

GUIDELINES FOR A SPECIAL WASTE INCINERATOR

- 1 The special waste incinerator shall be sited on an approved industrial premises.
- 2 The incinerator shall be designed with a combustion efficiency to destroy and remove principal organic hazardous constituents by at least 99.99%. Should the incinerator be used to destroy and remove extremely toxic and environmentally persistent wastes such as polychlorinated biphenyl (PCB), the incinerator shall be designed with a destruction and removal efficiency of at least 99.9999%.
- 3 The incineration process, including the feeding process, shall be automated to ensure that the operating temperature, the emission limits, and the destruction and removal efficiency are kept to within design limits at all times.
- 4 The incinerator shall be designed to incinerate wastes generated by the local industries. (No imports of wastes are allowed)
- 5 The incinerator shall be equipped with flue gas cleaning equipment to comply with the National Air Emission Standards (at **Appendix 1**) and the special incinerator emission standards at **Appendix 2**, which ever is the most stringent. Continuous on-line monitoring of the flue gas emission shall be provided for particulates, hydrogen chloride, hydrogen flouride, sulphur dioxide, nitrogen oxides and carbon monoxide.
- 6 Continuous on-line monitoring and recording charts shall be installed for:
 - (a) the monitoring and recording of the temperatures and oxygen levels in the incineration chambers; and
 - (b) the monitoring and recording of the levels of particulates, hydrogen chloride, hydrogen flouride, sulphur dioxide, nitrogen oxides and carbon monoxide in the flue gas emission.
- 7 Fugitive emission control of hydrocarbons shall be incorporated into the plant design. The control shall include the use of vapour return lines from volatile hydrocarbon storage tanks to the incinerator or to the treatment system.
- 8 Fire prevention and protection measures shall be incorporated into the plant design.
- 9 Solid residues from the incineration plant, including flyash, shall be collected and treated to comply with the leachate standards at **Appendix 3** before disposing of at an approved landfill site.
- 10 All wastewater from the incineration plant shall be collected and treated to comply with the standards stipulated in the Environmental Pollution Control (Trade Effluent) Regulations, 1999 before discharge into the public sewer.

Appendix 1

Environmental Pollution Control (Air Impurities) Regulations 2000

Substance	Trade, industry, process, fuel burning equipment or industrial plant	Emission limits
(a) Ammonia and ammonium compounds	Any trade, industry or process	76 mg/Nm ³ expressed as ammonia
(b) Antimony and its compounds	Any trade, industry or process	5 mg/Nm ³ expressed as antimony
(c) Arsenic and its compounds	Any trade, industry or process	1 mg/Nm ³ expressed as arsenic
(d) Benzene	Any trade, industry or process	5 mg/Nm ³
(e) Cadmium and its compounds	Any trade, industry or process	3 mg/Nm ³ expressed as cadmium
(f) Carbon monoxide	Any trade, industry, process or fuel burning process	625 mg/Nm ³
(g) Chlorine	Any trade, industry or process	32 mg/Nm ³
(h) Copper and its compounds	Any trade, industry or process	5 mg/Nm ³ expressed as copper
(i) Dioxins and furans	Any waste incinerator	i 1.0 ng TEQ/Nm ³ for waste incinerators commissioned before 1st Jan 2001 ii 0.1 ng TEQ/Nm ³ for waste incinerators commissioned on or after 1st Jan 2001
(j) Ethylene oxide	Any trade, industry or process	5 mg/Nm ³
(k) Fluorine, hydrofluoric acid or inorganic fluorine compounds	Any trade, industry or process	50 mg/Nm ³ expressed as hydrofluoric acid
(l) Formaldehyde	Any trade, industry or process	20 mg/Nm ³
(m) Hydrogen chloride	Any trade, industry or process	200 mg/Nm ³
(n) Hydrogen sulphide	Any trade, industry or process	7.6 mg/Nm ³
(o) Lead and its compounds	Any trade, industry or process	5 mg/Nm ³ expressed as lead
(p) Mercury and its compounds	Any trade, industry or process	3 mg/Nm ³ expressed as mercury
(q) Oxides of nitrogen	Any trade, industry, process or fuel burning equipment	700 mg/Nm ³ expressed as nitrogen dioxide
(r) Particulate substances including smoke, soot, dust, ash, fly-ash, cinders, cement, lime, alumina, grit and other solid particles of any kind	Any trade, industry, process, fuel burning equipment or industrial plant (except for any cold blast foundry cupolas)	i 100 mg/Nm ³ *; or ii where there is more than one flue, duct or chimney in any schedules premises, the total mass of the particulate emissions from all of such flue, duct or chimney divided by the total volume of such emissions shall not exceed 100 mg/Nm ³ and the particulate emissions

