



INDUSTRIAL WASTE RESOURCE GUIDELINES

WASTE CATEGORISATION

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INTRODUCTION

This document provides an overview of waste types and hazard categorisation for both solid industrial waste and soils.

Specific categorisation requirements for soil and solid industrial waste can be found in the Industrial Waste Resource Guidelines (IWRG):

- *Soil hazard categorisation and management*
- *Solid industrial waste hazard categorisation and management.*

As set out in the *Environment Protection Act 1970* (the Act), all wastes should be managed in accordance with the waste hierarchy, which states the following order of preference:

- avoidance
- reuse
- recycling
- recovery of energy
- treatment
- containment
- disposal.

The wastes hierarchy is one of eleven principles of environment protection contained in the Act.* The principles provide a framework for EPA's decision-making and are intended to benefit the Victorian environment and community. In making decisions, EPA takes all of the principles into account and applies them in an integrated manner.

* The other environmental protection principles are: the principle of integration of economic, social and environmental considerations; the precautionary principle; the principle of intergenerational equity; the principle of conservation of biological diversity and ecological integrity; the principle of improved valuation, pricing and incentive mechanisms; the principle of shared responsibility; the principle of product stewardship; the principle of integrated environmental management; the principle of enforcement; and the principle of accountability.

WHAT THIS MEANS FOR YOU

All prescribed industrial wastes (PIWs) require contaminant analysis to determine the appropriate hazard category prior to being accepted at landfills.

Landfill operators may require a copy of the analytical results to demonstrate that the material meets the relevant criteria set out in their licence.

From 1 July 2009, the Regulations allow for solid industrial waste, that has contaminant levels below those specified, to be categorised and managed as Industrial Waste. Refer to Table 3 in IWRG *Solid industrial waste hazard categorisation and management*.

HOW THE CATEGORISATION SYSTEM WORKS

Once it has been determined that there is no available opportunity for a waste stream to be avoided, reduced, reused, recycled, treated or reprocessed, it must be appropriately characterised prior to disposal.

The final outcome of a characterisation study will be an understanding of the contaminants, their concentrations and leachability for the entire waste stream. The waste must be assessed for all chemical substances known and/or reasonably expected to be present in the waste.

Once each of the potential contaminants have been identified, a set of samples should be taken and sent for analysis. For more information on sampling of solid industrial waste, please refer to the IWRG Waste Sampling for Solid Industrial Waste or IWRG Soil Sampling Guidelines for contaminated soils.

These samples must be submitted to an analytical laboratory accredited by the National Association of Testing Authorities (NATA) to undertake the analyses. It is recommended that a total concentration screen be completed first to confirm the presence of certain contaminants. Once this is known, leachability testing may be required.

These results can then be used to determine the hazard category based on the upper limits for each category of waste. The industrial waste threshold values can be found in the IWRG for both soil and solid waste under:

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 IWRG600.2 – December 2010. This replaces publication IWRG600.1, published September 2010.

- *Soil hazard categorisation and management*
- *Solid industrial waste hazard categorisation and management.*

These guidelines also provide greater detail on how to determine the category of the waste and what management options are available for each category.

WASTE TYPES

Wastes can be included into one of four types (Table 1 provides a summary) to determine EPA requirements for off-site disposal and to choose an appropriate management option. If doubt exists as to which waste type applies, seek advice from EPA.

Fill material

This waste type consists of soil (being clay, silt and/or sand), gravel and rock of naturally occurring materials. Fill material, often referred to as 'clean fill' by industry, may be suitable for site filling or levelling depending on an assessment of contaminant levels and intended use[†]. Local councils may have requirements and advice should be sought from them.

An assessment of soil, including site history[‡], will determine whether the material has been potentially contaminated as a result of industrial, commercial, construction or agricultural activities, or contaminated with manufactured chemicals; and/or where material has been placed as fill or has been mechanically disturbed.

Soil may be classified as fill, when:

- an assessment (as discussed above) will demonstrate that the material is not contaminated
- or
- contaminant levels are below those specified in *IWRG Soil hazard categorisation and management*
- or
- any elevated level of metals (such as arsenic) or other constituents can be demonstrated to be of natural origin. Where it can be demonstrated that the constituents of concern are naturally elevated, EPA does not consider these soils to be 'contaminated' and therefore can be classified as fill material.

EPA does not regulate the use of fill material. However, the *Environment Protection Act 1970* places general obligations to prevent adverse impacts on the environment and human health. Where there is potential for adverse impacts from the deposit of fill material, advice should be sought from EPA. EPA may

[†] The Victorian Department of Primary Industries can provide advice on organochlorine pesticide thresholds in soil for cattle grazing.

[‡] Australian Standard 4482.1, published by Standards Australia, provides information on conducting preliminary site investigations.

require information such as the origin of the soil, site history, sampling and analytical results of contaminants or other constituents, the nature of the elevated contaminants and the location of sites where the soil is to be reused.

Solid inert waste

Solid inert waste is hard waste that has a negligible activity or effect on the environment. The waste may be either a municipal or industrial waste.

Industrial waste

Industrial waste is defined under Section 4(1) of the *Environment Protection Act 1970* as:

- a) any waste arising from commercial, industrial, or trade activities or from laboratories
- or
- b) any waste containing substances or materials which are potentially harmful to human beings or equipment.

Industrial waste includes waste arising from all commercial, industrial, building and demolition activities, including:

- manufacturing activities
- wholesale/retail trade
- commercial services including those provided to households (e.g. gardening, skip/bin hire etc)
- accommodation, cafes, restaurants
- building/demolition waste from building construction, renovations or repairs, and road construction and maintenance
- waste from primary industries including agricultural, forestry and fishing.

