



INDUSTRIAL WASTE RESOURCE GUIDELINES

ARSENIC IN MINE TAILINGS, SAND AND ROCK

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INTRODUCTION

This publication provides information on the procedures and conditions required by EPA for the use of mine tailings, sand and rock which contains arsenic.

BACKGROUND

In the gold mining areas of Victoria, arsenic is a naturally occurring compound in soil and rock.

Gold mining works create tailings and leftover material such as rock, sand and earth which may or may not be higher in arsenic than the surrounding soil and rock. Given the long history of gold mining in some parts of Victoria, considerable stockpiles of this material containing high levels of arsenic can exist.

Through careful management this material can be reused in a productive way. A key component of the management is to ensure that those people using the material have knowledge of the appropriate uses and precautions required.

This publication is aimed at providing guidance on the distribution and approved uses of this material in accordance with the Order made below.

Declaration of Notifiable Chemicals - 3 June 1997:

1. The Governor in Council, under section 30D of the *Environment Protection Act 1970*, made an Order declaring arsenic and arsenic compounds to be notifiable chemicals ('the notifiable chemical') and, on the conditions specified in this Order, prohibits the sale, storage, handling or use of arsenic and arsenic compounds:

2. The conditions applying to this Order are as follows:
 - a. The –
 - i. sale
 - and
 - ii. storage, use and handling including handling by transport other than at the site of origin - of arsenic and arsenic compounds is prohibited without the written approval of the Environment Protection Authority ('the Authority').
 - b. This Order applies only to arsenic and arsenic compounds which are contained at more than 30 milligrams per kilogram in tailings, sand or waste rock deposits resulting from the extraction and processing of gold-bearing ore.
3. This Order commenced on 3 June 1997 and remains in force until it is revoked or varied.

WRITTEN APPROVAL OF THE AUTHORITY

The Authority's system of approval requires the supplier to obtain from the Authority written approval to supply the notifiable chemical to another person.

Any person wishing to supply the notifiable chemical ('the supplier') to any person ('the recipient') must obtain the informed consent of the recipient of the notifiable chemical. The requirement to obtain a recipient's informed consent will apply both to the original suppliers and subsequent suppliers.

The Notifiable Chemical Order covers the point of distribution. A supplier that collects the notifiable chemical from several sites and then distributes this from one main point requires only a Notifiable Chemical Order to cover the distribution of material from that main distribution point.

Details of the approval system and informed consent are provided below.

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 IWVG431 - June 2009.

Written approval of the Authority to be obtained by original supplier

Where a person:

1. produces the notifiable chemical at first instance, including by way of mining or producing it as a waste product from another process

or

2. is the owner or occupier of a site containing a stockpile of the notifiable chemical,

the person must obtain the written approval of the Authority before the person will be permitted to:

- i. sell or distribute the notifiable chemical
- or
- ii. store, use or handle the notifiable chemical, including handling by transport other than at the site of origin.

A person requiring written approval from the Authority should write to their regional EPA office, requesting permission to sell or distribute, store, use or handle by transport the notifiable chemical. The letter should include the following:

1. Total arsenic concentrations of the material to be tested in accordance with the methodology detailed in EPA publication IWRG701, *Sampling and analysis of waters, wastewaters, soils and wastes*.
2. Approximate volume of the notifiable chemical.
3. Details of the intended reuse activity for the notifiable chemical for which the person requires permission from the Authority.
4. Information relating to how informed consent will be obtained from the recipient of the notifiable chemical which accords with the information presented in this bulletin. The regional office will present the request to the Authority for decision, and the original supplier will be informed of the decision in writing.

If EPA grants approval to this person, they will be known as the 'approved supplier'. The approved supplier is required to obtain the informed consent of anyone receiving the notifiable chemical. If a recipient of this notifiable chemical then wishes to supply this to someone else, they will not require another Notifiable Chemical Order approval from EPA. This subsequent supplier will however be required to obtain the informed consent of anyone they wish to supply.

Informed consent to be obtained by the original supplier and every subsequent supplier

'Informed consent' means that a recipient of a quantity of the notifiable chemical has received a copy of this EPA Information Bulletin number 545a and the recipient has signed that he or she understands the

nature and limited approved uses of the notifiable chemical.

