March 10, 2008

J. Lawrence Robinson
President
Color Pigments Manufacturers Association, Inc.
300 North Washington Street
P.O. Box 20839
Alexandria, VA 22320

Dear Mr. Robinson:

The Office of Pollution Prevention and Toxics is transmitting EPA's comments on the test plan and robust summaries for 2,5-Dioxo-1,4-cyclohexane-dicarboxylic acid dimethyl ester (Dimethyl Succinyl Succinate, DMSS, CAS No. 6289-46-9) dated April 23, 2007. EPA posted the submission on the ChemRTK HPV Challenge Program Web site on October 18, 2007.

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 has conducted a review of this submission and has reached the following conclusions:

(1) In general, the robust summaries did not provide enough detail. The submitter should consult EPA's guidance document for the preparation of robust summaries (http://www.epa.gov/chemrtk/pubs/general/robsumgd.htm).

(2) Closed System Intermediate (CSI) Claim. The test plan states that the sponsored substance is a closed system intermediate and is thus eligible for reduced testing. However, the level of information provided in the test plan is not sufficient to support a CSI claim under the HPV Challenge Program (see guidance at http://www.epa.gov/chemrtk/pubs/general/closed9.htm).

The information required to support a CSI claim must address the following:

I. Site information
    A. Number of sites
    B. Basis for "closed process" conclusion at each site.
        1) Process description.
        2) Monitoring data showing no detection.
        3) In the absence of monitoring data, the basis for believing that releases do not occur.
    C. Data on "presence in distributed products".
II. Information on transport (mode, volume, controls, etc.)
III. A data search showing that the chemical is not present in other end products.

(3) Chemical structure. The CAS number and name provided in the Test Plan correspond to the keto-keto tautomer of DMSS; however, the test plan shows the enol-enol form as the representative structure for this compound even though the keto-keto form was used to estimate the log Kow value and the rate of hydrolysis. The Test Plan does not provide any data on the keto-enol tautomerization equilibrium.

(4) Physical-chemical Data (melting point, boiling point, vapor pressure, partition coefficient, water solubility). Data are adequate for melting point, boiling point, and vapor pressure for the purposes of the HPV Challenge program.

Vapor Pressure. The submitter reported a value of 0.00004 hPa at 50 °C. Further characterization is unnecessary because decomposition begins before the boiling point of the substance is reached. The submitted data are adequate.

Partition coefficient. The submitter reported an estimated log K_{ow} value of -1.99 (KOWWIN v.1.41). EPA obtained different estimated values for the various tautomeric forms of the compound. This variability, and the inconsistency of these estimated values with the reported water solubility of 300 mg/L, cast doubt on the reliability of a single estimated value. Therefore, the submitted data are not adequate and measured data are needed (OECD TGs 107, 117).

Water Solubility. The submitter reported a solubility of 300 mg/L at 20 °C. The submitter did not give enough information (test method, guideline followed, etc.) to judge the adequacy of this value, which is inconsistent with the submitted log K_{ow} value of -1.99. EPA-estimated values for the various tautomers were significantly greater than the value reported by the submitter and are more consistent with the estimated log K_{ow}. The submitter needs to provide adequate experimental details or adequate measured data (OECD TG 105).

(5) Environmental Fate (photodegradation, stability in water, biodegradation, fugacity). Data are adequate for stability in air and biodegradation for the purposes of the HPV Challenge program.

Stability in Water. The submitter provided estimated half-life values of approximately 2.3 years and 87 days at pH 7 and 8, respectively (HYDROWIN). This compound in solution is likely to occur as a mixture of tautomers that may have varying hydrolysis rates. The estimated data are not adequate for this endpoint and hydrolysis testing (OECD TG 111) is needed.

Fugacity. There appears to be a typographical error in the amount of chemical that partitions to each environmental compartment (total ≠ 100%). These values should be reviewed and corrected as appropriate in the Test Plan and Robust Summary.

(6) Health Effects. Adequate data were submitted for the acute toxicity endpoint. EPA reserves judgment on the genetic toxicity (gene mutation) endpoint pending the submission of data on the controls and the criteria used for evaluating the positive responses in the assay. No data were submitted for the genetic toxicity (chromosomal aberrations), repeated-dose and reproductive/developmental toxicity endpoints. The submitter needs to provide data for the chromosomal aberrations endpoint, preferably using *in vitro* methodology according to OECD TG 473. The submitter needs to provide data for the repeated-dose and reproductive/developmental toxicity endpoints. EPA recommends the combined repeated-dose/reproductive/developmental toxicity screening test according to OECD TG 422. If adequate additional information is provided to support the CSI claim, the screening-level test for reproductive/developmental toxicity according to OECD TG 421 is sufficient to address the developmental toxicity endpoint.

(7) Ecological Effects. Data submitted for acute toxicity to fish, invertebrates, and algae are not adequate for the purposes of the HPV Challenge program. The robust summary for the

fish study needs the following study details included to enable the determination of data adequacy: pH, water hardness, temperature, dissolved oxygen content, and chemical purity. Submitted QSAR estimates need to identify the log P used, and must be accompanied by measured data in robust summary format for an adequate analog substance.

EPA will post this letter on the HPV Challenge Web site. We ask that the Association advise the Agency, within 60 days of this posting on the Web site, of any modifications to its submission. Please send electronic revisions or comments to the following e-mail address: oppt.ncic@epa.gov and chem.rtk@epa.gov.

If you have any questions about this response, please contact me 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.

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

Sincerely,

-S-

Mark W. Townsend, Chief
HPV Chemicals Branch

Enclosure

cc: O. Hernandez
R. Lee
J. Willis