Reuse and recycling options should be investigated for this type of waste, as in many cases industrial waste, such as building materials, can be reused or recycled. Proponents should seek advice from EPA if in doubt about the appropriateness of the reuse and recycling options.

Putrescible waste

Putrescible waste is 'waste able to be decomposed by bacterial action'. It may be suitable for composting or recycled for stockfeed (which includes food wastes from residential, industrial or commercial sources, such as restaurants, food markets, supermarkets, and butchers).

Problems associated with putrescible waste landfills or reprocessing facilities (e.g. composting facilities) often include vermin, seagulls, dust, odour, flies and other insects, fires, litter, as well as surface and groundwater contamination by leachate. Accordingly, the design and operating requirements for facilities accepting putrescible waste are generally more stringent than for sites accepting solid inert waste only.



The source of the waste determines whether it is putrescible waste of municipal or industrial origin.

Prescribed industrial waste

PIWs have the potential to adversely impact human health and the environment. They may either be from a manufacturing source or be contaminated soils.

The only prescribed waste of domestic origin is grease interceptor trap waste arising from domestic premises. All others are of industrial origin, or arise from trade or commercial activity.

Solid prescribed industrial wastes must be categorised by hazard before disposal. Guidance, for waste generators and treaters, in determining the hazard category (A, B or C) of their solid prescribed industrial wastes can be found in *IWRG Solid industrial waste hazard categorisation and management* or *IWRG Soil hazard categorisation and management*.

All PIWs must be transported in accordance with the *Environment Protection (Industrial Waste Resource) Regulations 2009*.

Table 1: Summary of waste types

Category	Description	Management option	EPA requirements for off-site disposal
Fill material	Soil where: <ul style="list-style-type: none"> the site assessment demonstrates the soil is not contaminated or <ul style="list-style-type: none"> contamination concentrations do not exceed those specified in <i>IWRG Soil - Hazard Categorisation and Management</i> or <ul style="list-style-type: none"> any elevated levels of metals or other constituents can be demonstrated to be of natural origin. 	Use as fill material, e.g. site filling/levelling.	No licence required. However, reuse must not give rise to environmental or health impacts.
Solid inert waste from an industrial source	Waste arising from all commercial, industrial, building and demolition activities. Contaminant concentrations do not exceed those specified in <i>IWRG Solid Industrial waste hazard categorisation and management</i> Building/demolition material, e.g. concrete, bricks, dry timber, plastic, glass, metals, bitumen; and shredded tyres.	<ul style="list-style-type: none"> Reuse Recycling Landfill 	<ul style="list-style-type: none"> Non-municipal landfills must be licensed. When disposing to municipal landfill serving >5000 persons site must be licensed.⁴
Putrescible waste from an industrial source	Wastes from commercial or industrial sources, e.g. vegetable processing, butchers and domestic garbage.	<ul style="list-style-type: none"> Composting Stockfeed⁵ Recovery of energy Landfill 	<ul style="list-style-type: none"> Non-municipal landfills must be licensed. When disposing to municipal landfill serving >5000 persons site must be licensed.¹
Prescribed industrial waste	Has the potential to adversely impact human health and the environment. Manufacturing sources or contaminated soils.	Various treatment and disposal methods depending on waste type and hazard category.	<ul style="list-style-type: none"> No disposal of Category A waste to landfill. Disposal of hazard category B or C waste to a licensed site.¹ EPA transport certificates must be used. Vehicles must hold EPA permit (unless exemption issued).

⁴ Facilities must be licensed to receive the specific waste type, and for prescribed industrial waste, the specific hazard category.

⁵ The Victorian Department of Primary Industries can provide advice on the suitability of commercial waste as stockfeed.



Other waste types

There are certain other waste types which warrant mention here.

Municipal waste is defined under the *Environment Protection Act 1970* as 'any waste arising from municipal or residential activities, and includes waste collected by, or on behalf of, a municipal council, but does not include any industrial waste'.

Therefore municipal waste is associated with the day-to-day activities of households and the maintenance of a clean municipality, and includes:

- garbage and domestic household waste
- residential kerbside collections
- residential hard waste collections
- residential self-haul waste
- residential garden waste
- municipal litter collections
- municipal street sweepings
- park waste.

Waste asbestos: the transport and disposal of asbestos wastes needs to be carried out under strictly controlled conditions. EPA has produced a separate guideline, *IWRG Asbestos transport and disposal* regarding these wastes.

Mining and extractive industry wastes include a range of wastes (overburden, rock, tailings) with varying

contamination levels. Sites used for the deposit of waste, not in accordance with the Extractive Industries Development Act or Mineral Resources Development Act, require a licence. Tailings, sand or waste rock deposits resulting from the extraction and processing of gold-bearing ore containing arsenic must be managed in accordance with the Notifiable Chemical Order for arsenic and arsenic compounds. *IWRG Arsenic in mine tailings, sand and rock*, provides further information.

Scheduled wastes are wastes that are difficult to safely dispose of without special technologies and facilities. Australian governments have agreed to implement a national approach for the management of scheduled wastes. Examples of these are polychlorinated biphenyls (PCBs), organochlorine pesticides and hexachlorobenzene. There are some facilities available for these wastes and further information is available. Contact EPA for further advice.

Acid sulfate soils includes any soil, sediment, unconsolidated geological material or disturbed consolidated rock mass containing metal sulfides exceeding criteria published in EPA publication 655, *Acid sulfate soil and rock*. If managed inappropriately, waste acid sulfate soils may oxidise to produce acid which poses a risk to human health and the environment.