

8EHQ-0704-14314



Certified Mail

June 28, 2004



Document Processing Center
EPA East – Room 6428 Attn: Section 8(e)
Office of Pollution Prevention and Toxics
US EPA
1200 Pennsylvania Avenue NW
Washington DC 20460-0001

RE: TSCA 8(E) SUPPLEMENTAL SUBMISSION:
Docket No. 8EHQ-1198-14314

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Dear Sirs:

3M previously informed the EPA (November 10, 1998) of central nervous system effects observed in up to six workers believed to have been caused by 1,2,2,2-tetrafluoroethanesulfonyl fluoride (HPESF, CAS# 2127-74-4). In today's submission, 3M is providing EPA with the results of an acute inhalation toxicity screen conducted to determine whether the observed human effects were caused by HPESF.

The study was conducted by 3M's Strategic Toxicology Laboratory. Male mice were exposed to HPESF vapor for one hour at concentrations of 10, 30, 100, and 300 ppm. At the three higher exposures, clear signs of central nervous system activity were observed. Typically, mice were slightly hyperactive for the first several minutes of exposure. Approximately ten minutes into exposure, brief episodes of "popcorn" convulsions were seen at the two highest levels. About fifteen minutes into exposure, animals were nonresponsive to sound and occasionally became "immobile," but in a normal upright position. After fifteen to twenty seconds of immobilization, the mice appeared to accommodate and moved normally for several more minutes before this cycle repeated. Animals appeared to continue to adapt throughout the exposure and appeared only slightly affected at exposure termination. Animals appeared normal the next day.

The no observed effect level (NOEL) for this study was determined to be 10 ppm.

HPESF was a 3M site-limited intermediate under research and development. Manufacturing was discontinued in 1998.

Enclosed please find the final report titled, "Acute Inhalation Toxicity Screen of 1,2,2,2-Tetrafluoroethanesulfonyl Fluoride (HPESF) T-7070.1."



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Please contact Paul Lieder (651-737-2678) if you have any questions or if we can provide additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Larry R. Zobel MD MPH". The signature is fluid and cursive, with a large initial "L" and "Z".

Larry R. Zobel, MD MPH
Staff Vice President and Medical Director

3M CORPORATE TOXICOLOGY & REGULATORY SERVICES

Acute Inhalation Toxicity Screen Of 1,2,2,2-tetrafluoroethanesulfonyl fluoride (HPESF) T-7070.1

Study Objective:

The objective of this study is to perform an acute inhalation lethality screen of 1,2,2,2-tetrafluoroethanesulfonyl fluoride (HPESF)

Research Client: 3M Performance Materials Division
3M Center, Building 236
Saint Paul, MN 55144

Sponsor: 3M Performance Materials Division
3M Center, Building 236
Saint Paul, MN 55144

Study Location: 3M Strategic Toxicology Laboratory
3M Center, Building 270
Saint Paul, MN 55144

Study Toxicologist:: Paul Lieder, Ph.D., D.A.B.T.
Senior Toxicology Specialist
3M Corporate Toxicology and Regulatory Services
3M Center, Building 220-2E-02
Saint Paul, MN 55144
Phone: 651-737-2678
Fax: 651-733-1773

Study Timeline:

In-Life Start Date: 1998

Approximate End Date: 1998

Regulatory Compliance:

This study was performed as an acute toxicity screen in the 3M Strategic Toxicology Laboratory. These studies were not performed by GLP. However, standard animal use protocols were followed.

Test Material:

1,2,2,2-tetrafluoroethanesulfonyl fluoride was delivered to the Strategic Toxicology Laboratory.

Storage Conditions:

Test material was stored tightly sealed at room temperature.

Animals:

Species: Mice
Source: Charles River CD-1
Sex: Males

Husbandry:

Housing:

All animals were housed in standard solid bottomed cages through out the study.

Environment:

Environmental controls for the animal room were set to maintain a temperature of $72 \pm 3^{\circ}\text{F}$, humidity of 30-70%, a minimum of 10 exchanges of room air per hour and a 12 hour light/dark cycle.

Dose and Dosing Procedures:

Method of administration/Dose preparation:

A pre-determined amount of the test material was placed add to a 13L glass exposure chamber with a recirculating atmosphere

Clinical Observations:

Clinical observations were made continuously for the duration of exposure.

Results:

Mice were exposure to HPESF for one hour at concentrations of 10, 30, 100, and 300 ppm. No effects were observed in animals exposed at 10 ppm. However, clear signs of CNS activity were seen at the 3 higher exposure levels. Typically, mice were slightly hyperactive for the first several minutes of exposure. Brief episodes of "popcorn" convulsions were seen at the two highest levels approximately 10 minutes into exposure. About 15 minutes into exposure animals were responsive to sound and occasionally became "immobile" but in a normal upright position. After 15 or 20 seconds of immobilization, the mice appeared to accommodate and moved normally for several more minutes before this cycle repeated. Animals appeared to continue to adapt throughout the exposure and appeared only slightly effected at exposure termination. Animals appeared normal the next day. Excessive salivation, urination or defecation was not observed during or after these exposures.

Signatures:

Paul M. Lieder

Paul Lieder, Ph.D., D.A.B.T.
Senior Toxicology Specialist
Study Director

June 10, 2004

Date