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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 1. EPA Registration No. 707-121. Kathon LM (5% ai)* for Use in Industrial Cooling Systems and Industrial Air Washing Systems.

2. EPA Registration No. 707-ROL. Kathon 893MW (45% ai)* for Use in Metalworking and Hydraulic Fluids.

Accession Nos. 258305, 254438, 024226, 258579.

Caswell No. ~~195C~~ 613C
(707-121)

Caswell No. 613C
(707-ROL)

FROM: William Woodrow, Ph.D.
Section VII, Toxicology Branch
Hazard Evaluation Division (TS-769C)

TO: Henry Jacoby
Product Manager (21)
Registration Division (TS-767C)

THRU: Albin B. Kocialski, Ph.D.
Section Head - Section VII
Toxicology Branch
Hazard Evaluation Division (TS-769C)

Registrant: Rohm and Haas Co.
Independence Mall West
Philadelphia, PA 19105

*2-n-Octyl-4-isothiazolin-3-one

(1)

Action Requested:

Rohm and Haas Co. requests registration of their product, Kathon LM, for use in industrial cooling systems and industrial air washing systems to control microbial fouling. They also request registration of their product, Kathon 893MW, for use as a fungicide in industrial metalworking and hydraulic fluids.

Recommendations:

1. The use of Rohm and Haas Kathon LM for control of biological fouling in industrial cooling and air washing systems, and the use of Kathon 893MW as a fungicide in metalworking and hydraulic fluids is not toxicologically supported.

2. The registrant should submit copies of both the "old and new" processes for producing Kathon 893MW (technical) active ingredient.

3. All new toxicity studies must be conducted using the technical material as produced by the "new manufacturing process," including subchronic studies.

4. The following toxicity studies using the Kathon LM and Kathon 893MW active ingredient (2-n-octyl-4-isothiazolin-3-one) must be submitted (Refer also to 40 CFR 158.165C):

   a. An additional 90-day feeding study in one mammalian species is required. [The previously submitted mouse, rat, and dog 90-day feeding studies showed no evidence of using or approaching the use of an MTD (maximally tolerated dose) high treatment dose.]

   b. A test for gene mutations; such as an Ames study.

   c. A test for chromosomal aberrations; such as a sister chromatid exchange study.

   d. A test for other genotoxic effects; such as a DNA damage and repair study.

   e. A dermal absorption study must be performed, using the Kathon 893MW product. The dermal absorption study test protocol to be used was developed by Dr. Robert Zendzian of Toxicology Branch (attached). Dr. Zendzian requests that the laboratory or person(s) who will perform the test contact him by telephone [(703) 557-3710] for some important details concerning the test before initiation of the dermal absorption study. (The reason for requesting the dermal absorption study is that significant, repeated human skin contact with Kathon 893MW will be made during metalworking.)

5. Previously Reviewed Toxicity Data:

August 28, 1978 memo, John Doherty

Teratology study, rat. Hazleton Labs. No. 417-349, May 21, 1971. Kathon 893T (technical; 2-n-octyl-4-isothiazolin-3-one). 0, 200, and 1000 ppm dose levels tested; NOEL's for maternal or fetotoxicity not stated. No teratologic potential.
Classification: Core minimum data.

June 13, 1978 memo, John Doherty

All studies conducted by Hazleton Labs., using Kathon 893T (2-n-octyl-4-isothiazolin-3-one).

a. Acute, oral rat. Study No. 417-306, August 6, 1970.

LD_{50} F = 794 mg/kg, Tox. Cat. III
LD_{50} M = 681 mg/kg, Tox. Cat. III
Classification: Core minimum data.

b. Acute dermal, rabbit. Study No. 417-307, August 6, 1970.

LD_{50} = 1.78 mg/kg, Tox. Cat I
Classification: Core minimum data.

c. Acute eye irritation, rabbit. Study No. 417-308.

Corrosive to rabbit eyes. Tox. Cat. I
Classification: Core minimum data.

d. Acute inhalation toxicity, rat. Study No. 417-310.

LC_{50}, rat = 4 mg/L, Tox. Cat. III
Classification: Core minimum data.

e. Primary skin irritation, rabbit. Study No. 417-325.

Skin P.I. Index = 4.12, Tox. Cat. I
Classification: Core minimum data.

f. Skin sensitization, guinea pig. Study No. 417-326, October 7, 1970.

