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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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FILE

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Review of proposal to shorten reentry interval for Metam 376 (Metam Sodium)
from 48 hours to 8 hours.

TO: Sidney Jackson, PM Team 21
Special Review and Reregistration Division (7508W)

FROM: Jim Carleton, Chemist *Jim Carleton*

THRU: Francis B. Suhre, Section Head *F. Suhre*
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Occupational and Residential Exposure Branch
Health Effects Division (7509C)

<u>DP Barcode:</u>	D226227
<u>Pesticide Chemical Codes:</u>	039003
<u>EPA Reg. Nos.:</u>	N/A
<u>EPA MRID Nos.:</u>	439343-01
<u>Review Time:</u>	7 days
<u>PHED:</u>	N/A

I. BACKGROUND

OREB has reviewed a proposal submitted by Amvac to shorten the reentry interval (REI) from 48 to eight hours for the proposed Metam-Sodium containing product, Metam 376. Their rationale for shortening the REI is based on the fact that the proposed maximum use rate of 19.2 lb a.i./acre is 16.6 fold less than the maximum use rate for other metam sodium products (318 lb a.i./acre). Amvac's proposal refers to an air monitoring study (MRID 42659901), sponsored by the Metam-Sodium task force, which has previously been used by OREB (A. Mehta, 6/22/94) to estimate residential/bystander risks resulting from soil applications. In that study the maximum 4 hour average air concentration of methyl isothiocyanate (MITC) was $1300 \mu\text{g}/\text{m}^3$, which occurred during the four hour period following the end of application. Measurable nearby off-site residues declined rapidly after this, and were negligible by 24 hours. Amvac points out that dividing this concentration by 16.6, to adjust for the difference in maximum application rates, results in a theoretical maximum MITC air concentration of $78 \mu\text{g}/\text{m}^3$ for Metam 376, which they estimate corresponds to an MOE of >100 (using the current end-point of 2.4 mg/kg/day, OREB estimates this MOE at 94.9). Thus Amvac argues that based on this monitoring study, post-application air concentrations of MITC do not result in unacceptable MOEs at any time, and therefore a 48 hour REI is not necessary to protect workers. Amvac proposes an eight hour REI instead, along with a 50 foot buffer zone around occupied buildings to protect residents/bystanders.

II. DETAILED CONSIDERATIONS

The active ingredient MITC is formed via hydrolytic degradation of Metam-Sodium following application. In a published laboratory study (Smelt et al. 1989), the rate of transformation of Metam-Sodium to MITC was found to vary widely with soil type. For loamy soils, maximum MITC concentrations were measured two hours after application. However for sandy soils maximum concentrations were measured 24 hours after application. In one soil sample maximum concentrations were not observed until four days after application. This suggests that in some cases maximum air concentrations above a treated field might not occur until long after those observed in the task force sponsored study. Also, as with any soil fumigant, air concentrations above a field are subject to numerous environmental variables which are beyond the control of an applicator, especially meteorological conditions. In a worst case scenario, such as during a temperature inversion, local air concentrations might be substantially higher than those recorded during the task force sponsored study. Since the proposed Metam 376 label contains no language regarding meteorological restrictions on timing of application, the possibility of application taking place during or just prior to an inversion can not be ruled out.

III. CONCLUSIONS

OREB has reviewed a proposal submitted by Amvac to reduce the REI for the proposed Metam-Sodium containing product Metam 376 from 48 hours to eight hours. For reasons detailed above, OREB believes that an eight hour REI may in some cases be insufficiently protective of worker health. OREB therefore recommends against reducing the REI for the proposed product Metam 376.

REFERENCE

Smelt J.H., Crum S.J.H. and Teunissen W. (1989) Accelerated transformation of the fumigant methyl isothiocyanate in soil after repeated application of metham-sodium. *J. Environ. Sci. Health* B24(5):437-455.

cc: J. Carleton, OREB
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Chemical file - Metam-Sodium
Correspondence file