Every time any person seeks to sell or otherwise distribute the notifiable chemical to another person, the process of informed consent must be applied.

Obtaining informed consent and keeping a record of it

Each supplier will satisfy the requirement of obtaining informed consent from a recipient when:

1. the supplier provides the recipient with a copy of this publication
2. the recipient signs and dates a copy of the following confirmation, 'I have been provided with a copy of IWRG *Arsenic in mine tailings, sand and rock*, and I understand and agree that the notifiable chemical will be used only for approved uses as described in that publication'
3. the confirmation is included as part of duplicate copies of the receipt, one copy provided to the recipient, and one copy for the supplier
4. the receipt includes the volume and level (see below) of the notifiable chemical.

As evidence that informed consent was obtained, the supplier should keep a record of the receipts for each person supplied with the notifiable chemical for a period of three years from the date of supply.

Monitoring and audit program

EPA will require a monitoring and audit program to be carried out by the supplier of the notifiable chemical. The program must address compliance with this publication and outline an approved sampling protocol. The monitoring and audit program will need to be approved by EPA.

APPROVED USES OF THE NOTIFIABLE CHEMICAL

The use of a notifiable chemical in an area where the background arsenic levels in soil or rock are lower than the notifiable chemical may cause contamination and affect the future use of that site.

Level 1

For notifiable chemicals containing more than 30 mg/kg and up to 2500 mg/kg of arsenic, the following are approved uses:

- for construction activities where the notifiable chemical is effectively sealed by a concrete or other barrier and ongoing exposure to humans or animals is avoided
- as packing material in construction, such as pipe laying
- in mortar or concrete mix

- in an asphaltting mix
- any other use approved in writing by EPA.

Level 2

For notifiable chemicals containing more than 2500 mg/kg of arsenic and up to 5000 mg/kg of arsenic, the following are approved uses:

- in mortar or concrete mix
- in an asphaltting mix
- any other use approved in writing by EPA.

Level 3

For notifiable chemicals containing more than 5000 mg/kg of arsenic or which are calcine sands, use of this material must gain special written approval from EPA for a specific use.

NB: Level 3 is to accommodate high-arsenic sands, namely calcine sands, where specific approval is required. Calcine sands are distinctive in colour ranging from purple to red.

Uses of the notifiable chemical that are not approved include the following but are not limited to:

- in sand pits
- in childcare centres, kindergartens, school or public play areas not in accordance with Level 1 or 2 approved uses
- as ground surface material for humans or animals
- as landscaping material or mixed into soils for application in a garden
- where the notifiable chemical is not effectively sealed by concrete or other barrier, to prevent exposure to humans or animals
- where it could reasonably be expected to gain access to waterways or potable water supply systems for humans and animals
- where it could be reasonably expected that exposure to humans or animals could occur.

CONTROLS TO MINIMISE RISK OF EXPOSURE

The following measures should be taken when handling the notifiable chemical:

- Handle the material with care to prevent or minimise generation of airborne dust.
- Wet the material to allow for dust-free handling.
- Avoid work practices that generate dust, such as dry sweeping or use of compressed air for cleaning areas and equipment.
- Prevent children from handling or playing in areas where the notifiable chemical is being used or handled.
- Ensure immediate clean-up and containment of spills.

- Store material in low-traffic areas to minimise spreading.
- Ensure good personal hygiene, including washing before eating, drinking and smoking.
- Remove contaminated work clothing before eating and at the end of the work day.
- Store personal clothing away from work areas, to avoid contamination with contaminated sand.
- Avoid skin contact by wearing suitable gloves and long-sleeved shirt and pants.
- Secure the work site to prevent public access to the material.

Note: EPA accepts no liability for any losses incurred in the use of this notifiable chemical.

Offence relating to failure to comply

Any person who fails to obtain the informed consent of each person he or she supplies with the notifiable chemical will be committing an offence under section 30D of the *Environment Protection Act 1970*.

EPA contacts

Please see the 'Contact details' page of EPA's website (www.epa.vic.gov.au) for the addresses of our offices throughout Victoria..