

US EPA ARCHIVE DOCUMENT



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

AUG 13 1990

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OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

SUBJECT: ARSENIC ACID - ADDENDUM TO ACUTE INHALATION
TOXICITY STUDY (MRID # 40463902)

TO: E. FERIS
PRODUCT MANAGER (74)
REGISTRATION DIVISION (H75052)

FROM: LINDA L. TAYLOR, PH.D. *Linda Lee Taylor 8/2/90*
TOXICOLOGY BRANCH II, SECTION II
HEALTH EFFECTS DIVISION (H7509C)

THRU: K. CLARK SWENTZEL *K. Clark Swentzel 8/3/90*
SECTION II HEAD, TOXICOLOGY BRANCH II
HEALTH EFFECTS DIVISION (H7509C)

AND

MARCIA VAN GEMERT, PH.D. *M Van Gemert 8/9/90*
CHIEF, TOXICOLOGY BRANCH/HFAS/HED (H7509C)
ATOCHEM NORTH AMERICA, INC.; FORMERLY PENNWALT CORPORATION

REGISTRANT: ARSENIC ACID
CHEMICAL: ARSENIC ACID
SYNONYM: ARSENIC ACID AS DESICCANT L-10
PROJECT: 0-1580
CASWELL No.: 056
RECORD No.: 267268
IDENTIFYING No.: 58475
MRID No.: 415061-01
ACTION REQUESTED: NONE.

COMMENT: THE REGISTRANT HAS SUBMITTED AN ADDENDUM REPORT (FIRST) TO THE PREVIOUSLY-REVIEWED ACUTE INHALATION STUDY (SEE TB II MEMO DATED 1/23/90). THIS ACUTE STUDY WAS CLASSIFIED CORE SUPPLEMENTARY, PENDING THE SUBMISSION OF DATA TO SHOW THAT THE MEDIAN DIAMETER OF THE TEST MATERIAL PARTICLES WAS IN THE "RESPIRABLE RANGE" FOR THE MOUSE (1 UM) AND THAT AT LEAST 25% OF THE PARTICLE DISTRIBUTION USED WAS IN THE SUBMICRON RANGE (AS PER EPA GUIDELINES).

THE ADDENDUM CONSISTS OF TABLES SHOWING THE PARTICLE SIZE DISTRIBUTION FOR THE ARSENIC ACID USED IN THE ACUTE STUDY. THE MASS MEDIAN AERODYNAMIC DIAMETER FOR THE ARSENIC ACID PARTICLES WAS RELATIVELY CONSISTENT AND RANGED FROM 2.22 TO 2.49 MICRONS. THE MAJORITY (>96%) OF THE PARTICLES GENERATED WERE 7 MICRONS OR LESS, 20% OF THE PARTICLES IN EACH SAMPLE WERE APPROXIMATELY 1.5 UM OR SMALLER, AND THE SUBMICRON PARTICLES RANGED FROM 3.14 TO 7.15% OF THE TOTAL PARTICLES GENERATED.

IT IS STATED THAT THIS REPRESENTS THE BEST EFFORTS POSSIBLE IN GENERATING AN AEROSOL OF SMALL PARTICLE SIZE. ADDITIONALLY, IT IS ARGUED THAT IN GENERATING ANY AEROSOL CONCENTRATION AS HIGH AS 5 MG/L, INDIVIDUAL PARTICLES TEND TO COALESCE FORMING LARGER PARTICLES SO THAT ONE CANNOT HAVE BOTH A HIGH FRACTION OF SUBMICRON PARTICLES AND A HIGH TOTAL MASS CONCENTRATION OF AEROSOL.

IT IS THE AUTHOR'S OPINION THAT THE AEROSOL GENERATED IN THE ACUTE INHALATION STUDY ON ARSENIC ACID REPRESENTS THE BEST AND MOST REASONABLE STUDY ATTAINABLE USING AVAILABLE TECHNOLOGY.

CONCLUSION

THE INFORMATION AND DATA PROVIDED IN THE ADDENDUM ARE ADEQUATE AND ALLOW FOR THE STUDY TO BE UPGRADED TO CORE MINIMUM. THIS STUDY SATISFIES THE GUIDELINE REQUIREMENTS (81-3) FOR AN ACUTE INHALATION TOXICITY STUDY. THE TOXICITY CATEGORY IS III, INSTEAD OF II AS LISTED IN THE DER. THE PREVIOUS RATING WAS FOR A 1-HOUR EXPOSURE AND NOT A 4-HOUR EXPOSURE STUDY.

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