

A P E R E S E A R C H C O U N C I L

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Mr. Rudy M. Baum
C&EN Editor-in-Chief
1155--16th St., N.W.
Washington, DC 20036
Via e-mail: edit.cen@acs.org

Dear Mr. Baum:

In the article "Going Green" (C&E News, January 29, 2007, pp13-19), Michael McCoy discusses the rush toward corporate sustainability and green marketing among detergent formulators and retailers. He correctly notes that nonylphenol ethoxylate (NPE) surfactants "provide an instructive example of how (corporate) listing, even in the absence of government action, catalyzes change." NPEs also provide an example of how in the absence of up-to-date science or consideration of end-use disposal practices, corporate programs based on chemical deselection can be misdirected.

The most up-to-date science shows that NPEs are effective products that can be used in a safe and environmentally responsible manner. Comprehensive reviews of the peer-reviewed literature show that NPEs and their biodegradation intermediates including nonylphenol (NP) are adequately treated in the most commonly used wastewater treatment systems.¹ Perhaps more importantly, a statistical review of environmental monitoring results over the past 15 years from studies published primarily by the US Geological Survey and academic researchers, found concentrations of NPE and its biodegradation intermediates in US surface waters are, with few exceptions, already below levels that might elicit concern.² The very few locations where concentrations of NP were found to exceed US EPA Water Quality Criteria were all faced with general pollution problems that will not be corrected by a chemical deselection program.

These findings prompt questions regarding the actual benefit of programs that promote the deselection of NPEs, particularly in the United States where there are no federal regulatory restrictions on the use of NPEs. The available science does not indicate that they pose a risk. NPEs are not persistent or bioaccumulative; nor are any of their biodegradation intermediates. In fact, recent assessments conducted by Washington State³ and Environment Canada⁴ reaffirmed this fact. In addition, neither NPEs nor any of their biodegradation intermediates are carcinogens, mutagens or reproductive toxins. A recently published "gold-standard" study, which evaluated the effects of NP in rats over the course of three generations, found that there were no statistically significant effects on reproductive parameters or sperm counts in any generation, addressing concerns about the weak estrogenic activity of NP.⁵ More importantly, commercial

NPEs that are ingredients in the products that workers and consumers use show no estrogen-like activity in assays that are highly responsive to estrogenic compounds.⁶

NPEs have been used for over 50 years because they work so well, bringing cost-effective cleaning performance to industrial users and household consumers. Consumer Reports[®] recently published a comparison of the cost-per-load of detergents that showed detergents based on NPEs are on average half the cost of alternative detergents.⁷ Corporate policies that force deselection of NPEs in detergents and cleaning products do a disservice to consumers by reducing the availability of cost-effective products that do not present a risk to consumers or the environment. The Alkylphenols & Ethoxylates Research Council urges corporations developing green and sustainability marketing programs to consider the best available science and product disposal practices in order to develop programs that will ensure that real improvements to environmental or human safety will result from their efforts.

Sincerely,

Barbara S. Losey
Deputy Director

¹ Melcer, H. et al. (2007). Wastewater Treatment of Alkylphenols and Their Ethoxylates. Water Environment Research (in press)

² Klecka, G. et al. (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)

³ Washington State Department of Ecology. (2006, January 13). Persistent Bioaccumulative Toxins (PBT) Regulation, Chapter 173-333 WAC. <http://www.ecy.wa.gov/biblio/wac173333.html>

⁴ Environment Canada. (2005, November 21). Response to APERC's Proposal Regarding Environment Canada's Preliminary Categorization of Nonylphenol, Octylphenol and their Ethoxylates. <http://www.aperc.org/docs/environmentcanadadecision112105.pdf>

⁵ Tyl, R.W., Myers, C.B., Marr, M.C., Castillo, N.P., Seely, J.C., Sloan, C.S., Veselica, M.M., Joiner, R.L., Van Miller, J.P., and Simon, G.S. (2006). Three-Generation Evaluation of Dietary *para*-Nonylphenol in CD (Sprague-Dawley) Rats. *Toxicological Sciences*, 92, 295-310.

⁶ Williams, J., Brady, A.M., Lewis, R.W., and Hughes, L. (1996) Assessment of alkylphenol derivatives for estrogenic activity in a rat uterotrophic model. Proceedings of the 4th World Surfactant Congress. 3, 34-41. Barcelona

⁷ ConsumerReports.org. (2006, December). Laundry detergents: Clean and Green Options http://www.consumerreports.org/cro/home-garden/cooking-cleaning/laundry-detergents-1-07/overview/0107_soap_ov.htm