

# ASBG's Comparison of Queensland vs NSW and Victoria's Hazardous Waste Classifications

Note the Queensland limits set their levy rates of \$35/t, \$50/t and \$150/t on wastes. Unlike NSW and Victorian limits which can also be linked to levy rates, the Queensland limits do not set landfill acceptance criteria, which are set on a licence by licence basis.

**Table 1** Pre-classified regulated wastes

Regulated waste or constituent	Pre-classification	Comments
Acidic solutions and acids in solid form	Regulated Waste - High Hazard	Needs a test method to determine what are considered acidic. Perhaps DG corrosive definition. Needs one for solids.
Animal effluent and residues, including abattoir effluent, poultry and fish processing waste	Regulated Waste – Low Hazard	Requires a test limit eg BOD limit.
Asbestos (if not exempt)	Regulated Waste - High Hazard	Should be based on the new Assessment of Contaminated Sites NEPM.
Basic (alkaline) solutions and bases (alkalis) in solid form	Regulated Waste - High Hazard	Needs a test method to determine what are considered acidic. Perhaps DG corrosive definition. Needs one for solids.
Treated clinical and related waste	Regulated Waste – Other	Needs to be better defined.
Food processing waste	Regulated Waste – Low Hazard	Needs to be better defined, does it include bio-solids?
Grease trap waste	Regulated Waste – Low Hazard	Needs to be defined.
Highly odorous organic chemicals, including mercaptans and acrylates	Regulated Waste - High Hazard	Needs to be better defined.
Material containing polychlorinated biphenyls (PCBs), polychlorinated naphthalenes (PCNs), polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs)  Note: Concentrated PCBs and liquid scheduled PCBs cannot be disposed to landfill under the Waste Management Regulation	Regulated Waste - High Hazard	Appears consistent with PCB national plans in limits.
Mineral oils	Regulated Waste - High Hazard	See limits below.
Non-toxic salts including, for example, saline effluent	Regulated Waste – Other	Needs to be better defined.
Organic solvents, other than halogenated solvents, including, for example, ethanol	Regulated Waste - High Hazard	Some defined below, but not exhaustive, suggest using the DG classification for flammable liquids and solids + tests below.
Organohalogen compounds, other than another substance stated in the schedule	Regulated Waste - High Hazard	Defined below.
Oxidising agents	Regulated Waste - High Hazard	Suggest using the DG classification for Class 5.1 Oxidizing

		substances.
Perchlorates	Regulated Waste - High Hazard	Suggest using the DG classification for Class 5.1 Oxidizing substances.
Treated Pharmaceuticals, drugs and medicines	Regulated Waste – Low Hazard	Part of clinical wastes?
Phosphorous compounds, other than mineral phosphates	Regulated Waste - High Hazard	Suggest DG classifications for Class 4.1, 4.2 and 4.3. Otherwise captures super phosphate.
Polychlorinated dibenzo-furan (any congener)	Regulated Waste - High Hazard	Refer to national/international definitions and limits – Stockholm Convention
Polychlorinated dibenzo-p-dioxin (any congener)	Regulated Waste - High Hazard	Refer to national/international definitions and limits – Stockholm Convention.
Reactive chemicals	Regulated Waste - High Hazard	Suggest a DG classification classes 4, 5, and 8.
Reducing agents	Regulated Waste - High Hazard	Suggest a DG classification classes 2.1, 3, 4, and 8.
Sewage sludge and residues, including nightsoil and septic tank sludge	Regulated Waste – Low Hazard	Use bio-solid classifications.
Surface active agents (surfactants) containing principally organic constituents, whether or not also containing metals and other inorganic materials	Regulated Waste - High Hazard	These are usually liquids. Requires a test method and ranges for other, low and high hazardous waste categories.
Tallow	Regulated Waste - High Hazard	Tallow is not a hazardous material, so its classification of high hazardous waste is not appropriate.
Tellurium and tellurium compounds	Regulated Waste – Low Hazard	Tellurium is more toxic than tallow and vegetable oils, it should be at least high hazardous waste and have appropriate limits set.
Triethylamine catalysts for setting foundry sands	Regulated Waste - High Hazard	
Tyres	Regulated Waste – Low Hazard	Higher charges for tyres is due to voidage issues in landfills. Generally tyres are well recycled. Cut or shredded tyres should not attract the hazardous levy.
Vegetable oils	Regulated Waste - High Hazard	Vegetable oils are not hazardous materials, so its classification of high hazardous waste is not appropriate.
Waste containing peroxides other than hydrogen peroxide	Regulated Waste - High Hazard	Suggest using the DG classification for Class 5.2 Organic peroxides.
Treated (incinerated) waste from the manufacture or preparation of pharmaceutical products	Regulated Waste – Low Hazard	This criteria is too broad to have meaning.
Waste of a explosive nature, other than an explosive within the meaning of the <i>Explosives Act 1999</i>	Regulated Waste - High Hazard	Suggest DG classifications for Class 4.1, 4.2, 4.3 and 5.2.as these captures sub Class 1 explosives.
Treated timber	Regulated Waste – Other	Accepted.

