Alkylphenols and Alkylphenol Ethoxylates

in the Georgia Basin

- **What are alkylphenols and alkylphenol ethoxylates?**
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What are alkylphenols (APs) and alkylphenol ethoxylates (APEnOs)?

APs are used mainly in the manufacture of APEnOs. APEnOs are used in a variety of industrial and consumer products including detergents, degreasers, emulsifiers, wetting agents, and dispersing agents. They are used by a wide range of industries including the textile, pulp and paper, metal processing, petroleum refining, oil and gas recovery, power generation, food and beverage processing, plastics manufacture, building and construction, and paint and coating industries. They have also been used in a variety of pesticide products.

Why are they of concern?

The environmental fate and behaviour of these compounds have not been well studied; however, there is evidence that, while some of these compounds degrade quite rapidly in the environment, the degradation products can be more persistent than the parent compounds. Bioconcentration has been observed in aquatic organisms and exposure can result in impaired reproduction, growth, fecundity, and photosynthesis. In addition, these substances disrupt endocrine systems. APs and APEnOs were assessed by the Federal Government under the mandate of the *Canadian Environmental Protection Act 1999* and were found to be toxic, as defined by the Act.

How can they enter the Georgia Basin environment?

Inventories of pesticide sales have identified these substances as active ingredients in pesticides sold in BC. They have been detected in municipal wastewater treatment effluents, combined sewer overflows (CSOs), and in runoff in the Georgia Basin; however, information is limited and current loadings to the environment cannot be determined. In particular, additional information is needed on the presence of these substances in agricultural runoff.

Are they present in the Georgia Basin environment?

Information on the presence of AP and APEnOs in the Georgia Basin environment is limited; however, some forms of these compounds have been detected in sediments. Concentrations were highest near urban centres, downstream from pulp mills, and in the vicinity of municipal wastewater treatment plant discharges.

Key References

(Information for this fact sheet was taken from the following publication)

Garrett, C.L. 2004. Priority substances of interest in the Georgia Basin: profiles and background information on current toxic issues. Technical Supporting Document of the Canadian Toxics Work Group of the Puget Sound/Georgia Basin International Task Force. GBAP Publication No. EC/GB/04/79. Environment Canada, Pacific and Yukon Region, Vancouver, BC.

Useful Websites

- *Environment Canada - P2 Planning Progress Report*
- *Environment Canada - Nonylphenol Evaluation*
- *Health Canada - Nonylphenol Assessment*
- *US Environmental Protection Agency - Nonylphenol Action Plan*