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Via Federal Express

8EHQ-92-4198

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency, ICC Building
1201 Constitution Ave., NW
Washington, DC 20004

Dear 8(e) Coordinator:

89100000168

8EHQ-92-4198
1-Propene, 1,1,2,3,3,3-hexafluoro
CAS # 116-15-4

This letter is to inform you of the results of a modeled 48-hour EC50 in *Daphnia magna* and a 96-hour EC50 in green algae with the above referenced test substance.

Daphnia magna:

A 48-hour EC50 of 71.9 mg/L was predicted for the test substance using the estimated KOWWIN LogKow of 1.948 and ECOSAR v 1.00a (September 2008). The test substance satisfies the structural domain of the KOWWIN model which is the main driver in the aquatic toxicity response.

The neutral organics model for 48-hr *Daphnia* as housed within the ECOSAR v1.00 is a valid model in accordance with the OECD principles. The test substance acts via narcosis and its MW and $\log_{10}$ Kow values lie within the boundaries of the training set. Thus the test substance satisfies the applicability domain requirement to a sufficient extent.

The neutral organics model used assumes that the substances act via narcosis. The test substance was processed through the OECD Toolbox to verify the mode of action. It satisfied two of the three profilers within the Toolbox for aquatic toxicity mode of action, namely the ECOSAR Neutral Organics and the OASIS Mode of Action. No assessment was feasible by the Verhaar scheme. In addition, the test substance was found to be non-binding by both the DNA binding and protein binding profilers, which together provide further complementary support that the test substance is not expected to be an electrophile and hence is likely to act by a narcosis mode of action.

A related analogue identified from the OECD Toolbox with EC50 data demonstrated that ECOSAR significantly over-predicts the toxicity to *Daphnia*. Thus the estimated *Daphnia* EC50 is expected to be extremely conservative for the test substance and in reality the toxicity might be expected to be 10 fold lower, or at least well in excess of 100 mg/L. An experimental $\log_{10}$ Kow value of 1.932 was found in the following reference: Abraham, M.H. (2001). Fluid Phase Equlibria, 180: 41-58 that would lessen the predicted *Daphnia* toxicity of HFP to 74.1 mg/l.

Green Algae (*Pseudokirchneriella subcapitata*):

A 96-hour EC50 of 33.4 mg/L was predicted for the test substance using the estimated KOWWIN LogKow of 1.948 and ECOSAR v 1.00a (September 2008). The test substance satisfies the structural domain of the KOWWIN model which is the main driver in the aquatic toxicity response.

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The neutral organics model for 96-hr green algae (*Pseudokirchneriella subcapitata*) as housed within the ECOSAR v 1.00 is a valid model in accordance with the OECD principles. The test substance acts via narcosis and its MW and $\log_{10}$ Kow values lie within the boundaries of the training set. Thus the test substance satisfies the applicability domain requirement to a sufficient extent.

The neutral organics model used assumes that the substances act via narcosis. The test substance was processed through the OECD Toolbox to verify the mode of action. It satisfied two of the three profilers within the Toolbox for aquatic toxicity mode of action, namely the ECOSAR Neutral Organics and the OASIS Mode of Action. No assessment was feasible by the Verhaar scheme. In addition, the test substance was found to be non-binding by both the DNA binding and protein binding profilers, which together provide further complementary support that HFP is not expected to be an electrophile and hence is likely to act by a narcosis mode of action.

Structurally related halogenated alkanes with experimental 72 hr EC50 *(not 96 hr EC50*s) algae data were identified that had comparable $\log_{10}$ Kow and MW values. The experimental data show that halogenated alkanes such as [78-87-5] and [107-06-2] with a comparable profile of hydrophobicity, size and mode of action to the test substance are likely to be significantly over-predicted in terms of their toxicity. In this case there is a ~5-6 fold difference in toxicity between predicted and actual EC50 values. In practice, such halogenated alkanes exhibit low toxicity to algae species.

This information is submitted in accordance with current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act or, where it is not clear that reporting criteria have been met, it is submitted as a precautionary measure and because it is information in which EPA may have an interest.

Sincerely,

A. Michael Kaplan

A. Michael Kaplan, Ph.D.
Director - Regulatory Affairs

AMK/RAH: clp
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