**Table 2 Regulated waste—low hazard**

Comparison with NSW TCLP1 range, so the lower NSW figures are comparable with Queensland's high hazardous waste limits.

For Victorian comparisons the limit for Category B wastes was compared to Queensland's high hazardous waste limits.

Most comparisons are on leachate limits. In some cases the total concentration is used, where it is indicated by '(total)'.

Regulated waste constituent	Concentration range (mg/kg)	QLD Leaching concentration range (TCLP) (mg/l)	NSW Leaching Range TCLP 1 - TCLP2	Victorian Leach limits Cat C, B and A limits	Comments
<b>Metals/ non-metals</b>					
Antimony	—	>0.5 - 1	-	>1 - 2 - 8	Not listed in NSW or Victoria.
Arsenic	—	>0.5 - 1	5 - 20	>0.35 - 0.7 - 2.8	Reflects Victoria's limits.
Barium	—	>10 - 20	-	>35 - 70 - 280	Over 4 times tighter than Victorian limits.
Cadmium	—	>0.05 - 0.1	1 - 4	>0.1 - 0.2 - 0.8	Twice as tight as Vic and 10 times that of NSW.
Chromium	—	>0.5 - 1	5 - 20 (VI)	>2.5 - 5 - 20 (VI)	5 times tighter than NSW and Victoria and is not limited to Cr VI.
Cobalt	—	>0.5 - 1	-	-	Not in NSW or Victoria.
Copper	—	>10 - 20	-	>100 - 200 - 800	Ten times tighter than Victorian limits.
Lead	—	>0.5 - 1	>5 - 20	>0.5 - 1 - 4	Five times tighter than NSW and similar to Victoria.
Mercury	—	>0.01 - 0.02	>0.2 - 0.8	>0.05 - 0.1 - 0.4	Five times tighter than Victorian limits and ten times that for NSW.
Molybdenum	—	>0.1 - 0.2	>5 - 20	2.5 - 5 - 20	Five times tighter than Victorian limits and ten times that for NSW.
Nickel	—	>0.5 - 1	>2 - 8	1 - 2 - 8	Twice as tight as NSW and Victoria.
Selenium	—	>0.1 - 0.2	>1 - 4	0.5 - 1 - 4	Five times tighter than NSW limits.
Silver	—	>0.5 - 1	>3 - 12	5 - 10 - 40	Ten times tighter than Vic Limits and tree times that of NSW.
Thallium	—	>0.1 - 0.2			Not listed in NSW or Victoria.
Tin	—	>0.3 - 0.6		0.05 - 0.1 - 0.4	Victoria has tighter limits though this is for Tri-butyl tin oxide and not tin total.
Vanadium	—	>0.5 - 1		-	Not listed in NSW or Victoria.
Zinc	—	>50 - 100		150 - 300 - 1200	One and half times tighter than Victorian limits.

