

201-15095

Sir: Enclosed are the revised test plan and updated robust summaries for the **nitro alcohol** category and the HPV substances 2-hydroxymethyl-2-nitro-1,3-propanediol (TN) and 2-methyl-2-nitro-1-propanol (MNP) in particular. In response to the EPA comments on the initial submission, the test plan and robust summaries have been corrected and expanded to clarify and provide additional detail as requested.

Specifically, the robust summary for the biodegradation study for TN has been modified to state that it is not ready biodegradable. The health effects section of the test plan has been clarified to emphasize that:

1. MNP is manufactured and handled in a completely closed-system at a single manufacturing site.
2. Because it is non-volatile and is used at its site of manufacture as a reactant in the synthesis of another substance, MNP exposure will be limited to the dermal route and then only in a limited manner because work rules require that plant maintenance workers, who are the only group with potential for dermal exposure, wear proper dermal protection irrespective of the substance involved.

It is believed that the revised test plan and the updated robust summaries demonstrate the adequacy of the data for the category, **nitro alcohols**.

In addition to EPA comments, responses were received from Environmental Defense and Physicians Committee for Responsible Medicine, People for the Ethical Treatment of Animals, Humane Society of the United States, the Doris Day Animal League and Earth Island Institute. Of these, requests for additional studies were only received from Environmental Defense and responses for these requests are discussed below.

- Why is MNP a severe eye irritant while TN is not?
 - The two materials will breakdown releasing formaldehyde. We suspect that MNP releases formaldehyde more rapidly than TN. Thus the animals may have a higher dose of formaldehyde which causes more severe eye irritation. The difference in eye irritation between MNP and TN is not explained by the ultimate degradation products, 2-nitropropane and nitromethane.
- TN is relatively non-toxic to aquatic invertebrates and fish but the 48-hr EC50 in algae is 0.6 mg/L. EDF recommends an algae study be conducted with MNP.
 - A mole of TN decomposes ultimately releasing 3 moles of formaldehyde. Formaldehyde has a 24-hr EC50 of 14.7 mg/L for a 37% solution (latest IUCLID), which corresponds to a 24-hr EC50 of 5.4 mg/L for pure formaldehyde; another 24-hr TGK value of 0.3 mg/L is also available for this chemical. Considering the available EC50 and TGK values for algae with formaldehyde, the reported EC50 value for algae with TN is not unexpected. Since MNP will only release 1 mole of formaldehyde for every mole MNP, it would be expected to be less toxic than TN to algae.
 - The ECOSAR model for TN and MNP predicts that the aquatic toxicity to algae, daphnia or fish will be greater than 100 mg/L. This information

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supports the premise that the acute toxicity of TN to algae is due to release of formaldehyde.

- TN exhibited neurotoxic properties at concentrations $\geq 20,000$ ppm and a similar study should be conducted for MNP.
 - While TN did produce histopathologically visible effects in the Purkinje cells of ducks at high concentrations, the NOEL in this study was 10,000 ppm. This study was conducted prior to EPA guidelines and the concentrations were much higher than the currently recommended maximum concentration of 5000 ppm for avian exposures. Considering the closed system intermediate use of MNP, minimal release to the environment, four fold difference between the LOEL for TN and currently recommended dose levels and that this study is outside the scope of the HPV program, conduct of an additional avian drinking water study is unnecessary as part of the HPV program and is unlikely to yield effect data at concentrations less than prescribed maximum avian dose levels.