Probably not a sensitizer (slight-to-moderate erythema from 24 to 48 hours following sensitizing injections). Slight-to-moderate erythema after challenge dose in all animals.
Classification: Core minimum data.

September 19, 1975 memo, R. Coberly

18-Month mouse feeding study. Virginia Commonwealth University.
Test Material - RH-893 (2-n-octyl-4-isothiazolin-3-one).
NOEL (all parameters) = 1000 ppm (HDT)
A complete absence of neoplasms throughout the 18-month study.

Classification: This study has not been classified.

6. Data Reviewed in the Present Report:

a. Technical Report No. 85-138. Kathon 893 and Skane M-8 Impurities in Demistified Air. Rohm and Haas Co., June 25, 1985.

Kathon 893 (technical), at [redacted] respectively, were stripped from an aqueous solution containing 265 ppm of Kathon 893 ai during sparging exeperiments.

Inert ingredient

The active ingredient, plus the [redacted] would all be diluted with air washer air resulting in a wide margin of safety (diluted an estimated 1000x). Thus, the use of Kathon LM, according to product label recommendations, would not appear to present any hazard to the public health.

Classification: Core minimum data.

b. Three-Month Dietary Evaluation of RH-893, Rat. Hazleton Labs. No. 417-320, December 31, 1970.

NOEL (HDT), all parameters > 2000 ppm.

Classification: Supplementary data (no evidence was presented to indicate that a maximally tolerated high dose tested was used, or approached).

c. Three-Month Dietary Evaluation of RH-893, Dogs. Hazleton Labs. No. 417-334, December 31, 1970.

No NOEL found - NOEL (all parameters) > 2000 ppm. (HDT).

Classification: Supplementary data. No apparent evidence that the high dose used was an MTD.

7. The label signal word and precautionary statements are satisfactory.

BACKGROUND INFORMATION

Relationship(s) of Kathon Products:

A. [redacted]

Formulation for Kathon 893MW [redacted]

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active ingredient	% by wt
Kathon 893T (Technical) (2-n-octyl-4-isothiazolin-3-one)	52.94
inert [redacted]	

NOTE: Kathon LM (subject of one of the two current registration applications) was previously registered for use as a fabric mildewcide control agent. A current application request proposes the use of Kathon LM for use in recirculating water cooling towers and industrial air washers.

B. The active ingredient (2-n-octyl-4-isothiazolin-3-one) [redacted] is the same active ingredient used in:

Kathon 4200 (fabric mildewcide)
Kathon LM
Kathon 893T (Technical material)

C. The current application proposes cooling tower and air washer uses for Kathon LM:

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Kathon LM Formulation

active ingredient	% by wt
Kathon 893T (Technical) (2-n-octyl-4-isothiazolin-3-one)	5.9
inert	[redacted]

D. Toxicity data requirements for microbicide products used in industrial cooling towers, and industrial air washers:

a. Data requirements for cooling tower microbicides.

Acute oral LD_{50}
Acute dermal LC_{50}
Dermal irritation
Ocular irritation

Acute inhalation LC_{50}
Teratology study/one mam. species
One 90-day feeding study
A battery of mutagenicity studies

b. Data requirements for air washers.

Toxicity data requirements for air washers are identical to the Tox tests required for cooling towers, except that special air washer studies are also required; performed according to the attached "Protocol for Human Hazard Evaluation of Microbicides Used in Industrial Air Washing Systems to Control Biological Fouling."

Review of Data Submitted in the Current Applications:

1. Technical Report No. 85-138. Kathon 893 and Skane M-8 Impurities in Demistified Air. Sponsor: Rohm and Haas Co. Tester: Rohm and Haas Co. June 25, 1985.

Test Material - Kathon 893

Rohm and Haas submitted two reports entitled "Kathon 893 Vapor in Demistified Air" that were designed and conducted using a laboratory testing device largely according to an (attached) Agency protocol for testing microbicides intended for use in Industrial Air Washing Systems.

Essentially, air is bubbled through aqueous solutions of a proposed microbicide at an approximate use dilution, and at a much higher microbicide concentration. Effluent air (droplet free) exiting (either an actual air washing system, or a small laboratory device) the enclosed test system is examined for dissolved parent compound, and any parent compound breakdown products. Efficient exit air droplet removal systems are an integral part of industrial air washers, however, Toxicology Branch does request testing to show that any volatile materials exiting air washing devices do not affect public health in enclosed work places serviced with industrial air washer treated air.

