

ALKYLPHENOLS BULLETIN

An Update from the Alkylphenols & Ethoxylates Research Council

June 7, 2007

The Alkylphenols Bulletin periodically notifies manufacturers and users of alkylphenols and their derivatives of national and international developments of interest. For further information, please contact the APE Research Council at the address below.

Statement on Sierra Club Petition to EPA

The Sierra Club and several other organizations submitted a petition to US EPA calling for various actions and testing requirements on nonylphenol (NP) and nonylphenol ethoxylates (NPE). NPE are chemicals that function as surfactants in many applications including detergents and cleaning products. NPE have been used for over 50 years because they are high performance, cost-effective ingredients. APERC views the various initiatives advocated by the petition to be unnecessary given the extensive information already available on these compounds, particularly in light of the review recently completed by the US Environmental Protection Agency (EPA).

NP, NPE and their biodegradation intermediates are among the most extensively studied compounds in commerce today. Few compounds have the same degree of test data or have received the same degree of scientific scrutiny.

EPA established federal Water Quality Criteria (WQC) for NP in 2006. The WQC represents the concentrations of NP in the aquatic environment that, when not exceeded, protect aquatic life. It is noteworthy that concentrations of NP/NPE measured in US waters over a period of 15 years have found very few samples that exceed the WQC level.ⁱ

The petition's assertion that numerous studies found endocrine disruptive effects, well below the federal water quality criteria of 6.6 µg/L, is misinformed and misleading. According to EPA's final WQC document, "*the ability of nonylphenol to induce estrogenic effects has seldom been reported at concentrations below the freshwater final chronic value of 6.5965 µg/L.*"

Traditional chronic and multi-generational toxicity studies look at reproductive and developmental effects that are indicative of endocrine modulation, a term considered by many scientists to be a mechanism of action, not a toxicological endpoint. The studies show that NP, which has weak estrogenic activity, is ten thousand to one million times less potent than the natural estrogen found in human waste. Moreover, the NPE used in commercial products are not estrogenic. This is an important distinction because these are the compounds (the ethoxylates) that are used in the workplace.

Several of the tests that the petition advocates that EPA mandate have already been conducted. For example, a dermal absorption study on both NP and NPE was conducted by the North Carolina State University and published in a peer-reviewed journal. That study found that the ability of these compounds to enter the body through skin contact is minimal to negligible.ⁱⁱ

APE Research Council

1250 Connecticut Avenue, NW, Suite 700, Washington, DC 20036 Phone: 202-419-1506 Fax: 202-659-8037

<http://www.aperc.org> info@aperc.org

The results of mammalian toxicity studies conducted on NP and NPE, combined with an understanding of occupational and consumer exposure, support the conclusion that human safety should not be a concern for these chemicals. This view was confirmed in governmental risk assessments conducted by the European Union and Canada.

An assessment of the hazard and exposure information combined with the long history of use confirms that NPE are suitable for their intended uses.

ⁱ Klečka, G., Zabik, J., Woodburn, K., Naylor, C., Staples, C., and Huntsmann, B. (2007). Exposure Analysis of C8- and C9-Alkylphenol, Alkylphenol Ethoxylates and their Metabolites in Surface Water Systems within the United States. Journal of Human and Ecological Risk Assessment. In press.

ⁱⁱ Monteiro-Riviere, N.A., Van Miller, J.P., Simon, G.S., Joiner, R.L., Brooks, J., and Riviere, J.E. (2003). In vitro percutaneous absorption of nonylphenol (NP) and nonylphenol ethoxylates NPE-4 and NPE-9 in isolated perfused skin. Journal of Toxicology - Cutaneous and Ocular Toxicology, 22, 1-11.