

July 21, 2005

Robert J. Fensterheim  
Executive Director  
DADMAC HPV Committee  
1250 Connecticut Avenue, N.W.  
Suite 700  
Washington, DC 20036

Dear Mr. Fensterheim:

The Office of Pollution Prevention and Toxics is transmitting EPA's comments on the robust summaries and test plan for Diallyldimethylammonium Chloride (DADMAC) posted on the ChemRTK HPV Challenge Program Web site on May 13, 2004. I commend the DADMAC HPV Committee 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 the Committee 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](mailto:oppt.ncic@epa.gov) and [chem.rtk@epa.gov](mailto:chem.rtk@epa.gov).

If you have any questions about this response, please contact Mark Townsend, Acting Chief of the HPV Chemicals Branch, at 202-564-8617. 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](mailto:tsca-hotline@epa.gov).

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

Sincerely,

Oscar Hernandez, Director  
Risk Assessment Division

Enclosure

cc: M. E. Weber  
J. Willis

**EPA Comments on Chemical RTK HPV Challenge Submission:  
Diallyldimethylammonium chloride (DADMAC)**

**Summary of EPA Comments**

The sponsor, the DADMAC HPV Committee, submitted a test plan and robust summaries to EPA for Diallyldimethylammonium chloride (DADMAC, CAS No. 7398-69-8) dated April 27, 2004. EPA posted the submission on the ChemRTK HPV Challenge Web site on May 13, 2004.

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

1. Physicochemical Properties. The submitter needs to provide measured data for melting point, vapor pressure, and water solubility.
2. Environmental Fate. The submitter needs to provide measured aerobic ready biodegradation data.
3. Health Effects. The submitter needs to provide reproductive/developmental toxicity data on DADMAC and address deficiencies in the robust summaries.
4. Ecological Effects. EPA agrees with the submitter's proposal to test for the fish, aquatic invertebrate, and green algae toxicity endpoints.

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

**EPA Comments on the Diallyldimethylammonium Chloride  
Challenge Submission**

**Test Plan**

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

The submitted data for boiling point (estimated value above the 300 °C criterion) and partition coefficient are adequate for the purposes of the HPV Challenge Program.

*Melting point, vapor pressure and water solubility.* The submitter needs to provide measured values for these endpoints because the use of estimated values introduces uncertainties that then become magnified in modeling applications. Estimated values are acceptable only for melting points below 0 °C, vapor pressures below 10<sup>-5</sup> Pa, and water solubilities below 1 µg/L.

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

The submitted data for photodegradation, stability in water, and fugacity are adequate for the purposes of the HPV Challenge Program.

*Biodegradation.* The anaerobic data provided by the submitter are not adequate for the purposes of the HPV Challenge Program. The submitter needs to provide measured aerobic ready biodegradation data following OECD TG 301.

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

The test plan states that DADMAC production is carried out in a closed system and that exposure to DADMAC is not significant but did not claim closed-system intermediate reduced-testing status. Information on CSI submissions is on the EPA Web site at <http://www.epa.gov/chemrtk/closed9.htm>.

The submitted data for acute, repeated-dose, and genetic toxicity endpoints are adequate for the purposes of the HPV Challenge Program. The submitter needs to address deficiencies in the robust summaries.

*Reproductive/Developmental Toxicity.* The submitted data are for a homopolymer of DADMAC (99% polyDADMAC containing approximately 1% DADMAC) and showed no effects. Because the animals were exposed to approximately 100 times less DADMAC—only a few mg/kg/day—the results do not assess its toxicity. The submitter needs to provide reproductive/developmental toxicity data on DADMAC following OECD TG 421.

### Ecological Effects (fish, invertebrates, and algae)

EPA agrees with the submitter's proposal to test for these endpoints according to OECD TG's 203, 202, and 201, respectively.

### **Specific Comments on the Robust Summaries**

#### Health Effects

*Repeated-Dose Toxicity.* A 13-week repeated-dose toxicity study in dogs omitted details of clinical observations, whether or not ophthalmological examination was performed, frequency of weight measurements, effect on food consumption, hematology and clinical chemistry parameters evaluated, organs weighed at necropsy and organs examined histopathologically.

*Genetic Toxicity.* The *in vitro* bacterial reverse mutation assays in *Salmonella typhimurium* were missing details such as culture conditions and the identity of the positive controls and their responses.

The *in vitro* mammalian cell gene mutation test in mouse lymphoma cells was missing study details such as culture conditions and the number of replicates/concentration.

#### **Followup Activity**

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