



# Disposal of wastes containing persistent organic pollutants

## Australia's obligations under the Stockholm Convention

Chemicals Management Branch

### Obligations under the Stockholm Convention

The aim of the Stockholm Convention is to protect human health and the environment from certain chemicals. These are called persistent organic pollutants (POPs).

All countries that have ratified the convention must safely dispose of wastes containing POPs. In most cases, they must dispose of the waste in a way that ensures the POPs content is destroyed or irreversibly transformed.

There is an exception if the POP content is below a certain level, where the waste can be disposed of in an environmentally sound manner. Wastes containing POPs cannot be recycled unless the convention makes a specific exemption.

Australia must meet its waste management obligations for waste containing any of the 12 POPs listed below. Other POPs should be managed in accordance with best practice.

Category	Chemical
Organochlorine pesticides	Aldrin
	Chlordane
	Dichlorodiphenyltrichloroethane (DDT)
	Dieldrin
	Endrin
	Heptachlor
	Mirex
	Toxaphene
Dioxins	Polychlorinated dibenzo-p-dioxins
	Polychlorinated dibenzofurans
Other	Polychlorinated biphenyls (PCBs)
	Hexachlorobenzene (HCB)

A 'waste containing POPs' might simply be a chemical stockpile, but could also be in the form of:

- used objects that contain chemicals

- contaminated materials, including soil and water from contaminated sites
- demolition waste
- wastewater
- leachate
- sludge
- ash
- gases from certain processes.

## 1 Identifying wastes containing POPs

This is the most accurate information we have about wastes containing the POPs in Australia. We will update it if we receive any new information.

### 1.1 Organochlorine pesticides

By the mid-1990s, Australia banned the use of aldrin, chlordane, DDT, dieldrin, endrin and heptachlor. Australia banned the use of mirex in 2006, and toxaphene was never used in Australia. Australia destroyed most stockpiles of these chemicals under the ChemCollect program. Stockpiles of mirex were destroyed under a one-off collection program when the use of mirex ceased. Significant stockpiles are unlikely to exist in Australia.

### 1.2 Dioxins

Dioxins can be unintentionally produced during certain activities. Australian governments have agreed to put measures in place that prevent the formation of dioxins. These measures are in the [National Action Plan for Addressing Dioxins in Australia](#), which also identifies other actions to help reduce levels of dioxins. As a result of these actions, wastes containing unacceptable levels of dioxins are likely to be limited to historically contaminated soil and sediment.

### 1.3 Polychlorinated biphenyls (PCBs)

In the 1980s and 1990s, industry operators replaced polychlorinated biphenyls (PCBs) used in electrical products with other chemicals. These new chemicals may be contaminated with residual PCBs and need treatment. Other wastes, such as paints, sealants, coatings and cables, may also contain PCBs. We understand most PCB wastes in Australia have been treated.

Like dioxins, PCBs can also be produced unintentionally. The measures taken under the National Action Plan for Addressing Dioxins in Australia also address unintentional production of PCBs.

### 1.4 Hexachlorobenzene (HCB)

Australia banned the use of hexachlorobenzene (HCB) as a pesticide in the late 1980s and pesticide product stockpiles were destroyed through the ChemCollect program. Industrial production and use of HCB took place in Australia between 1963 and 1991, resulting in a large stockpile of HCB waste produced as an industrial by-product.

HCB can be produced unintentionally, which is addressed through measures agreed under the National Plan for Addressing Dioxins.

## 2 Requirements for disposal

Australia's convention obligations are reflected in Australian environmental management policies and laws. These policies and laws incorporate the low POP content levels and environmentally sound disposal options.

### 2.1 Organochlorine pesticides

The industry-led [ChemClear](#) program collects and destroys organochlorine pesticides. ChemClear destroys the chemicals it collects to meet the requirements of the [Organochlorine Pesticides Waste Management Plan](#).

### 2.2 Dioxins

Australia does not have any specific requirements for the disposal of dioxins. We may develop requirements in the future if we find wastes containing dioxins above the low POP content level.

### 2.3 Low POP content levels

A low POP content level is set for each substance listed on the convention, above which destruction or irreversible transformation is required.

Low levels of persistent organic pollutants are found globally. It is not practical to treat everything, so thresholds are set. The thresholds aim to protect the environment and human health, but various factors are considered to ensure these levels are pragmatic, including:

- typical concentrations of the POP in articles, materials and waste
- background levels of the POP in the environment
- if there are readily available tests to detect the substance at low levels
- available treatment facilities
- economic considerations.

The low content level for the POPs covered by this document are:

- Organochlorine pesticides, PCBs and HCB - 50 mg/kg (50 ppm or 0.005%)
- Dioxins - 15 µg TEQ/kg

Note: TEQ - Toxic equivalents: A low POP content level of 1 µg TEQ/kg has been proposed and is included in the relevant general technical guidelines, but there has been no agreement to replace the level of 15 µg TEQ/kg.

Waste containing POPs below the low content level may be disposed of in an environmentally sound manner. Australia's environmental management policies and laws set out different environmentally sound disposal options.

### 2.4 Polychlorinated biphenyls (PCBs)

The requirements for destroying wastes containing PCBs are highlighted in Australia's [Polychlorinated Biphenyls Management Plan](#). Wastes containing PCBs at levels higher than 50 mg/kg must be treated at a facility that meets the plan's requirements. Disposal to landfill or elsewhere in the environment is prohibited.

## 2.5 Hexachlorobenzene (HCB)

Australia's stockpile of HCB waste is managed under the [Hexachlorobenzene Waste Management Plan](#). The plan outlines that most of this HCB waste would preferably be destroyed on-site, but an on-site treatment facility could not be established. The Australian Government subsequently found that there are no suitable facilities in Australia and the waste owner has started shipping it overseas for destruction.

