4-4-90

007851

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

APR - 4 1990

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

Subject: Acute Inhalation Study in Rats - RH7592 Technical (Fenethanil)

EPA Project No. 0-0906
Caswell No. 723Q
MRID No. 413982-01 and 413982-02

From: Elizabeth A. Doyle, Ph.D. E.A. Doyle 3/30/90
Review Section I
Toxicology Branch II (HFAS)(H7509C)

To: S. Lewis, PM Team 21
Registration Division (H7505C)

Thru: Yiannakis M. Ioannou, Ph.D. Y.M. Ioannou 3/30/90
Section Head, Review Section II
Toxicology Branch II (HFAS)(H7509C)

and

Marcia Van Gemert, Ph.D. Concurrence 4/2/90
Branch Chief
Toxicology Branch II (HFAS)(H7509C)

Action Requested: Review of an acute inhalation study on RH-7592 Technical (Fenethanil).

Recommendation: The study was found to be "Core - Supplementary" on the basis of particle size distribution not in conformance with the [illegible] and atmospheric concentration insufficient for a limit test. Under the conditions of the test, the test material was found to be in Toxicity Category III.

The agency had earlier waived the requirement for an acute inhalation study with RH-7592 technical based on the assertions by the registrant that an aerosol of this chemical could not be generated. However, the present submission clearly demonstrates that such a study can be done without major technical difficulties. Thus, the Agency has determined that an acute inhalation study with technical RH-7592 is required and the registrant is requested to provide the additional information necessary for upgrading this study (see attached DER).

1 of 2

Printed on Recycled Paper

007851

Reviewed by: Elizabeth A. Doyle, Ph.D. E.A. Doyle 3/30/90
Section I, Toxicolcgy Branch II (HFAS) (H7509C)
Secondary reviewer: Yiannakis M. Ioannou, Ph.D. [signature] 3/30/90
Section I, Toxicology Branch II (HFAS) (H7509C)

DATA EVALUATION REPORT

Study Type: Acute Inhalation - Rat (81-3) Tox. Chem. No.: 723Q

MRID Number: 413982-01 and 413982-02

Test Material: RH-7592 Technical (96.7% a.i.)

Synonyms/CAS No.: Fenethanil

Study Number(s): 89RC-023

Sponsor: Rohm and Haas Company
Philadelphia, PA 19105

Testing Facility: RCC, Research and Consulting Company AG
1, route de Troinex, Ch - 1227 Carouge
Switzerland

Title of Report: 4-Hour, Acute Inhalation Toxicity Study with RH-7592 Technical in Rats

and

4-Hour, Acute Inhalation Toxicity Study with RH-7592 Technical in Rats (Report Amendment No. 1)

Author(s): F. Duchosal and Ph. Chevenaz

Report Issued: May 16, 1989

Conclusion: Under the conditions of the test, the acute inhalation LC_{50} in male and female rats for fenethanil was >2.10 mg/l.

Toxicity Category: III

Classification of Data: Core - Supplementary

I. MATERIALS AND METHODS

Five male and five female Sprague-Dawley rats were selected for this study. They were 42 and 49 days old, respectively, and weighed 170-191 g upon receipt from Kleintierfarm Madoerin AG (CH 4414 Fuellinsdorf Switzerland). The rats were acclimatized for five days prior to exposure. Food and water were available ad libitum throughout the study.

Exposure to the test material was nose-only for four hours. The rats were observed for clinical signs once per hour during the exposure and once following exposure on test day 1, then twice daily for the remaining 14 days. Body weights were taken immediately prior to exposure on day 1 and during the postexposure observation period on days 8 and 15. All rats were necropsied at the termination of the study.

The test atmosphere was generated using a brush feed micronising jet mill powder aerosol generator (RBG-1000, Palas). To reduce reaggregation of the generated particles due to electrostatic charge, a ^{63}Ni beta source was incorporated into the sample feed train at the outflow from the jet mill.

II. RESULTS

No mortalities were reported during the study. No treatment related effects on body weights were reported. Necropsy results were unremarkable. A number of clinical signs were reported immediately after exposure; all rats were free of these effects by test day 3. Clinical signs reported were apathy, hunched posture, labored respiration, piloerection and chromodacryorrhea.

The test atmosphere concentration was 2.10 ± 0.24 mg/l. The proportion of the test atmosphere ≤ 1 µm in diameter was 4.75%. The proportion ≤ 3 µm was 18.6%. The values are averages of two sampling times (see below).

PARTICLE SIZE IN CUMULATIVE PERCENT

Sampling Time	Effective Cutoff Diameter (um)							
(hh:mm:ss)	4.6	3.0	2.13	1.6	1.06	0.715	0.325	<0.325
13:40:00 - 13:40:20	100	13.6	5.2	2.4	1.4	1.1	1.0	1.0
14:25:00 - 14:25:20	100	23.6	14.5	10.8	8.1	4.8	2.5	0.4

III. DISCUSSION

Under the conditions of the test, only minor clinical signs were reported to result from exposure to the test atmosphere. The signs described may arise largely from confinement in the exposure apparatus rather than due to the test material.

The particle size distribution of the test atmosphere generated was not in conformance with current EPA requirements. The jet mill used in generating the test atmosphere was designed to produce particles averaging 3 μm in diameter, giving a priori a product not likely to comply with the current SEP. However, the registrant has provided convincing arguments in Report Amendment No. 1 as to why this test material can not be produced in a powder aerosol with the desired particle sized distribution. Further, the registrant has also presented discussion to indicate that higher test concentrations would only result in greater reaggregation of the test material, resulting in an actual increase in particle size in the test atmosphere. The registrant does not indicate whether the test material could have been dissolved in a solvent and aerosolized to produce a higher atmospheric concentration.

IV. CONCLUSIONS

Under the conditions of the test, the test material at an atmospheric concentration of 2.10 mg/l is not an acute inhalation toxicant in male or female rats.

Toxicity Category: III

V. CLASSIFICATION: Core - Supplementary
(Deficient in that:
1) the test atmosphere concentration did not equal the 5 mg/l limit test concentration.
2) the registrant failed to adequately demonstrate that the concentration could not be achieved by alternative methods of atmosphere generation.
3) the registrant failed to adequately demonstrate that the desired particle size distribution could not be achieved by alternative methods of atmosphere generation.)

Tox. Chem. No. 723Q File Last Updated _____ Current Date 3/27/90

Study/Lab/Study #/Date	Mater	EPA Accession No.	Results: LD50, LC50, PIS, NOEL, LEL	Tox. Cat.	Core-Grade/ Doc. #
Acute Inhalation Species: Rat RCC Report #89RC-023 5/16/89	RH-7592 Technical, 96.7%	413982-01 and 413982-02	Acute Inhalation LC_{50} > 2.10 mg/l. (Particle size too large)	III	Supplementary

007851