The first "Kathon 893 is Demistified Air" report, No. AR-13 submitted by Rohm and Haas, January 23, 1984, did not account for dissolved products in effluent air other than the parent compound (Kathon 893).

Woodrow asked that Rohm and Haas either present evidence that attempts to account for all materials in the "demistified air" were made, or repeat the study to include all volatilized materials.

Rohm and Haas repeated the Kathon 893 Demistified Air study, and submitted the results to the Agency July 1, 1985. The study number was 85-138:

Fifty liters of air were passed through an aqueous solution containing 5 ppm of Kathon 893, and the collected organic materials from the effluent air were thermally desorbed into a Hewlett-Packard 5985 GC/MS equipped with a 30 meter, 0.25 μ film, DB-capillary column operated at 10 °C to 200 °C at 5 °C/minute. Fifty liters of air were similarly passed through an aqueous solution containing 500 ppm of Kathon 893.

EPA Registration Number 707-121

Page 8 is not included in this copy of the registration file for the product.

Pages _____ through _____ are not included in this copy of the registration file for the product.

The material not included contains the following type of information:

- ✓ Identity of product inert ingredients
- ___ Identity of product impurities
- ___ Description of the product manufacturing process
- ___ Description of product quality control procedures
- ___ Identity of the source of product ingredients
- ✓ Sales or other commerical/financial information
- ___ A draft product label
- ___ The product confidential statement of formula
- ___ Information about a pending registration action
- ___ FIFRA registration data (*)

The information not included generally is considered confidential by product registrants. If you wish to obtain the information deleted, please contact the individual who prepared this response to your request.

(*) FIFRA registration data can be released to individuals who submit an Affirmation of Non-Multinational Status.

The maximum label (attached) use concentration of Kathon LM recommended to control microbial fouling in industrial air washing and industrial cooling system devices is 1000 to 2000 ppm of formulated product.

Kathon LM formulation

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active	% by wt
Kathon 893T	5.9
inert	[redacted]

Therefore, of the (maximum) 2000 ppm Kathon LM, 118 ppm is actually Kathon 893T (technical) active ingredient.

[End of quotation].

The product Skane M-8 was used in the laboratory tests to determine if any volatile materials would be stripped from Kathon LM containing solutions when air was passed through test solutions.

[redacted]

Kathon 893MW

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active ingredient	% by wt
(2-n-octyl-4-isothiazolin-3-one)	52.94
inert	[redacted]

According to the present report, the sparging rate used in the laboratory tests identical to previous tests submitted to the Agency (study AR-13); which was 1 L of air per minute. The volume ratios and flow of air through the lab test system was designed to approximate that suggested by the attached Agency testing protocol.

Thus the percent ai contained in the Skane test solutions was:

5 ppm Skane test solution = 2.65 ppm ai

500 ppm Skane test solution = 264.7 ppm ai

Therefore, a comparison of the Kathon 893T ai (2-n-octyl-4-isothiazolin-3-one) concentrations in the maximum product label recommendations and the test solutions used shows:

Table 4.

50 L air at 1 L/minute passed through Skane M8 solution

	ppm Kathon 893T Content (same ai)	ppm Kathon 893T recovered in test effluent air (parent compound ai)
2000 ppm Kathon LM (Label)	118 (max. label recommendation)	
5 ppm Skane (test solution)	2.65	0.003
500 ppm Skane (test solution)	264.7	0.228

Table 4 shows that the 500 ppm Skane test solution contained 2.24 times the amount of ai contained in the maximum Kathon LM label recommendation of 2000 ppm, and that 0.23 ppm of ai parent compound was recovered from 50 L air passed at 1 L/min through the (Skane) test solution. The potential toxicity of the active ingredient (parent compound) will be discussed below.

Table 3 (above) shows that only 0.003 ppm ai parent compound was recovered from the 5 ppm Skane test solution.

Discussion of the potential toxicity of volatile materials stripped from 500 ml of Skane test solution containing 265 ppm of Kathon 893T ai (2-n-octyl-4-isothiazolin-3-one). See table 3 above.

1. Kathon 893T (technical compound); available toxicity data

		Tox Cat.	class.
Acute oral, rat LD_{50} F	794 mg/kg	III	min.
M	681 mg/kg	III	min.
Acute dermal, rabbit LD_{50}	1.78 mg/kg	II	min.
Acute inhalation, rat LD_{50}	4.0 mg/kg	III	min.
Primary eye irrit., rabbit Corrosive		I	min.