Substance	Trade, industry, process, fuel burning equipment or industrial plant	Emission limits
(s) Smoke	All stationary fuel-burning sources	from each of such flue, duct or chimney shall not exceed 200 mg/Nm ³ at any point in time. Ringelmann No. 1 or equivalent opacity (Not to exceed more than 5 minutes in any period of one hour)
(t) Styrene monomer	Any trade, industry or process	100 mg/Nm ³
(u) Sulphur dioxide (non-combustion sources)	Any trade, industry or process	500 mg/Nm ³
(v) Sulphur trioxide and other acid gases	The manufacture of sulphuric acid	500 mg/Nm ³ expressed as sulphur trioxide Effluent gases shall be free from persistent mist.
(w) Sulphur trioxide or Sulphuric acid mist	Any trade, industry or process, other than any combustion process and any plant involving the manufacture of sulphuric acid	100 mg/Nm ³ expressed as sulphur trioxide
(x) Vinyl chloride monomer	Any trade, industry or process	20 mg/Nm ³

Note: *Where there is more than one flue, duct or chimney in any schedules premises, the total mass of the particulate emissions from all of such flue, duct or chimney divided by the total volume of such emissions shall not exceed 100 mg/Nm³ and the particulate emissions from each of such flue, duct or chimney shall not exceed 200 mg/Nm³ at any point in time

*Emissions are based on a site-average concept and this enforcement scheme is currently practised in the United Kingdom, the Netherlands, Sweden and Germany. Verification of the emissions is based on measurements or the calculation of a set of mass balance equations agreed between the industry and the enforcement authorities on a regular agreed frequency e.g. monthly

SPECIAL EMISSION STANDARDS FOR WASTE INCINERATORS

POLLUTANTS	STANDARDS
Smoke (Ringelmann Chart)	RO
Particulates	50 mg/Nm ³
Sulphur dioxide	200 mg/Nm ³
Hydrogen chloride	60 mg/Nm ³
Hydrogen fluoride	5 mg/Nm ³
Nitrogen oxide	400 mg/Nm ³
Carbon monoxide	100 mg/Nm ³
Mercury	0.05 mg/Nm ³
Cadmium	0.05 mg/Nm ³
Other heavy metals	0.5 mg/Nm ³
Dioxins / Furans	(i) 0.5 ng TEQ/Nm ³ for special waste incinerators commissioned before 1 st Jan 2001 (ii) 0.1 ng TEQ/Nm ³ for special waste incinerators commissioned on or after 1 st January 2001

**LEACHING TEST - RECOMMENDED ACCEPTANCE CRITERIA
FOR SUITABILITY OF INDUSTRIAL WASTES
FOR LANDFILL DISPOSAL**

Contaminant	Maximum Concentration (mg / lit)	Source
Arsenic	5	(1), (2)
Barium	100	(1), (2)
Cadmium	1	(1), (2)
Chromium	5	(1), (2)
Copper	100	(2)
Cyanide (total)	10	(3)
Fluoride	150	(3)
Iron	100	(2)
Lead	5	(1), (2)
Manganese	50	(2)
Mercury	0.2	(1)
Nickel	5	
Phenolic compounds (as phenol)	0.2	(2)
Selenium	1	(1), (2)
Silver	5	(1)
Zinc	100	(2)

- (1) U.S. Code of Federal Regulations (CFR), Title 40, Chapter 1, Part 261 “Identification and Listing of Hazardous Waste”.
- (2) Victorian E.P.A. Industrial Waste Strategy Management Paper WMI/86, “Disposal of Immobilised Hazardous Wastes”, 1986.
- (3) NSW SPCC Chemical Control Order on Aluminium Smelter Waste, February 1986.

NOTE : -

The values in this table may vary from values derived from other standards in the New South Wales legislation, the reason being that the above values are considered to be generally more appropriate for their intended purpose.

The leaching test is most applicable to non-degradable water soluble materials, including sparsely soluble minerals. These are generally heavy metals. When applied to water soluble organic compounds then generally, because organic compounds are degradable to simple inorganic components, it might in some instances be appropriate to use a factor greater than 100 times the water quality standards.