Australian Government

EXPOSURE DRAFT

Industrial Chemicals Environmental Management (Register) Bill 2020

Information Paper

Criteria used to categorise an organic chemical as Persistent, Bioaccumulative and/or Toxic

For the purposes of the Industrial Chemicals Environmental Management (Register) Principles, the terms:

Persistent means a chemical that meets the indicators and/or numerical thresholds for positive hazard categorisation for the hazard characteristic "Persistence" (Item 1) in Table 1, below.

Bioaccumulative means a chemical that meets the indicators and/or numerical thresholds for positive hazard categorisation for the hazard characteristic "Bioaccumulation" (Item 2) in Table 1, below.

Toxic means a chemical that meets the indicators and/or numerical thresholds for positive hazard categorisation for the hazard characteristic "Toxicity" (Item 3) in Table 1, below.

A chemical is "a PBT" chemical when it is categorised as persistent, and bioaccumulative, and toxic using the criteria in Table 1.

Table 1: The National PBT criteria are indicators used to categorise Persistence, Bioaccumulation and Toxicity characteristics of organic chemicals, as outlined in the National Standard for the environmental risk management of industrial chemicals (Table B-2, Appendix B)

Item	Hazard characteristic	Environmental medium (or compartment or trophic level)	Indicators and numerical thresholds for positive hazard categorisation and considering environmental relevance
1	Persistence	Air	Half-life ($T_{½}$) ≥ 2 days
		Water	Half-life ($T_{½}$) ≥ 60 days
		Soil	Half-life ($T_{½}$) ≥ 6 months
		Sediment	Half-life ($T_{½}$) ≥ 6 months

2	Bioaccumulation	Aquatic	BAF ≥ 2000 or BCF ≥ 2000 or log K_{OW} ≥ 4.2 (if BAF and BCF are not available)
		Terrestrial	log K_{OA} > 6 and log K_{OW} ≥ 2
		Food-chain bioaccumulation potential	BMF > 1
3	Toxicity	Aquatic - Acute Fish Invertebrates Algae or other aquatic plants	 96 h LC_{50} ≤ 1 mg/L and/or 48 h EC_{50} ≤ 1 mg/L and/or 72 or 96 h ErC_{50} ≤ 1 mg/L
		Aquatic - Chronic Fish Invertebrates Algae or other aquatic plants	 Chronic NOEC or EC_X ≤ 0.1 mg/L and/or Chronic NOEC or EC_X ≤ 0.1 mg/L and/or Chronic NOEC or EC_X ≤ 0.1 mg/L

BCF = bioconcentration factor; BAF = bioaccumulation factor; K_{ow} = n-octanol/water partition coefficient; K_{oa} = octanol/air partition coefficient; BMF = biomagnification factor; LC50 = concentration lethal to 50% of the population; E(r)C50(x) = concentration that has adverse effects to 50% of the population (or growth rate for algae); NOEC = No Observable Effect Concentration.

Note: These are the general criteria and may not be directly applicable to difficult to test substances such as metals and other inorganic chemicals, some surfactants and poorly soluble substances. The risk assessment will identify and justify the PBT characteristics of the chemical.