Primary dermal irrit., rabbit P.I. Index 4.12	I	min.
Skin sensitization, guinea pig Probably not a sensitizer		min.
Teratology, rat No teratogenic potential		min.
90-Day subchronic feeding, rat* NOEL (all parameters) > 2000 ppm		supp. data
90-Day subchronic feeding, dog* NOEL (all parameters) > 2000 ppm		supp. data

~~Tox Cat. Class~~

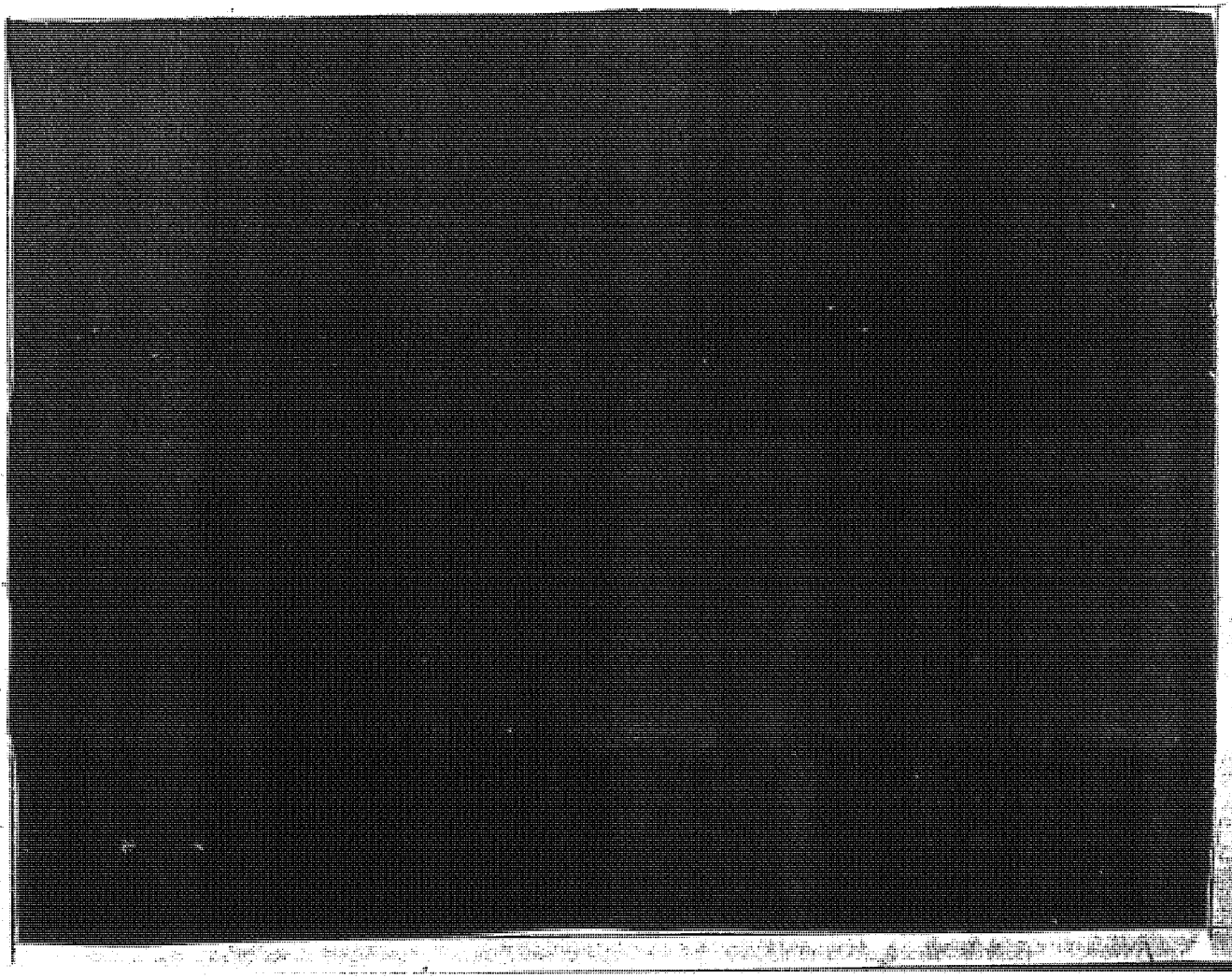
18-month mouse feeding study
NOEL (all parameters) = 1000 ppm (HDT)
A complete absence of neoplasms throughout the 18-month study.

not classified

*MTD apparently not used for either experiment in order to maximize test sensitivity.