Pesticide products that contain HCB are subject to the Organochlorine Pesticides Waste Management Plan. The ChemClear program can collect and destroy HCB pesticide waste.

## 2.6 Disposal facilities

To ensure Australia meets its international obligations, there are requirements for facilities that treat wastes containing POPs at levels higher than the low POP content level.

It is your responsibility to make sure that the facility you choose to destroy your waste uses appropriate technologies and complies with all regulations. There are facilities in Australia that meet these requirements and destroy or irreversibly transform wastes containing POPs. Refer table 2.6A. If you know of a facility that isn't listed, please contact us at [chemicals@awe.gov.au](mailto:chemicals@awe.gov.au).

**Table 2.6A**

State	Facility	Technology	Waste/POPs treated
Queensland	Cleanaway Narangba Liquid Waste Services	Base catalysed decomposition Plasma arc	Organochlorine pesticides, PCBs, HCB
	Geocycle Gladstone	Cement kiln co-incineration	Organochlorine pesticides, HCB
Victoria	Cleanaway Laverton Technical Waste Services	Plasma arc	Organochlorine pesticides, HCB
	Renex	Hazardous waste incineration (The main technology used at this facility is pyrolysis, but incineration is the technology used to destroy POPs.)	Organochlorine pesticides, HCB
Tasmania	Geocycle Railton	Cement kiln co-incineration	Organochlorine pesticides, HCB
Western Australia	Entech-Renewable Energy Solutions	Gas-phase chemical reduction	Organochlorine pesticides, HCB

Please note: The hexachlorobenzene waste covered by the Hexachlorobenzene Waste Management Plan is not covered by this table, as there are no suitable technologies or facilities in Australia to destroy this waste.

## 2.7 Overseas destruction

Overseas destruction of wastes containing POPs may be permitted if:

- Australia does not have the capacity and necessary facilities to destroy or irreversibly transform the POPs content of the waste in an environmentally sound or efficient manner
- the POPs content of the waste will be destroyed or irreversibly transformed in accordance with best environmental practice and best available techniques at the overseas destination
- movement of the waste does not endanger human health and the environment.

The Basel Convention sets out rules for the import and export of hazardous wastes, including wastes containing POPs. Australia has other policies and laws on [hazardous waste](#) to ensure it complies with the obligations of the Basel Convention.

## 2.8 Other disposal options

When destruction or irreversible transformation (performed according to best environmental practice/best available techniques) isn't the environmentally preferable option, the convention may allow other disposal options such as specially engineered landfills and permanent storage in underground mines and formations.

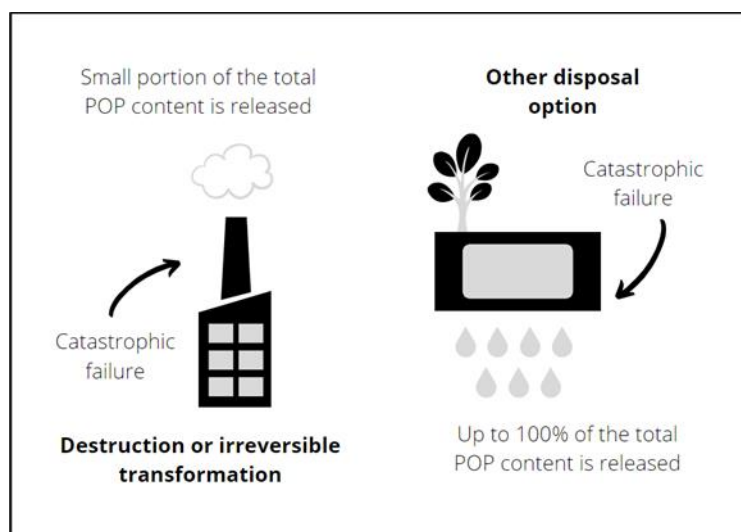
For another disposal option to be environmentally preferable, it must best protect human health and the environment from POPs.

## 2.9 Risk management principles

Destruction or irreversible transformation is the environmentally preferable option in most cases as it removes the POPs characteristics and eliminates risk. Other disposal options may reduce the risk but won't eliminate it.

Permissible methods to destroy or irreversibly transform waste containing POPs are more than 99.999% effective and any residual POP is to be captured and not emitted.

The potential for a small amount of a POP to be released during destruction or irreversible transformation does not in itself make another method preferable, as only a small fraction of the risk posed by the POP content of the waste can be realised.



Examples where another method may be environmentally preferable include:

- Where it is impractical to destroy or irreversibly transform the POPs content of waste and eliminate the risk. Reducing risk is the best way to protect human health and the environment from POPs. This does not include where another method is preferable on an economic basis, for example where another method is cheaper. Where POP levels are above the low POP content, the economic cost of destruction or irreversible transformation has been determined to be justified by the risk posed by the POP content.

- Where destruction or irreversible transformation of a POP leads to emissions of another POP. In this scenario, destruction or irreversible transformation would eliminate one POPs risk but substitute it with another. It does not help to protect human health and the environment from POPs.

The authority responsible for proposed action will decide whether another method is environmentally preferable. This could be the department or local Environment Protection Authority or environment department. We strongly encourage other agencies to consult with us for further advice.

## **2.10 Other requirements**

This document focuses on Australia's obligations under the Stockholm Convention for the disposal of wastes containing POPs. Wastes containing POPs may also be subject to other national and international requirements. The Stockholm Convention also includes requirements on the handling, collection, transport and storage of wastes. For more information, contact [chemicals@awe.gov.au](mailto:chemicals@awe.gov.au).

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