

# ALKYLPHENOLS BULLETIN

An Update from the Alkylphenols & Ethoxylates Research Council

October 14, 2003

*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.*

## NEWLY PUBLISHED STUDIES SUPPORT HUMAN SAFETY OF NONYLPHENOL

Two recently published studies further support the safe use of products manufactured with nonylphenol (NP), such as tris(nonylphenyl) phosphite (TNPP), a plastics additive, and nonylphenol ethoxylate (NPE), a surfactant commonly used in cleaning products. These studies, in combination with the numerous existing studies on NP, NPE and TNPP, further support the human safety of the use of NP derivatives.

The studies confirm that the skin absorption of NP, as well as two major NPE commercial products, is less than 1%, which “is even lower than previous estimates” (Monteiro-Riviere *et al.*, 2003<sup>1</sup>) and that there is rapid metabolism of realistic oral doses of NP in rats to compounds that are not estrogenic and are eliminated within 24 hours (Green *et al.*, 2003<sup>2</sup>).

The Green *et al.* study also confirms that no significant accumulation of NP occurs in any body organ or tissue following exposure levels in excess of real-world exposures. Free NP was only found in bile and urine following oral exposure at very high doses -- above 100 milligrams per kilogram body weight per day (100 mg/kg/d) -- doses thousands of times higher than worst-case estimates of human exposure to NP from products made with TNPP and NPE.

Furthermore, these studies indicate that NP -- even at doses many times higher than worst-case exposure estimates -- is metabolized by a normal process to facilitate elimination from the body. These NP metabolites do not have estrogenic activity in a highly sensitive test (Moffat *et al.*, 2001).

These new findings are consistent with and support the results of a multi-generation study conducted by the US National Institute of Environmental Health Sciences (Chapin *et al.*, 1999) that found no effects on reproduction or development from NP doses as high as 200 parts per million (ppm) in the diet (15 mg/kg/d), and no effects on fertility at doses of 2000 ppm in the diet (150 mg/kg/d).

The two new studies were sponsored by the Alkylphenols & Ethoxylates Research Council, which sponsors research to advance the scientific understanding of the health and environmental safety of alkylphenol products.

<sup>1</sup> 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*. Vol. 22, Nos. 1 & 2, pp. 1-11.

<sup>2</sup> Green, T., Swain C., Van Miller, J.P. and Joiner, R.L. (2003) Absorption, bioavailability, and metabolism of *para*-nonylphenol in the rat. *Regulatory Toxicology and Pharmacology*. 38: 43-51.

**APE Research Council**

1250 Connecticut Avenue, NW, Suite 700, Washington, DC, 20036 Toll Free: (866) APERC-NA [info@aperc.org](mailto:info@aperc.org) [www.aperc.org](http://www.aperc.org)