



INDUSTRIAL WASTE RESOURCE GUIDELINES

CLINICAL AND RELATED WASTE – OPERATIONAL GUIDANCE

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INTRODUCTION

EPA Victoria is responsible for regulating the storage, transport, treatment and disposal of clinical and related wastes in Victoria under the *Environment Protection (Industrial Waste Resource) Regulations 2009*.

This document provides operational guidance for generators of clinical and related wastes. It defines these wastes and details the management responsibilities of generators for ensuring the safe transport, treatment and disposal of clinical and related wastes.

Storage and handling of these wastes, must meet EPA legislative requirements. For more information, refer to the Biohazard Waste Industry Australia and New Zealand (BWI) *Industry Code of Practice for the Management of Clinical and Related Wastes* (the Code of Practice).

WHO GENERATES CLINICAL AND RELATED WASTE?

Generators of clinical and related waste include (but are not restricted to):

- acupuncture clinics
- brothels
- collections of sharps and clinical and related waste from commercial buildings and workplaces (e.g. First aid waste)
- dental practitioners
- emergency services
- funeral parlours
- home healthcare
- long-term healthcare facilities

- needle exchange programs
- pathology laboratories
- schools
- tattooists
- universities
- veterinarians.

Hospitals and other larger-scale waste generators should refer to the Code of Practice for specific guidance on meeting waste management requirements.

WASTE MANAGEMENT PRINCIPLES & RESPONSIBILITY

Those that generate clinical and related wastes have the responsibility to, where practicable:

- avoid the generation of the waste stream
- maximise reuse and recycling.

This principle reflects community expectations about how clinical and related waste should be managed, and must be used to guide decisions about managing this waste stream. Where the generation of waste cannot be avoided, and reusing or recycling it is not possible, you must ensure that the waste is managed in a manner that protects both people and the environment.

The minimisation of environmental impacts within all organisations is a vital part of moving towards sustainability. A sustainable business looks beyond treating and disposing of waste and examines all aspects of products and services from purchasing and the performance of suppliers, through to its disposal of wastes. Facilities should be aiming to reduce waste by understanding where and how waste is generated, and working systematically to reduce the need for disposal.

The responsibility for ensuring wastes are managed correctly rests with the generator.

Generators must take all necessary precautions to minimise potential hazards and ensure that they manage clinical and related wastes safely and legally, including:

- waste segregation, packaging, labelling and storage
- appropriate training for all staff involved in the generation and handling of wastes

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 IWRG612.1 – September 2009.

- using licensed contractors for collection and transport of the waste
- verifying that the relevant disposal facility is licensed to treat the waste
- regularly auditing the processes and procedures in place to deal with the waste to ensure that they remain effective.

It is illegal to dispose of clinical and related waste into your general waste. There may be adverse consequences for the environment, the waste industry, your staff and the community.

Improving waste management and applying waste minimisation principles will reduce waste disposal costs and generate a range of other positive environmental, economic and social benefits including:

- reduced potential to spread infection
- less damage to the environment
- improved occupational health and safety for staff
- compliance with legislation
- better staff morale
- improved reputation and better community relationship.

WHAT ARE CLINICAL AND RELATED WASTES?

Clinical and related wastes are defined as:

Wastes arising from medical, nursing, dental, veterinary, laboratory, pharmaceutical, podiatry, tattooing, body piercing, brothels, emergency services, blood banks, mortuary practices and other similar practices, and wastes generated in healthcare facilities or other facilities during the investigation or treatment of patients or research projects.

Reference in this document to 'contaminated with blood' refers to any contamination and not just free-flowing or expressible blood.

Clinical waste

This industrial waste is generated in a clinical or similar setting (e.g. wastes from body piercing activities), that has the potential to cause disease, injury, or public offence, and includes:

1. Sharps include:

- syringes
- needles
- lancets
- scalpel blades
- anything capable of cutting or penetrating the skin.

Where items such as disposable glassware and dentists' drill bits are contaminated (e.g. by blood, body fluids, cultures, etc), they should be disposed of as sharps rather than in the normal clinical waste stream.

2. A clinical specimen other than urine or faeces includes:

- tissue
- blood
- other specimens (excluding hair and nail clippings) for laboratory examination or testing.

3. A specimen of urine or faeces taken for laboratory testing includes specimens for analysis to ascertain disease status.

After testing and appropriate disinfection in the laboratory, many specimens may be disposed of to sewer.

This excludes specimens taken for routine bedside or ward testing.

4. A laboratory culture includes:

- cultures or suspensions of microorganisms.
- tissue cultures.
- nutrient agars, gels, and broths.
- serums, vaccines, antigens and antitoxins.
- contaminated material (such as culture dishes, glass plates, and vials).

Active microbiological or biological material is a well-recognised hazard to laboratory staff and waste handlers, and warrants special precautions.

This excludes cultures prepared for human consumption in the food industry.

