February 28, 2008

John M. Wey
Head, HSE Expertise Center
Bayer CropScience
PO Box 1005
Institute, WV 25112

Dear Mr. Wey:

The Office of Pollution Prevention and Toxics is transmitting EPA's preliminary comments on the test plan and robust summaries for S,S',S"-tributyl phosphorotrithioite (Merphos, CAS No. 150-50-5) dated January 17, 2008. EPA posted the submission on the ChemRTK HPV Challenge Program Web site on February 11, 2008.

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 preliminary review of this submission and has reached the following conclusions:

(1) EPA believes that this submission cannot be adequately evaluated until two major issues, outlined below, are addressed.

(2) Analog Justification. The submitter proposes the use of data for the analog substance S,S',S"-tributyl phosphorotrithioate (Tribufos, CAS No. 78-48-8) to fill some of the data gaps. The only justification provided by the submitter appears to be that the two compounds differ "only" by a double-bonded oxygen and that Merphos can be converted to Tribufos by oxidation (EPA interprets this statement as referring to the manufacturing process; if the intent is to include metabolic or environmental fate processes as well, the test plan should make this clear, with appropriate supporting citations). The two substances are different types of esters (see below) that are expected to behave differently in their chemical reactions; interconvertibility of substances does not in itself imply that they will behave similarly. The submitter needs to expand the

analog justification to explain how the sponsored and analog substances are expected to behave similarly in the environment and in mammalian systems, or remove the proposed analog from affected sections of the test plan.

(3) Stability in Water. The test plan states that Merphos does not have any hydrolyzable groups and that standard hydrolysis studies have not been conducted, and does not propose a study to address the endpoint. However, the oxygen analogs, or trialkyl phosphites, are well known to hydrolyze readily, with the initial reaction producing a dialkyl phosphonate, $(RO)_2P(H)=O$, that can then hydrolyze further. For trimethyl phosphite, the initial reaction occurs in minutes over a range of pH. Similarly, for triethyl phosphite, the initial hydrolysis to the diethyl phosphonate at pH7 was complete within 20 min [reported in the robust summary for tris(2-chloroethyl)phosphite, available at http://www.epa.gov/chemrtk/pubs/summaries/tris2chlr/c15840rs.pdf]. The submitter does not show why thiophosphites should not react similarly to phosphites. The proposed analog, Tribufos, is a different kind of ester (a thiophosphate rather than a thiophosphite) with different expected reactivity, and cannot provide data for this endpoint. The submitter needs to provide measured data for this endpoint (OECD TG 111). These data are also needed to help design the ecological toxicity testing and interpret the results.

In addition, the name of the chemical in the cover letter and submission, S,S',S'-tributyl phosphorotrithioite, should be corrected to S,S',S''-tributyl phosphorotrithioite or simply tributyl phosphorotrithioite, which is unambiguous as it stands (other incorrect variants appear throughout the submission package).

EPA will fully review the test plan and robust summaries upon receipt of a revised submission that addresses the above concerns.

EPA will post this letter on the HPV Challenge Web site. We ask that Bayer CropScience 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

cc: O. Hernandez
R. Lee
J. Willis