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INDUSTRIAL WASTE GUIDELINES

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ASBESTOS – TRANSPORT AND DISPOSAL

In relation to workplaces, packaging of waste asbestos must comply with the Occupational Health and Safety Regulations 2007 and should follow the guidelines set out in the Worksafe Australia Asbestos Code of Practice. For non-workplaces, where such instructions are not available, the following guidelines, based on the Code of Practice, should be observed:

Asbestos Cement Sheetings (AC Sheetings) and Asbestos Cement Pipes

- Thoroughly wet the articles and maintain in a wet condition until packaged for transport.
- Minimise cutting or breaking of articles to be packed.
- For packaging, place two layers of polythene sheeting, approximately 200 µm (0.2 mm) thick, in the cargo-carrying compartment of the vehicle.
- Place articles carefully on polythene sheeting to a height of less than 1 m and completely wrap the articles. Seal with adhesive tape. Packages should be small enough to be handled easily.
- Label the package with the asbestos warning mark (see Appendix A (b)).

Insulated Lagged Pipes, Boilers, Heaters and Equipment

- Double-wrap the entire article with polythene sheets, approximately 200 µm (0.2 mm) thick, and seal with adhesive tape.
- Label the package with the asbestos warning mark (see Appendix A (b)).

Asbestos Dust and Friable Asbestos

- Discharge dust into drums. (This should be carried out in wet condition, except where wetting down is not practicable.)
- Fix the drum lid securely using a suitable device (eg, toggle clips, screws, or bolt).
- Label each drum with a dangerous goods label (see Appendix A (a)).
- Label each drum with the asbestos warning mark at least three times on one side of each bag (see Appendix A (b)).

OR

- Discharge dust directly into double polythene bags approximately 200 µm (0.2 mm) thick. A maximum bag size of 1200 mm (length) x 900 mm (width) should be used. The bagged dust should be wetted before the bags are tied and the loaded weight should not exceed 30 kg. Bags should be filled to not more than 50 per cent capacity.
- Tie each bag.
- Label each bag with a dangerous goods label (see Appendix A (a)).
- Label each bag with asbestos warning mark at least three times on one side of each bag (see Appendix A (b)).

SPECIAL

Slurry Containing Asbestos Fibre and Dust

- Remove fibres through chemical coagulation followed by filtration.
- Place residue into drums, as above.
- Label the container with a dangerous goods label (see Appendix A (a)).
- Label each container with asbestos warning mark at least three times on one side of each drum (see Appendix A (b)).
- Or other methods of packaging, transport and disposal as approved in writing by EPA.

Asbestos Tiles, Gaskets, Brake Linings, Clutch Plates, Acoustic Insulation, Non-bonded Textiles, Gloves, Protective Clothing and Respirators

- Place material in double polythene bags, approximately 200 µm (0.2 mm) thick.
- A maximum bag size of 1200 mm (length) x 900 mm (width) should be observed.
- Tie each bag.
- Label the package with the asbestos warning mark (see Appendix A (b)).
- Place the packages in an enclosed skip for transportation.

Contaminated Soil

If asbestos is identified in the soil, and disposal is the best option, under the Regulations soils contaminated with asbestos are considered to be a Category C waste.

Generally:

- Contaminated soil must be wet before any packaging is done.
- Soil should be carefully transferred to a suitable container, which should then be sealed.
- Label the container with the asbestos warning mark (see Appendix A (b)).

Soil with contaminants other than asbestos must be categorised using IWG Soil – Hazard Categorisation and Management into either category A, B, or C. Soil must then be packaged for disposal as per this guideline. Treatment or disposal must be at a facility licensed to accept that category of waste.