5. Human tissue

A number of wastes in this category present low to negligible risks to handlers and the community. Despite these low risks, aesthetic factors and community expectations need to be considered when managing and disposing of these wastes.

There are also religious considerations and personal wishes in relation to items such as placentae and foetuses. Where patients wish to make their own arrangements for these items, the hospital should obtain written advice from the patient accepting responsibility for them. The healthcare facility must advise the patient of the appropriate disposal requirements for this material and of their responsibility to meet these requirements.

Human tissue includes:

- pathology specimens
- biopsy specimens
- tissue taken during surgery or autopsy
- extracted teeth contaminated with blood
- body organs
- limbs
- foetuses not requiring burial
- placentae.

It excludes:

- cadavers/bodies
- fetuses for burial in an appropriate method
- placentae requested for home retention.

The **only acceptable method for disposal of human tissue waste in Victoria is incineration** at an EPA licensed incinerator. Human tissue wastes must be packaged and identified separately from other clinical waste streams that do not require incineration.

Extracted teeth with amalgam fillings that are thoroughly washed can be disposed of by non-incineration methods, including landfill. The mercury in the amalgam should not be incinerated.

If a waste stream is contaminated with human tissue waste or pharmaceuticals, all waste will require incineration.

6. Tissue, carcasses or other waste arising from animals used for laboratory investigation or for medical or veterinary research other than psychological testing includes:

- infected animal tissue
- animals used for chemical and drug testing
- animals used for microbiological testing
- animals used in other veterinary and medical research
- animal waste contaminated with infectious organisms or chemical residues
- materials contaminated with urine and faeces where the animal has been infected with an infectious organism.

This excludes animals used in educational institutes for dissection purposes only.

7. Human blood or body fluids other than urine or faeces includes:

- whole blood
- blood components such as serum and plasma
- body fluids including cerebrospinal, synovial, pleural, pericardial, peritoneal, amniotic, semen, vaginal secretions and any fluid visibly contaminated with blood.

8. Materials or equipment containing human blood or body fluids other than urine or faeces includes:

- sanitary napkin from patient area.
- bandages and dressings soiled with blood and body fluids.
- discarded contaminated equipment, ie. equipment contaminated with blood or other body fluids.

This excludes sanitary napkins from non-patient areas and commercial premises, provided an appropriate disposal system is used.

9. Urine or faeces, or materials or equipment containing urine or faeces, where there is visible blood

Unless there is visible blood, incontinence pads and disposable nappies are not considered clinical wastes.

Urine and faeces from patients undergoing therapy may contain drugs and their metabolic by-products. Disposal of these wastes to sewer is unavoidable and is not prohibited or restricted.

10. Waste from patients known to have, or suspected of having a communicable disease

All waste in this category is considered clinical waste. It is not possible to determine the extent and duration for which this waste remains infectious. It will depend on the particular infection, the state or type of the infection, the state or type of the disease and in some cases, the effect or specific treatment. Designating waste to this category should be based on consideration of the known modes of transmission of the microorganisms involved.

Related waste

Related wastes are associated with the healthcare industry, or similar wastes from other industries. It includes wastes made up of, or contaminated with chemicals, cytotoxics and other pharmaceutical substances, as well as from premises such as brothels and tattooists. **All cytotoxic and pharmaceutical waste must be incinerated.** Related wastes include:

1. Pharmaceutical substances

EPA regulates the management of waste pharmaceuticals in conjunction with the Drugs & Poisons Unit of the Department of Human Services. Controls are intended to help minimise risks to human health and the environment. These substances include:

- patients' unused medications.
- pharmaceuticals that are unwanted or out-of-date.
- sharps, packages, containers and equipment contaminated by pharmaceutical substances and their residues.
- pharmaceutical substances rejected by the manufacturer due to quality control considerations.

This excludes:

- materials containing trace quantities of pharmaceuticals (other than cytotoxics), eg empty pill bottles
- saline, sugar, and nutrient solutions and drips.

2. Cytotoxic drugs

Cytotoxic wastes must be handled very carefully, as even very small quantities can be hazardous. **Reusable sharps containers must not be used for disposal of cytotoxic waste.**

GENERATOR WASTE MANAGEMENT REQUIREMENTS

This is a summary of the requirements that all generators of clinical and related waste must meet. Specific details as to how to achieve these requirements can be obtained in the Code of Practice.

Segregation, labelling and packaging

Clinical waste

It is essential that clinical and related wastes are properly segregated, packaged, labelled, handled and transported to minimise risk to waste handlers and the community, such as needle stick injuries and transmission of infectious diseases.

All sharps and other waste containers should meet the specific Australian Standards requirements. Clinical and related waste must be segregated and identified by colour coding and marked according to the following:

All treatment technologies

| Colour code | Wording on container | Sign | Symbol |
|-------------|---|-------------------------|---|
| Yellow | Clinical waste (displayed on at least two sides) | Black biological hazard |  |

If the clinical waste is not going to be incinerated, then any pharmaceuticals, animal carcasses, and human tissue will need to be separately packaged, identified and excluded from the treatment process. Ask your waste contractor for specific requirements regarding container types, colours and wording.

