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

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OCT - 7 1993

OFFICE OF
PREVENTIC I, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Kathon® [Dichloro-2-n-octyl-3(2H)-isothiazolone]--Tox. Data Submitted Under MRID 42619501
ID Nos. 00707-EEG, - EET and - RTL

Chemical: 128101
RD Record: S-435351, -3, and -4
HED Project: D188161, -2, and -3

FROM: Irving Mauer, Ph.D., Geneticist
Toxicology Branch-I
Health Effects Division (H7509C)

09-24-93

TO: John Lee/Valdis Goncarovs, PM #31
Antimicrobial Program Branch
Registration Division (H7505C)

THRU: Karl P. Baetcke, Ph.D., Chief
Toxicology Branch-I
Health Effects Division (H7509C)

9/24/93

Registrant: Rohm and Haas, Philadelphia, PA

Request:

[I.] Review and evaluate the following acute inhalation study:

Wanner, F. J. and J. V. Hagan (1992) Kathon® 930 Biocide Acute Inhalation toxicity Study in Rats. Rohm and Haas Report No. 91R-072, unpublished study prepared by Rohm and Haas Company Toxicology Department and submitted by Rohm and Haas Company, Philadelphia, PA. (MRID 42619501)

[II.] Comment on the precautionary label changes/statements as outlined in cover letter of January 06, 1993.

TB CONCLUSIONS:

[I.] The study is judged CORE-MINIMUM DATA, and satisfies data requirements for GDLN 81-3: Acute Inhalation, with the following parameter:

LC_{50} (combined male/female) = 0.22 (0.18-0.27) mg/L

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[II.] Since this LC_{50} value places the test material, Kathon® 930 Biocide (as formulated) in TOX. CAT II for acute inhalation toxicity, we agree with the precautionary label being for all formulations of Kathon® as provided in R & H 01/06/93 cover letter, namely: "May be fatal if inhaled. Do Not Breathe Vapors."

ATTACHMENT: DER

Disk 8:MAUER:MB:kathon.MEM:9/22/93

Reviewed by: Irving Mauer, Ph.D., Geneticist
Toxicology Branch-I, HED (H7509C)
Secondary Reviewer: Karl P. Baetcke, Ph.D., Chief
Toxicology Branch-I, HED (H7509C)

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DATA EVALUATION RECORD

MRID NUMBER No.: 42619501
PC No.: 128101
RD Record No.: S435351, -3, and -4
EPA ID No.: 00707-EEG, -EET and-RTL
Tox Chem. No.: 314B
Project No.: D188161, -2, and -3

I. SUMMARY

STUDY TYPE: (81-3) Acute Inhalation LC_{50}-Rat

CHEMICAL: Kathon® 930 Biocide

SYNONYMNS: [a.i.] 4,5-Dichloro-2-n-octyl-4-isothiazolin-3-one

SPONSOR: Rohm and Haas (R&H), Phildelphia, PA

TESTING FACILITY: R&H Toxicology Department

TITLE OF REPORT: Kathon 930 Biocide: Acute Inhalation Toxicity Study in Rats.

AUTHOR(S): F. J. Wanner and J. V. Hagan

STUDY NUMBER: 91R-072

DATE ISSUED: July 20, 1992

CONCLUSIONS: LC_{50} (combined) = 0.22 (0.18-0.27) mg/L

TOX. CAT. II

TB-I EVALUATION: CORE-MINIMUM DATA

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II. DETAILED REVIEW

A. TEST MATERIAL: Kathon 930 Biocide

Descrip	Amber liquid
Batches (Lots):	SW5088, and 0211
Purity (%):	30-35
Solvent/carrier/diluent:	Xylene

B. TEST ORGANISM: Rodent

Species:	Rat	
Strain:	Crl:CD®BR	
Weights -	males:	185-228 g
	females:	195-230 g
Source:	Charles River, Kingston, NY	

C. STUDY DESIGN (PROTOCOL): This study was designed to assess the toxic potential of the test article when administered by acute inhalation to rats, according to established (published) procedures and FIFRA Test Guidelines.

Both a Statement of Quality Assurance measures (inspections/audits) as well as a Statement of adherence to Good Laboratory Practice (GLP) were provided.

D. PROCEDURES/METHODS OF ANALYSIS: Groups of animals (6/sex/concentration) received single 4-hour inhalation exposures (nose-only) of aerosolized test material, and observed for 14 days post-exposure. LC_{50} value, slope and confidence limits (CL) for the test material were calculated by the standard Moving Average Method, with modifications for the a.i. provided by the SAS program, probit repression analysis.

E. RESULTS: Particle size distribution of all exposures (0.46 and 0.19 mg/L for Lot No. SW5088; 0.43 mg/L for Lot No. 0211 gave a mean mass median diameter (MMD) of 1.0±0.2, a mean geometric standard deviatin (GSD) of 3.6 ±0.9 and mean respirable fraction of 76± 7% (mean fraction ≤ 1 um = 43%) (Report Table 2).

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The concentrations employed for the three test groups of animals were as follows:

Group	Nominal Concentration (mg/L)	Analytical Concentration (mg/L)
1	25.4	0.46
2	14.0	0.19
3	14.9	0.43

The difference between analytical and nominal concentration was attributed by the investigators "...to the impaction of a portion of the aerosol(s) with the interior surface of the [exposure] chamber." [The difference in analytical concentration betwen Group 2 and 3 despite similar nominal concentration was attributed to differen. lots of test material, the latter group (3) receiving a higher percentage of ai.]

A summary of mortalities and calculated LC_{50} values was provided as follows (Report Table 6:)

Test Group	Concentration of ai (mg/L)	Analytical Concentration (mg/L)	Deaths
2	0.06	0.19	02/12
1	0.14	0.46	10/12
3	0.15	0.43	11/12
Form	LC_{50}(mg/L)	CL	Slope
AI	0.09	0.06-0-11	5.6
Test Material	0.22	0.18-0.27	-

Concentration-related (in severity and incidence) respiratory irritation (rales, bradypnea, etc.) was observed in some animals of all test groups (Report Table 3), but disappeared (in 3 to 12 days) during the 14-day post-exposure period in survivors. Dose-related weight decreases were also noted in all groups.

The investigators calculated the combined (male and female) LC_{50} for Kathon 930 Biocide as 0.22 (0.18-0.27) mg/L.

F. TB CONCLUSION: CORE-MINIMUM DATA.

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