SOIL – HAZARD CATEGORISATION AND MANAGEMENT

TABLE

Soil Hazard Categorisation Thresholds						
CATEGORY	Fill Material Upper Limits		Category C Upper Limits		Category B Upper Limits	
	ASLP0 ¹	TC0	ASLP1 ¹	TC1	ASLP2 ¹	TC2
CONTAMINANT CONCENTRATION THRESHOLDS (dry weight)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
UNITS	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
INORGANIC SPECIES	INORGANIC SPECIES		INORGANIC SPECIES		INORGANIC SPECIES	
Arsenic		20	0.7	500	2.8	2,000
Cadmium		3	0.2	100	0.8	400
Chromium (VI)		1	5	500	20	2,000
Copper		100	200	5,000	800	20,000
Lead		300	1	1,500	4	6,000
Mercury		1	0.1	75	0.4	300
Molybdenum		40	5	1,000	20	4,000
Nickel		60	2	3,000	8	12,000
Tin		50	-	500	-	-
Selenium		10	1	50	4	200
Silver		10	10	180	40	720
Zinc		200	300	35,000	1,200	140,000
ANIONS	ANIONS		ANIONS		ANIONS	
Cyanide		50	8	2,500	32	10,000
Fluoride		450	150	10,000	600	40,000
ORGANIC SPECIES	ORGANIC SPECIES		ORGANIC SPECIES		ORGANIC SPECIES	
Phenols (halogenated) ²		1	2	10	8	320
Phenols (non-halogenated) ³		60	14	560	56	2,200
Monocyclic Aromatic Hydrocarbons ⁴		7	-	70	-	240
Benzene		1	0.1	4	0.4	16
Polycyclic Aromatic Hydrocarbons ⁵		20	-	100	-	400
Benzo(a)pyrene		1	0.001	5	0.004	20
C6-C9 petroleum hydrocarbons		100	-	650	-	2,600
C10-C36 petroleum hydrocarbons		1,000	-	10,000	-	40,000
Polychlorinated biphenyls ⁶		2	see note 6		see note 6	
Chlorinated hydrocarbons		1				
Hexachlorobutadiene			0.07	2.8	0.28	11
Vinyl chloride			0.03	1.2	0.12	4.8
Other chlorinated hydrocarbons ⁸			-	10	-	50
PESTICIDES	PESTICIDES		PESTICIDES		PESTICIDES	
Organochlorine pesticides ⁹		1				
Aldrin + dieldrin			0.03	1.2	0.12	4.8
DDT + DDD + DDE			2	50	-	50
Chlordane			0.1	4	0.4	16
Heptachlor			0.03	1.2	0.12	4.8
Other organochlorine pesticides ¹⁰			-	10	-	50

Notes

1. Australian Standard Leaching Procedure (acetate buffer) as specified in Australian Standards 4439.2 and 4439.3.
2. Total sum of 4-chloro-3-methylphenol, 2-chlorophenol, 2,4-dichlorophenol, 2,6-dichlorophenol, pentachlorophenol, 2,3,4,5-tetrachlorophenol, 2,3,4,6-tetrachlorophenol, 2,3,5,6-tetrachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol.
3. Total sum of phenol, 2-methylphenol (o-cresol), 3-methylphenol (m-cresol), 4-methylphenol (p-cresol), 2,4-dimethylphenol, 2,4-dinitrophenol, 2-methyl-4,6-dinitrophenol, 2-nitrophenol, 4-nitrophenol, 2-cyclohexyl-4,6-dinitrophenol and dinoseb.
4. Total sum of benzene, toluene, ethyl benzene, xylenes (includes ortho, para and meta xylenes) and styrene.
5. Total sum of naphthalene, acenaphthylene, acenaphthene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluorene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene and pyrene.
6. Soil containing polychlorinated biphenyls (PCBs) must be managed in accordance with the Notifiable Chemical Order for Polychlorinated Biphenyls. Industrial Waste Guidelines section Polychlorinated Biphenyls (PCBs) provides further information.
7. Total sum of carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, dichloromethane (methylene chloride), 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, tetrachloroethene, vinyl chloride and hexachlorobutadiene.
8. Total sum of carbon tetrachloride, chlorobenzene, chloroform, 1,2-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, dichloromethane (methylene chloride), 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene and tetrachloroethene.
9. Total sum of aldrin, hexachlorobenzene, alpha BHC, beta BHC, gamma BHC (lindane), delta BHC, chlordane, DDT, DDD, DDE, dieldrin, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, methoxychlor and endosulfan (includes endosulfan I, endosulfan II and endosulfan sulphate).
10. Total sum of hexachlorobenzene(HCB), alpha BHC, beta BHC, gamma BHC (lindane), delta BHC, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, methoxychlor and endosulfan (includes endosulfan I, endosulfan II and endosulfan sulphate).