Incineration only

| Colour code | Wording on container | Sign | Symbol |
|--------------------------|---|-------------------------|---|
| Yellow body & orange lid | Clinical waste (displayed on at least two sides) | Black biological hazard |  |

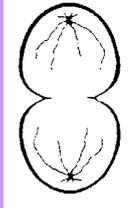
Cytotoxic waste

Cytotoxics are the most hazardous of the pharmaceutical wastes. They are capable of impairing, injuring or killing cells and many have a direct irritant effect upon skin, eyes, mucous membranes and other

tissue. They can cause local toxic and/or allergic reactions. **They need to be handled very carefully as even very small quantities can be hazardous.**

These wastes have special handling, packaging and disposal requirements. Cytotoxic waste must be packaged inside, puncture resistant, leak proof containers. All cytotoxic waste, including contaminated sharps, must be segregated and identified by colour coding and marked according to the following:

Cytotoxic waste

| Colour code | Wording on container | Sign | Symbol |
|-------------|--|------------------------------------|---|
| Purple | Cytotoxic waste (displayed on at least two sides) | Cell undergoing telophase in white |  |

It is a requirement of the Code of Practice that only purple containers are to be used for the disposal of cytotoxic sharps waste.

Waste storage

Waste should be stored in a dedicated storage area to ensure that there are no environmental impacts. (Refer to Section 8.1 of the Code of Practice).

Storage of wastes other than those generated on your site may require Works Approval and/or Licensing by EPA for Scheduled premises. You will need to contact EPA for clarification.

Where small quantities of clinical and related waste are being generated, effective storage can be achieved using 120/240 litre mobile garbage bin (wheelie bins), or other waste containers that have been placed on a tray which has sufficient sides to hold any potential spills. Wastes should not be stored in plastic liners that have been placed directly on floors.

Off-site transport of clinical and related waste

To ensure safe transport of clinical and related waste for treatment or disposal, EPA has a permit and tracking system. The Waste Transport Certificate system is designed to ensure that wastes are monitored from creation to disposal.

It is the responsibility of the waste generator to ensure that the correct documentation is completed prior to the waste being transported off-site. However, in some circumstances as described below, the transporter may be able to complete the documentation on your behalf as part of the accredited agent system.

Accredited agents

An accredited agent is a person or company **authorised in writing** by EPA Victoria to complete part A of the waste transport certificate on behalf of the waste producer. This authorisation allows the agent to complete the certificate for the collection from several producers. (note: small quantities only)

Transport permits

A permit is required for vehicles used to transport prescribed (clinical and related) waste. The permit specifies particular conditions that must be met. A list of EPA Victoria permitted transporters is available at www.epa.vic.gov.au/industry/IWDB.

Waste treatment and disposal

Clinical and related waste must be treated prior to final disposal. The overall objective of any waste treatment process is to render the waste non hazardous and inoffensive, so that it can be disposed of safely. The treatment process itself must also be controlled so that it does not lead to other environmental problems.

Methods other than incineration are only suitable for treating some of the wastes, so it is essential that wastes are segregated at their source and waste is not sent to be treated by a process that is unsuitable.

It is the responsibility of the waste generator to ensure that all waste types are only sent to treatment facilities that are licenced for those specific waste types.

Occupational health and safety

In addition to the legislative requirements administered by EPA, generators of clinical and related waste should be aware of their Occupational Health and Safety (OH&S) obligations.

Information and guidance on controlling risks can be downloaded free from the WorkSafe Victoria website – www.workcover.vic.gov.au – click on ‘Safety and Prevention’ and select ‘your industry’ or ‘[health and safety topic](#)’.

FURTHER INFORMATION

Visit the Waste Management Association of Australia (WMAA) website to download;

- *Industry Code of Practice for the Management of Clinical and Related Wastes* released by Biohazard Waste Industry Australia and New Zealand (BWI)

To contact EPA visit the ‘Contact details’ page of EPA’s website – www.epa.vic.gov.au.

Table 1: Summary treatment processes in Victoria.

| Waste types | Incineration | Autoclave without shredding | Autoclave & shredding | Hypochlorite & shredding | Peroxide, Lime & shredding | Microwave/shredding |
|------------------------------------|--------------|-----------------------------|-----------------------|--------------------------|----------------------------|---------------------|
| Sharps | Y | N | Y | Y | Y | Y |
| Clinical | Y | Y | Y | Y | Y | Y |
| Human tissue | Y | N | N | N | N | N |
| Recognisable anatomical body parts | Y | N | N | N | N | N |
| Cytotoxic | Y | N | N | N | N | N |
| Pharmaceutical | Y | N | N | N | N | N |
| Chemical | N | N | N | N | N | N |