<b>Inorganic anions</b>					
Bromide	—	>5 – 10			Not listed in NSW or Victoria.
Cyanide (total)	—	>1 – 2	>3.5 - 64	4 – 8 - 32	Twice as tight as Victorian limits.
Fluoride	—	>15 – 30	>150 - 600-	75 – 150 - 600	Five times tighter than NSW and Victorian limits
Nitrate	—	>100 – 200		2500 – 5000 - 20000	12.5 times tighter than Victorian Limits
Sulphate	—	>2 500 – 3 250			No other jurisdiction has sulfate limits as gypsum is a common building material and is considered inter in landfills. This limit should not be included.
<b>Monocyclic aromatic hydrocarbon (MAH)</b>					
Benzene	>10 – 15	>0.1 – 0.2	0.5 - 2	0.05 – 0.1 – 0.4	Similar to Victoria's limits, but 2.5 times tighter than NSW
Ethyl benzene	>500 – 750	>5 – 10	30 - 120	15 – 30 - 120	12 times tighter than NSW and 3 times tighter than Victoria
Toluene	>300 - 450	>3 – 6	14.4 – 57.6	40 – 80 – 320	Nearly ten times tighter than NSW and 13 times tighter than Victoria
Xylene	>250 – 325	>2 – 4	50 - 200	30 – 60 - 240	12.5 times tighter than NSW and 15 times tighter than Victoria.
Total MAH	>500 - 750	>5 – 10			No total limit in NSW and Victoria.
<b>Polycyclic aromatic hydrocarbons (PAH)</b>					
Anthracene	—	>0.07 – 0.14	-		Both NSW and Victoria do not use leachate limits due to the hydrophobic nature of PAHs. Instead only total concentrations of the sum of PAHs listed in both NSW and Victorian lists.
Benz (a) anthracene	—	>0.005 – 0.01			
Benz (c) phenanthrene	—	>0.005 – 0.01			
Benzo (a) pyrene	—	>0.002 – 0.004			
Benzo (b) fluoranthene	—	>0.005 – 0.01			
Benzo (k) fluoranthene	—	>0.005 – 0.01			Not listed in NSW or Victoria.

Chrysene	—	>0.10 – 0.2			Not listed in NSW or Victoria.
Dibenz (a,h) anthracene	—	>0.002 – 0.004			Not listed in NSW or Victoria.
Dibenz (a,h) pyrene	—	>0.01 – 0.02			Not listed in NSW or Victoria.
Dimethylbenz (a) anthracene	—	>0.005 – 0.01			Not listed in NSW or Victoria.
Fluoranthene	—	>0.02 – 0.4			Not listed in NSW or Victoria.
Indeno (1,2,3-cd) pyrene	—	>0.01 – 0.02			Not listed in NSW or Victoria.
Naphthalene	—	>0.07 – 0.14			Not listed in NSW or Victoria.
Phenanthrene	—	>0.01 – 0.02			Not listed in NSW or Victoria.
Pyrene	—	>0.07 – 0.14			Not listed in NSW or Victoria.
Total PAH	>500 - 750	>0.1 – 0.2	200 - 800 (total)	50 – 100 - 400	Total concentrations have both NSW and Victorian limits tighter by 2.5 and 5 times respectively.
<b>Phenolic contaminants</b>					
<i>Non halogenated compounds:</i>					
Phenol	>100 - 175	>1 – 2	14.4 – 57.6 (L)	7 – 14 – 56 (L)	NSW and Victoria only limit total phenolic, non halogenated compounds. The leachate limits can be 7 to 3.5 times tighter for Queensland.
m-cresol	>250 – 325	>2 – 4			
o-cresol	>250 – 325	>2 – 4			
p-cresol	>250 – 325	>2 - 4			
Total non halogenated phenol	>250 - 325	—	518 – 2073 (total)	560 – 560 – 2200 (total)	Total concentrations are about twice as tight for Queensland than for NSW and Victoria.
<i>Halogenated phenols:</i>					
Chlorophenol	>1 – 2	>0.01 – 0.02	-	15 – 30 - 120	Requires speciation. 30 times tighter than Victorian limits
Pentachlorophenol	>5 – 10	>0.1 – 0.2			Not listed in NSW or Victoria.
Trichlorophenol	>5 - 10	>0.1 – 0.2	400 – 1600 2 – 8		Need to separate between 2, 4,5 and 2,4, 6 Trichlorophenol as these have 200 times differences in leachate limits

Total halogenated phenol	>5 - 10	—			
<b>Chlorinated hydrocarbons</b>					
<i>Chlorinated aliphatic compounds:</i>					
Carbon tetrachloride	>5 – 7.5	>0.03 – 0.06	0.5 - 2	0.15 – 0.3 – 1.2	8.3 times tighter for NSW and 5 times tighter than Victorian limits.
1,2 Dichloroethane	>10 – 15	>0.1 – 0.2	4.3 - 17.2	0.15 – 0.3 – 1.2	21.5 times tighter for NSW and 1.5 times tighter than Victorian limits.
1,1 Dichloroethene	1	>0.003 – 0.006	0.5 - 2	1.5 – 3 - 12	500 times tighter than Victorian limits and 333 times tighter than NSW limits.
Tetrachloroethene	>10 – 15	>0.1 – 0.2	0.7 – 2.8	2.5 – 5 - 20	3.5 times tighter for NSW and 25 times tighter than Victorian limits.
Trichloroethene	25	>0.3 – 0.6	0.5 - 2	0.6 – 1.2 - 4.8	Needs to specify 1,1,2 TCE or 1,1,1 TCE as they have a 25 times difference in leachate limits for Victoria and NSW
Total chlorinated aliphatic compounds	<50	—			This appears to come from the NSW SCW CCO. But use of a <50 mg/kg/ limit for all chlorinated aliphatic compounds is inconsistent with other states. If applied the limit should be attached to a list of such compounds, such as the list of 5 compounds provided in this section.
<i>Chlorinated aromatic compounds:</i>					
Chlorobenzene (total)	>100 - 150	>1 - 2	100 - 400	15 – 30 - 120	50 times tighter for NSW and 15 times tighter than Victorian limits.
Hexachlorobenzene	1	>0.002 – 0.004	Covered under CCO		Not listed in NSW or Victoria. Covered under other documentation.
Total Chlorinated aromatic	>100 – 150	—			

