

February 3, 2004

Dr. Mark A. Thomson
Manager, Toxicology & International Product Registration
Crompton Corporation
199 Benson Road
Middlebury, CT 06749

Dear Dr. Thomson:

The Office of Pollution Prevention and Toxics is transmitting EPA's comments on the robust summaries and test plan for N,N,N',N'-tetramethylethylenediamine posted on the ChemRTK HPV Challenge Program Web site on October 3, 2003. I commend Crompton Corporation for its commitment to the HPV Challenge Program.

EPA reviews test plans and robust summaries to determine whether the reported data and test plans will provide the data necessary to adequately characterize each SIDS endpoint. On its Challenge Web site, EPA has provided guidance for determining the adequacy of data and preparing test plans used to prioritize chemicals for further work.

EPA will post this letter and the enclosed comments on the HPV Challenge Web site within the next few days. As noted in the comments, we ask that Crompton advise the Agency, within 60 days of this posting on the Web site, of any modifications to its submission. Please send any electronic revisions or comments to the following e-mail addresses: oppt.ncic@epa.gov and chem.rtk@epa.gov.

If you have any questions about this response, please contact Richard Hefter, Chief of the HPV Chemicals Branch, at 202-564-7649. Submit questions about the HPV Challenge Program through the "Contact Us" link on the HPV Challenge Program Web site pages or through the TSCA Assistance Information Service (TSCA Hotline) at (202) 554-1404. The TSCA Hotline can also be reached by e-mail at tsca-hotline@epa.gov.

I thank you for your submission and look forward to your continued participation in the HPV Challenge Program.

Sincerely,

-S-

Oscar Hernandez, Director
Risk Assessment Division

Enclosure

cc: W. Penberthy
M. E. Weber

**EPA Comments on Chemical RTK HPV Challenge Submission:
N,N,N',N'-Tetramethylethylenediamine**

Summary of EPA Comments

The sponsor, Crompton Corporation, submitted a test plan and robust summaries to EPA for N,N,N',N'-tetramethylethylenediamine (CAS No. 110-18-9) dated August 27, 2003. EPA posted the submission on the ChemRTK HPV Challenge Web site on October 3, 2003.

EPA has reviewed this submission and has reached the following conclusions:

1. Physicochemical Properties. The submitter needs to provide measured vapor pressure and water solubility values for this chemical.
2. Environmental Fate. The submitter needs to incorporate stability in water information in its robust summary, provide measured ready biodegradation data and recalculate the fugacity model estimates using measured data.
3. Health Effects. Adequate data are available for the acute toxicity and gene mutation endpoints for the purposes of the HPV Challenge Program. EPA agrees with the submitter's proposal to conduct an *in vitro* mammalian chromosome aberration test and a combined repeated-dose, reproductive, and developmental toxicity test.
4. Ecological Effects. EPA disagrees with the sponsor that adequate data were submitted for all ecological endpoints.

EPA requests that the submitter advise the Agency within 60 days of any modifications to its submission.

EPA Comments on the N,n,n',N'-tetramethylethylenediamine Challenge Submission

Test Plan

Physicochemical Properties (melting point, boiling point, vapor pressure, partition coefficient and water solubility)

The data provided by the submitter for melting point, boiling point, and partition coefficient are adequate for the purposes of the HPV Challenge Program.

Vapor pressure. The value provided by the submitter is not adequate for the purposes of the HPV Challenge Program. The submitter provided an estimated vapor pressure value of 20 hPa (15 mm Hg) at 25 °C (using MPBPWIN v 1.40). HPV guidelines indicate that vapor pressure values that are likely to be greater than 10^{-5} Pa (7.5×10^{-8} mm Hg) need to be measured. Thus, the submitter needs to provide a measured vapor pressure for this chemical following OECD guidelines.

Water solubility. The value provided by the submitter is not adequate for the purposes of the HPV Challenge Program. The submitter provided an estimated water solubility value of 877,700 mg/L at 25 °C (using WSKOW v 1.40). HPV guidelines indicate that water solubility values that are likely to be greater than 1 µg/L need to be measured. Thus, the submitter needs to provide a measured water solubility for this chemical following OECD guidelines.

Environmental Fate (photodegradation, stability in water, biodegradation, fugacity)

The data provided by the submitter for photodegradation are adequate for the purposes of the HPV Challenge Program.

Stability in water. The submitter did not provide a stability in water robust summary. Even though the submitter indicates in its test plan that this chemical has no hydrolysable groups and is therefore predicted to be hydrolytically stable, the submitter needs to indicate this fact in robust summary format.

Biodegradation. The submitter did not provide measured biodegradation data for N,N,N',N'-tetramethylethylenediamine. Estimated biodegradation data are not adequate for the purposes of the HPV Challenge Program. The submitter needs to provide measured ready biodegradation data for this chemical following OECD TG 301.

Fugacity. The submitter needs to recalculate the fugacity model estimates using measured values (vapor pressure and water solubility).

Health Effects (acute toxicity, repeated-dose toxicity, genetic toxicity, and reproductive/developmental toxicity)

EPA agrees with the submitter's proposal to conduct an *in vitro* mammalian chromosome aberration test (OECD TG 473) and a combined repeated-dose, reproductive, and developmental toxicity test (OECD TG 422). The submitter needs to specify the route of administration of the test substance. In addition, EPA believes that with proper dose selection the irritant properties of the substance can be mitigated and the test adequately conducted under OECD guidelines.

Ecological Effects (fish, invertebrates, and algae)

The sponsor did not provide any experimental data to show that all ecological end points had been addressed. The sponsor needs to provide adequate measured data from an analog with the Quantitative Structure Activity Relationship (QSAR) data or test for all endpoints.

Followup Activity

EPA requests that the submitter advise the Agency within 60 days of any modifications to its submission.