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

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

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MEMORANDUM

SUBJECT: Methanesulfonamide - New Chemical Screen
(also known as F6285)

FROM: Larry Liu, Ph.D., Environmental Scientist
Chemistry Review Section #2
Environmental Fate and Groundwater Branch
Environmental Fate and Effects Division (H7507C)

TO: Joanne Miller (PM 23)
Reregistration Division (H7505C)

THRU: Mah Shamim, Ph.D., Acting Section Head
Chemistry Review Section #2
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

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Henry M. Jacoby, Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

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Conclusions:

The current data submission for methanesulfonamide (a herbicide for soybeans) has failed the new chemical screen in EFGWB.

The submitted studies were screened to determine the acceptability of the data for scientific review. The Photodegradation in Water (161-2) data requirement remains a data gap because the registrant failed to monitor the formation and decline of major photodegradates (such as 3-desmethyl-4-desdifluoromethyl F6285, desdichloromonohydroxy F6285) in the photodegradation in water study. Other studies have

passed the preliminary screening against the acceptance criteria. The attached table reflects the status of the Environmental Fate data requirements for methanesulfonamide.

Recommendations:

EFGWB recommends that additional data on the persistence (formation and decline) of the major degradates detected in the aqueous photolysis study for methanesulfonamide be submitted prior to the review for full registration.

Background:

Methanesulfonamide is a herbicide currently being developed by FMC Corporation for control of annual grass, and annual and perennial broadleaf weeds on soybeans. It can be preplant soil-incorporated applied, or preemergence surface applied at a rate of 0.25-0.5 lbs a.i. per acre. If treatments are to be incorporated, incorporate to a depth of 1-3 inches. Only one application per season is allowed.

Discussion:

Based on a preliminary review of the studies submitted for the registration of methanesulfonamide, the chemical has been found to be stable in water to hydrolysis; stable to photolysis on soil ($t_{1/2}$=97-161 days); very persistent in soil under aerobic conditions ($t_{1/2}$=534-555 days); highly mobile (K_d=0.2-0.8; K_{oc}=26-77). Methanesulfonamide is readily degradable in water under light ($t_{1/2}$=3 hours at pH 7). EFGWB believes that aqueous photolysis would play a significant role in the dissipation of the chemical in the field.

On September 14, 1994, EFGWB staff met with representatives from RD and FMC. The major issue on the agenda was selection of degradates for the terrestrial field dissipation study for methanesulfonamide. Based on the available information, the chemical appears to be very persistent in soil under aerobic conditions, but is readily degradable in water under light. The registrant claimed that aqueous photolysis of methanesulfonamide would not be a significant terrestrial degradation route. Since no data is available on persistence of photodegradates formed in water, EFGWB staff recommended that the persistence (formation and decline) of the major photodegradates be further investigated. The registrant intends to provide additional information to support the Aqueous Photolysis (161-2) and the Terrestrial Field Dissipation (164-1) data requirements prior to the full registration of the chemical.

Status of the Environmental Data Requirements for Methanesulfonamide

Data Were Submitted to Support the Following Requirements:

161-1 Hydrolysis

the study (MRID 41928202) was determined acceptable (see EFGWB's reviews dated 10/28/91 and 12/21/92)

161-2 Photolysis in Water

the study (MRID 43345424) is currently in review. The registrant intends to submit additional data to support the Photolysis in Water data requirement

161-3 Photolysis on Soil

the study (MRID 43345425) is currently in review

162-1 Aerobic Soil Metabolism

the studies (MRID 42932117 and 41928203) were determined acceptable (see EFGWB's reviews dated 10/28/91; 12/21/92; and 3/14/94)

162-3 Anaerobic Aquatic Metabolism

the study (MRID 43345426) is currently in review

163-1 Leaching-Adsorption/Desorption

the ads./des. study (MRID 41911604) was determined acceptable (see EFGWB's reviews dated 10/28/91 and 12/21/92)

the aged leaching study (MRID 43355903) is currently in review

164-1 Terrestrial Field Dissipation

the studies (MRID 43345427 and 43345434) are currently in review

Data Are Not Needed to Support the Following Requirements:

161-4 Photolysis in Air

waived due to the low vapor pressure ($<10^{-9}$ mmHg at 25C)

163-2 Volatility-Laboratory

waived due to the low vapor pressure ($<10^{-9}$ mmHg at 25C)

163-3 Volatility-Field

waived due to the low vapor pressure ($<10^{-9}$ mmHg at 25C)

165-4 Fish Bioaccumulation

waived in the EFGWB's review dated 12/21/92 due to the low octanol water partition coefficient (K_{ow}=0.006). However, the submitted fish bioaccumulation study (MRID 43345433) will be reviewed by EFGWB