SOLID INDUSTRIAL WASTE – HAZARD CATEGORISATION AND MANAGEMENT

TABLE

Solid Industrial Waste Hazard Categorisation Thresholds						
CATEGORY	Industrial Waste Upper Limits		Category C Upper Limits		Category B Upper Limits	
	ASLP0	TC0	ASLP1 ¹	TC1 ²	ASLP2	TC2
CONTAMINANT CONCENTRATION THRESHOLDS (dry weight)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
UNITS	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
INORGANIC SPECIES	INORGANIC SPECIES		INORGANIC SPECIES		INORGANIC SPECIES	
Antimony ^{3,8}	1	75	2	75	8	300
Arsenic	0.35	500	0.7	500	2.8	2,000
Barium ³	35	6,250	70	6,250	280	25,000
Beryllium ⁵	0.5	100	1	100	4	400
Boron	15	15,000	30	15,000	120	60,000
Cadmium	0.1	100	0.2	100	0.8	400
Chromium (VI)	2.5	500	5	500	20	2,000
Copper	100	5,000	200	5,000	800	20,000
Lead	0.5	1,500	1	1,500	4	6,000
Mercury	0.05	75	0.1	75	0.4	300
Molybdenum ⁶	2.5	1,000	5	1,000	20	4,000
Nickel	1	3,000	2	3,000	8	12,000
Selenium ⁶	0.5	50	1	50	4	200
Silver ⁵	5	180	10	180	40	720
Tributyltin oxide ³	0.05	2.5	0.1	2.5	0.4	10
Zinc	150	35,000	300	35,000	1,200	140,000
ANIONS	ANIONS		ANIONS		ANIONS	
Chloride	12,500	N/A	25,000	N/A	N/A	N/A
Cyanide (amenable) ⁵	1.75	1,250	3.5	1,250	14	5,000
Cyanide (total)	4	2,500	8	2,500	32	10,000
Fluoride ⁶	75	10,000	150	10,000	600	40,000
Iodide	5	N/A	10	N/A	40	N/A
Nitrate	2,500	N/A	5,000	N/A	20,000	N/A
Nitrite	150	N/A	300	N/A	1,200	N/A
ORGANIC SPECIES	ORGANIC SPECIES		ORGANIC SPECIES		ORGANIC SPECIES	
Benzene	0.05	4	0.1	4	0.4	16
Benzo(a)pyrene ⁷	0.0005	5	0.001	5	0.004	20
C6-C9 petroleum hydrocarbons ⁶	N/A	325	N/A	650	N/A	2,600
C10-C36 petroleum hydrocarbons ⁶	N/A	5,000	N/A	10,000	N/A	40,000
Carbon tetrachloride	0.15	12	0.3	12	1.2	48
Chlorobenzene	15	1,200	30	1,200	120	4,800
Chloroform ⁵	3	240	6	240	24	960
2 Chlorophenol	15	1,200	30	1,200	120	4,800
Cresol (total) ⁵	100	8,000	200	8,000	800	32,000
Di (2 ethylhexyl) phthalate	0.5	40	1	40	4	160
1,2-Dichlorobenzene	75	6,000	150	6,000	600	24,000

Solid Industrial Waste Hazard Categorisation Thresholds						
CATEGORY	Industrial Waste Upper Limits		Category C Upper Limits		Category B Upper Limits	
	ASLP0	TC0	ASLP1 ¹	TC1 ²	ASLP2	TC2
	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)
1,4-Dichlorobenzene	2	160	4	160	16	640
1,2-Dichloroethane	0.15	12	0.3	12	1.2	48
1,1-Dichloroethene	1.5	120	3	120	12	480
1-2-Dichloroethene	3	240	6	240	24	960
Dichloromethane (methylene chloride)	0.2	16	0.4	16	1.6	64
2,4-Dichlorophenol	10	800	20	800	80	3,200
2,4-Dinitrotoluene ⁵	0.065	5.2	0.13	5.2	0.52	21
Ethylbenzene	15	1,200	30	1,200	120	4,800
Ethylene diamine tetra acetic acid (EDTA)	12.5	1,000	25	1,000	100	4,000
Formaldehyde	25	2,000	50	2,000	200	8,000
Hexachlorobutadiene	0.035	2.8	0.07	2.8	0.28	11
Methyl ethyl ketone ⁵	100	8,000	200	8,000	800	32,000
Nitrobenzene ⁵	1	80	2	80	8	320
PAHs (total) ^{7,10}	N/A	50	N/A	100	N/A	400
Phenols (total, non-halogenated) ^{5,11}	7	560	14	560	56	2,200
Polychlorinated biphenyls ⁴	N/A	2	see note 4		see note 4	
Styrene	1.5	120	3	120	12	480
1,1,1,2-Tetrachloroethane ⁵	5	400	10	400	40	1,600
1,1,1,2,2-Tetrachloroethane ⁵	0.65	52	1.3	52	5.2	210
Tetrachloroethene	2.5	200	5	200	20	800
Toluene	40	3,200	80	3,200	320	12,800
Trichlorobenzene (total)	1.5	120	3	120	12	480
1,1,1-Trichloroethane ⁵	15	1,200	30	1,200	120	4,800
1,1,2-Trichloroethane ⁵	0.6	48	1.2	48	4.8	190
Trichloroethene ⁵	0.25	20	0.5	20	2	80
2,4,5-Trichlorophenol ⁵	200	16,000	400	16,000	1600	64,000
2,4,6-Trichlorophenol	1	80	2	80	8	320
Vinyl chloride	0.015	1.2	0.03	1.2	0.12	4.8
Xylenes (total)	30	2,400	60	2,400	240	9,600
PESTICIDES	PESTICIDES	PESTICIDES	PESTICIDES	PESTICIDES	PESTICIDES	PESTICIDES
Aldrin + dieldrin	0.015	1.2	0.03	1.2	0.12	4.8
DDT + DDD + DDE ⁹	1	50	2	50	N/A	50
2,4-D	1.5	120	3	120	12	480
Chlordane	0.05	4	0.1	4	0.4	16
Heptachlor	0.015	1.2	0.03	1.2	0.12	4.8

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