Note: No mutagenicity studies have been reported for Kathon 893 Technical.

Commercial formulations & end-use products



5. [redacted]

Summary and conclusions, regarding potential human hazard(s) associated with the use of Kathon LM microbial control agent in industrial air washers:

At the maximum Kathon LM product label recommendation of 2000 ppm of formulated product, 118 ppm of active ingredient (2-n-octyl-4-isothiazolin-3-one) is present in the recirculating treated water.

The attached Woodrow memo entitled "Air Washer Structure and Function Observed at a Du Pont Nylon Plant at Seaford Delaware" indicates that approximately 49 gallons of recirculating water (that includes 34 gallons of microbicide treated and 15 gallons of added, untreated make up water) in small droplet form is exposed to approximately 360,000 cubic feet of air per minute flowing through a typical industrial air washer.

For hazard estimation purposes, if the 118 ppm Kathon LM ai at maximum application were present in the 49 gallons of recirculating water in the example cited above, and all of the ai were stripped from the water (assume all 49 gallons contain 118 ppm):

$$\frac{118 \text{ ppm}}{360{,}000 \text{ cfm}} = 0.00033 \text{ ppm Kathon LM/cu ft of air}$$

In the presently submitted experiment utilizing 265 ppm of Skane M-8 ai in sparging liquid, and an air dilution approximating that described for a typical industrial air washing system, the amount of parent compound recovered in effluent air would be approximately 1000-fold less than the ai concentration contained in the effluent air exiting the experimental test device; 0.228 ppm was recovered in test system effluent air vs. 0.00033 ppm ai theoretical recovery in effluent air from a typical air washer, containing 118 ppm Kathon LM in the system pump.

Thus, the possibility of creating public health hazards by using Kathon LM at the maximum label use recommendation is very remote; the submitted laboratory test indicates that only two active ingredient breakdown products were recovered that are known to be toxic. However, these and all other

materials identified in the present laboratory device tests, in actual use would be present in such minute amounts that they could not be detected.

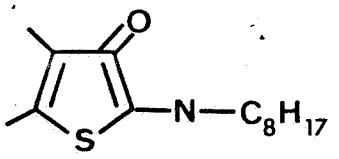
Conclusion: Kathon LM used at the label recommended rate to control microbial fouling in industrial air washers would not appear to present a hazard to public health.

Classification: Core minimum data.

2. Three-Month Dietary Evaluation of RH-893, Rats. Sponsor: Rohm and Haas Co., Tester: Hazleton, Labs., Inc., Project No. 417-320, December 31, 1970.

Test Material - Kathon Technical (RH-893)

Kathon 893 Technical (active ingredient) structure:



Four groups of 10 M and 10 F Charles River rats each were separately administered 0, 100, 500, or 2000 ppm of Kathon 893 Technical compound in diets prepared on a weekly basis.

Diets consisted of Purina Lab Chow mixed on a weight-per-weight basis with the test compound and mixed thoroughly in a twin-shell blender. The control group received diet only. No mention was made of attempts to analyze diet samples for contained concentrations, stability and homogeneity of test compound.

Animals were observed daily for mortality and toxic symptoms. Body weight, food consumption, appearance, and evidence of abnormal behavior were evaluated and recorded weekly.

At 1- and 3-month intervals, urine from five rats of each sex from control and test groups was examined for specific gravity, pH, glucose, ketones, total protein, bilirubin and sediment. Blood samples were examined for hematocrit, hemoglobin determinations, erythrocyte counts, total and differential leukocyte counts.

The fasting blood sugar, blood urea nitrogen, total serum protein, total serum bilirubin, serum glumatic-pyruvic transaminase, serum alkaline phosphatase, and serum electrophoresis values were determined.

At 3 months only, the serum albumin, serum sodium, serum potassium, serum chloride, serum calcium, carbon dioxide, and serum glutamic-oxaloacetic transaminase values were determined.

At termination (3 months), all survivors were sacrificed, gross necropsies were performed, and gross observations were recorded.