compounds					
Non scheduled solid polychlorinated biphenyls (PCBs)	>2 - 4	—		2 total	Waste containing polychlorinated biphenyls (PCBs) - be managed in accordance with the <i>Notifiable Chemical Order for Polychlorinated Biphenyls</i> . Industrial Waste Guidelines section <i>Polychlorinated Biphenyls (PCBs)</i> provides further information.
<b>Pesticides</b>					
<i>Organochlorine:</i>					
Aldrin	—	>0.001 – 0.002	Covered under the scheduled chemicals control order. Total SC CCO should not exceed 50 mg/kg	1 – 2 - 8	3.5 times tighter than NSW and 25 times tighter than Victorian limits.
Chlordane	—	>0.006 – 0.012		0.05 – 0.1 – 0.4	
Chlorpyrifos	—	>0.01 – 0.02			
Dieldrin	—	>0.001 – 0.002		1 – 2 - 8	
DDT	—	>0.003 – 0.006		1 – 2 – N/A	Should use the ANZECC Organochlorine Pesticides Waste Management Plan 1999 as Victoria does for these limits.
Endrin	—	>0.001 – 0.002		1 – 2 - 8	
Heptachlor	—	>0.003 – 0.006		0.015 – 0.03 - 0.12	
Lindane	—	>0.1 – 0.2			
Methoxychlor	—	>0.1 – 0.2			
Toxaphene	—	>0.005 – 0.01			
Total organochlorine pesticides	>5 - 10	—			10 times tighter than NSW limits.
<b>Herbicides</b>					
2,4-D	—	>0.1 – 0.2		1.5 – 3 - 12	15 times tighter than Victorian limits.
2,4-DB	—	>0.2 – 0.4			
2,4,5 -T	—	>0.002 – 0.004			
MCPA	—	>0.2 – 0.4			
Total herbicides	>25 – 37.5	—			
<i>Carbamates:</i>					
Carbaryl	—	>0.06 – 0.12			
Carbofuran	—	>0.03 – 0.06			
Total carbamates	>25 – 37.5	—			
<i>Organophosphor</i>					

<i>us:</i>					
Diazinon	—	>0.01 – 0.02			
Methyl parathion	—	>0.006 – 0.012			
Parathion	—	>0.03 – 0.06			
<i>Triazines:</i>					
Atrazine	—	>0.01 – 0.02			
Simazine	—	>0.01 – 0.02			
Total organophosphorus pesticides	>10 - 20	—			
<b>Petroleum hydrocarbons</b>			NSW total conc.		
Total petroleum hydrocarbons (C <sub>6</sub> -C <sub>9</sub> )	>500 - 750	—	>650 – 2600 (total)	325 – 650 - 2600	Generally consistent with NSW and Victorian limits.
Total petroleum hydrocarbons (C <sub>10</sub> -C <sub>14</sub> )	>5 000 – 7 500	—	>10,000 – 40,000 (total)	5000 – 10000 - 40000	
Total petroleum hydrocarbons (C <sub>15</sub> -C <sub>28</sub> )	>10 000 – 30 000	—	>10,000 – 40,000 (total)	5000 – 10000 - 40000	
Total petroleum hydrocarbons (C <sub>29</sub> -C <sub>36</sub> )	>10 000 – 30 000	—	>10,000 – 40,000 (total)	5000 – 10000 - 40000	
Petroleum hydrocarbons	—	>25 – 37.5			Use of TCLP on hydrocarbons is not considered relevant to NSW and Victorian systems as hydrocarbons are hydrophobic. Imposing a TCLP requirement will led to unnecessary testing.