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## Impact Category. Toxicity Potential

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**Brief summary.** Relates to species present in the environment (including humans) living under toxic stress. Heavy metals, pesticides and organic solvents are examples of substances that cause toxic impacts [1]. Toxicity category is often divided into human toxicity and ecotoxicity (the latter being divided into freshwater, marine, and terrestrial toxicity).

**Units.** kg 1,4-dichlorobenzene (1,4-DCB)

**Detailed summary.** Toxicity refers to adverse biological effects on living organisms caused by contaminants. The strict scientific meaning of “toxic” refers to the ability to cause death but it is commonly understood and used to refer to any adverse biological effects [2].

In New Zealand, although some references claim that “Compared to many industrialised nations, New Zealand has generally low levels of toxic contaminants in the environment” [3], it has also been noted that “monitoring of hazardous air contaminants [in New Zealand] has been relatively sparse and of variable quality” [4].

Methodologies for assessing toxicity are still under development. This is partly due to ongoing research into new substances and their effect on humans and the environment. Although uncertainty of toxicity results are high LCA does provide useful insights about up and downstream emissions.

### References.

1. Baumann, H. and A.-M. Tillman, The Hitchhikers guide to LCA. An orientation in life cycle assessment methodology and application. 1st ed. 2004: Studentlitteratur AB.
  2. Lentz, M., P. Kennedy, P. Jones, C. Hickey, G. Mills, G. Fisher and C. Eason. 1998. Review of Environmental Performance Indicators for Toxic Contaminants In the Environment – Air, Water and Land. Technical Paper No. 37 Toxic. Prepared for the Ministry for the Environment. Ministry for the Environment, Wellington. Available at <http://www.mfe.govt.nz/publications/ser/tech-report-37-toxic-oct98.pdf>.
  3. Ministry for the Environment. 2006. Contaminated Land. Ministry for the Environment, Wellington. Accessed 30 October 2006. Available at <http://www.mfe.govt.nz/issues/hazardous/contaminated>.
  4. Chiodo, et al. 2000. Health Effects of Eleven Hazardous Air Contaminants and Recommended Evaluation Criteria. Final Report. Air Quality Technical Report No.13. Prepared for the Ministry for the Environment’s Review of the Ambient Air Quality Guidelines. Ministry for the Environment, Wellington Available at <http://www.mfe.govt.nz/publications/air/11-hazardous-air-oct00.pdf>.
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