The weight of the heart, liver, spleen, kidneys, testes with epididymis were recorded prior to fixation, and weights of thyroid and adrenals were recorded for all animals at necropsy.

The following tissues were examined microscopically for five rats of each sex from control animals and the high-dose test group: pituitary, thyroid, heart, liver, spleen, kidney, adrenal, stomach, pancreas, small intestine, large intestine, mesenteric lymph node, urinary bladder, testis, ovary, bone marrow, and unusual lesions. The liver, kidney, and unusual lesions only were examined microscopically from five animals of each sex for the remaining test groups.

The growth rate, total food consumption, terminal body weight, organ weights, and organ/body weight ratios were analyzed statistically by analysis of variance or F-test, at the 5 percent probability level. Preliminary tests were analyzed by the method of Bartlett, Scheffe, and Fisher-Behrene (modified t-test).

Results:

The only changes in appearance or behavior occurred during the last 2 to 3 weeks when a few rats in the control and two lower test groups showed signs of wheezing and a bloody discharge from the eyes, reddened eyelids, or a hunched position or alopecia on the front legs.

Growth and food consumption was slightly depressed in male and female rats in the high-dose group (2000 group) during test week 1; no other differences between test and control animals were observed for these two parameters.

No compound-related differences between control and test animals were observed for hematological, blood chemistry, or urine analysis values.

All test groups of rats, as well as the control animals, showed some grossly altered organs or tissues in comparable numbers: lung involvement included distended lobes, dark red areas, or grayish pink foci, or areas of abcess formation. Kidneys of some animals in each group, including controls, showed

various changes such as dilated pelves, yellowish or slightly green tinged surface, or dark pink medulla. In one or two instances in the other groups and control animals showed uterine horns with fluid, small testes, an ovarian cyst, a spleen with encapsuated fat tissue and showing numerous firm, yellow nodules or yellow foci in the surface, a dark pink bladder wall. Such scattered gross organ alterations in control and test groups did not indicate compound-related effects.

Statistically significant but within normal animal ranges for thyroid weights and thyroid/body weights were found as shown in table 1 below:

Kathon 893T Fed to Rats for 13 Weeks

	Body Wt				Thyroid			
Group	ppm	Sex	Weight g	S g	Weight g	S g	Ratio %	S %
1	0	M	447	56	0.016	0.004	0.0036	0.009
2	100	M	440	43	0.026	S+0.004	0.0060	S+0.0007
3	500	M	441	25	0.025	S+0.006	0.0057	S+0.0011
4	2000	M	439	29	0.025	S+0.003	0.0059	S+0.0010
1	0	F	251	29	0.017	0.003	0.0070	0.0013
2	100	F	244	32	0.021	S+0.002	0.0088	0.0015
3	500	F	256	23	0.022	S+0.006	0.0088	0.0020
4	2000	F	239	28	0.020	0.004	0.0086	0.0018

Since these statistically significant thyroid weight, thyroid/body weight ration differences fell within known ranges for Charles River rats, no compound-related alterations in these parameters occurred.

Microscopic examinations did not show consistent differences between control and test animals; a change was observed in the wall of the urinary bladder of two high-group males that consisted of a looseness of the bladder wall. No inflammatory changes or other indications of an actual pathological alteration accompanied this observation, and therefore, no compound-related effects were believed associated. Thus, histopathological examinations of rat organs and tissues did not reveal any compound-related effects resulting from consumption of Kathon 893T containing diets.

Conclusion:

The administration of Kathon 893T in diets of Charles River rats during a 90-day period did not produce any detectable compound-related effects (NOEL all parameters - > 2000 ppm).

Classification: Supplementary Data - The data indicate that a maximally tolerated high dose (MTD) was not used in this experiment.

3. Three-Month Dietary Evaluation of RH-893, Dogs. Sponsor: Rohm and Haas Co. Tester: Hazleton Labs., Inc. Project No. 417-334, December 31, 1970.

Test Material - Kathon Technical (Kathon 893T)

Four groups of 4 M and 4 F purebred Beagle dogs each were separately administered 0, 100, 500, or 2000 ppm of RH-893 (Kathon 893 Technical) mixed in ground Wayne Dog Meal for a period of 3 months.

Fresh diets of test compound-dog food were prepared each week on a weight compound-weight dog food basis; the mixtures were mixed in a twin-shell blender to insure proper mixing. Laboratory diet and compound/diet mixtures were freely available to animals on test 7 days per week.

