Organochlorine Pesticides Waste Management Plan* 1999.
10. Total sum of naphthalene, acenaphthylene, acenaphthene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluorene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene and pyrene.
11. Total sum of phenol, 2-methylphenol (o-cresol), 3-methylphenol (m-cresol), 4-methylphenol (p-cresol), 2,4-dimethylphenol, 2.4-dinitrophenol, 2-methyl-4,6-dinitrophenol, 2-nitrophenol, 4-nitrophenol, 2-cyclohexyl-4,6-dinitrophenol and dinoseb.

Table 3: Management options for each hazard category

Category	Management option
A	Prescribed industrial wastes which require a very high level of control and ongoing management to protect human health and the environment. Wastes in this category cannot be accepted at a disposal facility without prior treatment to reduce or control the hazard.
B	Prescribed industrial wastes which require a high level of control and ongoing management to protect human health and the environment. Solid prescribed industrial wastes in this category can be accepted at a facility licenced by EPA to receive this category of waste.
C	Prescribed industrial wastes which pose a low hazard, but require control and/or ongoing management to protect human health and the environment. Solid prescribed industrial wastes in this category are able to be accepted at best practice municipal landfills licensed by EPA to accept such waste.
Industrial waste	Industrial wastes are not regulated as prescribed industrial wastes, but when disposed of to landfill, continue to be controlled by EPA. These wastes can be accepted at solid inert landfills (non-putrescible) or municipal solid waste landfills (putrescible) licenced by EPA to accept this type of waste.

MANAGEMENT OPTIONS

Table 3 provides a summary of the disposal options available for each category of waste.

Generators of prescribed industrial waste may wish to submit a classification application to EPA for approval, where it can be demonstrated that a different category from that outlined above is appropriate for a particular contaminant or group of contaminants in the waste. For example, a contaminant that is intrinsically immobile may display a low hazard because of the low leachable concentration, despite a relatively high total concentration. Applications will need to provide justification as to why the proposed management will achieve the best environmental outcome. Further analytical testing may also be required. The IWRG Classifications – for Disposal provides further information on the requirements for a classification.

DEFINITIONS

The following definitions apply for the purposes of this guideline:

ASLP: Australian Standard Leaching Procedure as specified in Australian Standards 4439.2 and 4439.3

Ecotoxic wastes: wastes that, if released, may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems. They include wastes classified as displaying aquatic toxicity (including Acute Category 1, 2 and 3 and Chronic Category 1,2,3 and 4) under the Harmonised Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances or Mixtures (OECD, 2001).

Immobilisation: a process whereby the solubility, leachability, availability or reactivity of a waste and its components is reduced by chemical reaction and/or physical encapsulation in a solid matrix.

Poisonous (acute) wastes: wastes liable either to cause death or serious injury or harm to human health if swallowed, inhaled or absorbed via skin contact. They include substances or wastes classified as Class 6.1 under the provisions of the *Road Transport (Dangerous Goods) Act 1995*.

TC – Total concentration.

Toxic (delayed or chronic) wastes – wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity. They include substances or wastes classified as any of the following hazard categories under the Harmonised Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances or Mixtures (OECD, 2001):

- germ cell mutagenicity (including Category 1, 1A, 1B or 2)
- carcinogenicity (including Category 1, 1A, 1B or 2)
- reproductive toxicity (including Category 1, 1A, 1B, 2 or additional category)
- specific target organ systemic toxicity (including single exposure Category 1 and 2 and repeated exposure Category 1 and 2).

Treatment: a process whereby the specific hazard characteristic is removed or destroyed, or the contaminant total concentration reduced (ie. the contaminant is removed from the waste).

FURTHER INFORMATION

- Australian Standard 4439.2 – 1997, *Wastes, sediments and contaminated soils*. Part 2: Preparation of leachates – Zero headspace procedure.
- Australian Standard 4439.3 – 1997, *Wastes, sediments and contaminated soils*. Part 3: Preparation of leachates –Bottle leaching procedure.
- Australian Standard 4482.1 – 2005, *Guide to sampling and investigation of potentially contaminated soil*. Part 1: Non-volatile and semi-volatile compounds