Apparently, no attempt was made to analyze dog chow/test compound mixtures for compound content, or for compound stability, homogeneity and concentration during each week of administration.

Hematological and blood chemistry studies were performed at study initiation and at 4 and 13 weeks.

Hematocrit, hemoglobin measurements, erythrocyte and total and differential leukocyte counts were made.

Fasting blood sugar, blood urea nitrogen, serum glutamic-pyruvic transaminase, serum alkaline phosphatase, total serum bilirubin serum glutamic-oxaloacetic transaminase, brom-sulpthalein liver function test, total serum protein, serum electrophoresis, total serum albumin, serum sodium, serum potassium, serum chloride, serum calcium, and carbon dioxide values were determined.

Urine specific gravity, pH, glucose, ketones, total protein, bilirubin, and microscopic examination of urine sediment were determined and examined.

All animals were sacrificed after 13 weeks of dietary administration of Kathon 893T; gross necropsies were performed on all animals.

The thyroid, heart, liver, spleen, kidney, adrenal, and testes with epididymis weights were recorded.

Histopathological examinations of tissues from all animals of group 1 (control) and group 4 (high dose - 2000 ppm) included = thyroid, heart, liver, gallbladder, spleen, kidneys, adrenals, stomach, pancreas, small intestine, large intestine, mesenteric lymph node, urinary bladder, testes, ovary, bone marrow, and unusual lesions.

Results:

All animals appeared normal regarding appearance, behavior, and elimination, with the exception of one male dog (500 ppm) which lost 43 percent of its weight during the experiment. Two additional male dogs that received the 500 ppm dose level showed body weight losses of 11 and 7 percent. Two male dogs that received 2000 ppm (HDT) showed body weight losses of 6 and 20 percent, respectively, while two females at this dose level lost 11 and 15 percent of body weight, respectively.

Urinalyses and hematological values were comparable between control and test animals.

The mean alkaline phosphatase values (table 1 below) for group No. 4 (2000 ppm-HDT) were higher than the values for the control and group Nos. 2 and 3; however, these mean values were within normal ranges, and thus no compound-related effects were involved. Remaining blood chemistry values were comparable for control and test animals:

Table 1

Group mean alkaline phosphatase values. Beagles fed Kathon 893T for 13 weeks.

Group	dose (ppm)	Initial	Week 4	Week 13
1	0	8.1	8.4	8.5
2	100	9.0	7.9	7.8
3	500	8.7	8.7	8.0
4	2000	8.9	12.1	16.5

Gross pathological examinations did not reveal compound-related effects or alterations in any of the test Beagles.

One male Beagle that exhibited severe weight loss of 43 percent during the experiment (reported above) did show evidence of general physical deterioration, such as: a very pale colored brain, colorless, jelly-like bone marrow, the stomach mucous was coated with a tarry-like material, and a greenish-black thick material was present in the jejunum.

Various other gross findings in control and test animals included: pituitary gland enclosed in a cyst, or a cyst at the base of the pituitary, nodules on heart valves, renal medulla dark pink, pale green liquid in stomach, a reddish area at the neck of the urinary bladder.

The 2000 ppm group of four females (HDT) exhibited slightly higher group mean values for kidney or kidney/body weight ratios, however, these values were within normal limits:

Table 2

Group mean values for kidney weight, kidney/body weight ratios. Female dogs fed Kathon 893T for 13 weeks.

Group	dose (ppm)	Kidney wt	Ratio percent
1	0	56.00	0.563
2	100	42.80	0.546
3	500	40.975	0.539
4	2000	61.40	0.637

Incidental findings for organ weights included high organ weights and/or organ/body weight ratios for adrenals in 3-500 ppm males, 1-500 ppm female, and 1-2000 female. Other incidences of isolated high organ weights organ weights/body weight ratios included thyroid for one 2000 ppm female, the heart for a female dog in each of the control and 2000 ppm groups, the liver in one control female, and an elevated spleen weight in one female in each of the control and 2000 ppm groups.

No consistent dose-related alterations were observed during microscopic examinations of tissues from dogs fed Kathon 893T for 13 weeks.

Conclusions:

No compound-related effects were observed when Kathon 893T was administered in the diets of dogs at 100, 500, and 2000 ppm for 13 weeks.

Classification: Supplementary data - A maximum tolerated dose was not administered.