13544

10-5-1967

007178

Chemical:	**AMS**
PC Code:	**005501**
HED File Code	**13000 Tox Reviews**
Memo Date:	**10/05/1967**
File ID:	**00000000**
Accession Number:	**412-01-0124**

HED Records Reference Center
03/04/2001

1300

OPP OFFICIAL RECORD
HEALTH EFFECTS DIVISION
SCIENTIFIC DATA REVIEWS
EPA SERIES 361

CAS 47

RC005501

RDCoberly:deg
October 5, 1967

Chemical Name	:	Ammonium Sulfamate
Chemical Structure	:	$H_2N-\overset{\overset{O}{\|\|}}{\underset{\underset{O}{\|\|}}{S}}-ONH_4$
Empirical Formula	:	$H_6O_3N_2S$
Molecular Weight	:	114.13
Physical State	:	Crystalline Solid
Melting Point	:	131°C-132°C
Stability	:	Stable under conventional condition. Decomposes upon heating to 160°C
Solubility	:	Soluble in water, glyerol, glycols and formamide.
Reason	:	First review by PHS
Company	:	E. I. du Pont de Nemours & Co.

15

2

Washington, D. C.
September 29,1967

Mr. Kenneth Nash
Pesticide Regulation Division
Agricultural Research Service
U. S. Department of Agriculture
Washington, D. C. 20250

Dear Mr. Nash:

The toxicological data on Ammonium Sulfamate, received from you on June 17, 1966, in connection with two recently received products, Reg. No's: 829-G and 1022-L, has been reviewed.

These data indicate that an undue human hazard should not be created under normal circumstances by the routes of contact presented in the aforementioned data. No data was received on the effects of the chemical by the inhalation route. The report does indicate that a threshold value of 15 mg/M^3 has been established as the safe atmospheric concentration to humans. The basis being low rodent oral toxicity and human-experience. But that does not answer the question, "What is the unsafe level?"

As indicated above, the presented data does appear strong enough to justify registration. We also feel an acute inhalation study should be made available for review.

Sincerely,

Robert D. Coberly
Biologist
Registration Section
Pesticides Program

RDCoberly:mw

Acute Rat S.C.	:	2 ml of 4% solution caused no irritation or necrosis.
Acute Rat Oral	:	LD_{50} = 3.9 gm/Kg
Acute Rat IP	:	MLD = 0.8 gm/Kg
Acute Sheep Oral	:	14 or 28 grams/animal gave no ill effects. 100 grams/animal caused enteritis and death.
Acute Dog IV	:	0.1 gm/Kg was well tolerated.
Acute Rabbit Eye	:	0.5 ml of 4% solution caused no irritation.
Subacute Rat Oral	:	Nine to 15 treatments of 0.5 gm/animal on alternate days produced no effect.
Subacute Dog Oral	:	One gram/animal for six days produced no systemic effects.
Subacute Deer Feeding	:	Amount consumed was not obtained. Neither of two does showed ill effects. The value of this study is very limited.
Subacute Calf Feeding		
Study No. 1	:	Calves force-fed 28 or 56 grams/animal for 10 days showed no effect.
Study No. 2	:	Two calves with free choice for one week showed no effect. Amount consumed was not specified.
Subacute Yearling Wether Feeding	:	Ingestion of 227 grams during five days caused no ill effects.

Pregnant Ewe	:	Was fed 112 grams. Delivered two normal lambs.
Subacute Rat Feeding (105 days)	:	1.0% in the diet had no effect. 2.0% in the diet caused reduced growth rates and a slight cathartic action. No gross or histological changes were noted.
Subacute Rat Dermal		
Study No. 1	:	Sixteen applications of a 20% solution produced no irritation or systemic toxicity.
Study No. 2	:	Eleven applications of a 50% solution produced no irritation, systemic toxicity or histological changes.
Subacute Human Dermal	:	Produced no irritation as a 4% solution.
Human Patch Test	:	A 10% solution caused no irritation.
Pharmacodynamic and Metabolic Studies	:	80% and 84% was excreated in the dog urine as sulfamic acid.
Three-generation Rat Reproduction	:	Levels tested were 0.035% and 0.05% (350 ppm and 500 ppm). No evidence of toxicity was noted.

RDCoberly:deg
October 5, 1967

Sulfamic Acid

Acute Rat Oral

Results are based on the work of Lehman during 1951. Protocol was not listed.

Results

LD_{50} = 3.9 gm/Kg. At the very high doses, tremors were noted and death occurred within 10 minutes. Animals that survived for 24 hours usually recovered. Ambrose (1943) noted that an oral dose of 1.6 gm/Kg was tolerated by white mice without toxic signs.

Acute Rat IP

These findings are based on the work of Ambrose (1943).

Results

He found the minimum fatal dose for rats to be 0.8 gm/Kg. Fatal doses produced stimulation of respiration and prostration; death occurred within 45 minutes following administration of the compound.

Acute Sheep Oral

Oral doses of 14 or 28 grams were given to yearling wethers. One hundred grams and less was given to adult goats.

Results

The yearlings showed no signs of ill effects. The adult goats showed severe enteritis and death at 100 grams/animal. Lesser doses were tolerated by the adult goats.

Acute Dog IV

Protocol was not listed.

Results

A dose of 0.1 gm/Kg was well tolerated (Ambrose, 1943).

Subacute Rat Oral

Intubation of 0.5 gram/animal was done on alternate days for nine or fifteen treatments.

Results

These treatments produced no signs of toxicity in rats except for a decrease in growth rates at the beginning of the experiment. The animals overcame this weight loss during the latter part of the treatment. No significant gross or micropathology was found.

Subacute Dog Oral

One gram of the test material was fed daily for six days.

Results

This administration of the test material produced no systemic effects.

Subacute Deer Feeding (34 Days)

The crystalline product was made available to two yearling does on a free choice basis for 34 days.

Results

The amount consumed was not obtained due to the hydroscopic nature of the chemical. Neither of the animals involved showed any signs of illness or loss of condition.

The value of this study with regard to extrapolation to human toxicity appears to be very limited.

Subacute Calf Feeding

Study No. 1

Two calves (5-7 months of age) were forced-fed 28 grams and 56 grams, respectively, each day for ten days.

Study No. 2

The chemical was also made available to two calves on a free choice basis for seven days.

Results

Study No. 1

These calves showed no effect.

Study No. 2

These calves showed no effects. Amount of the test material consumed was not specified.

Subacute Yearling Wether Feeding

The yearling wether was allowed to consume 227 grams of the test material over a five day period.

Results

No ill effects were noted.

Pregnant Ewe Study

The ewe was fed 112 grams (number of doses or time required to consume was not specified in this report).

The ewe delivered two normal lambs.

Subacute Rat Feeding (105 Days)

In this study the rats were provided with 1% and 2% of the test material in the diet of female rats.

Results

The 1% dietary level was without effect. The 2% inhibited growth weights and induced a slight cathartic action. No gross or histological changes were noted.

The 1% and 2% dietary levels are equivalent to 10,000 ppm and 20,000 ppm respectively.

Subacute Rat Dermal

Study No. 1

Sixteen applications of a 20% aqueous solution was applied to the skin of ten white rats over a period of twenty-seven days.

Study No. 2

Eleven applications of a 50% aqueous solution was applied to the shaved skin of five rats over a period of nineteen days.

Results

The test material in both studies did not produce irritation, systemic toxicity or histological changes.

Subacute Human Dermal

Topical application of a 40% solution was made to the anterior surface of one arm of each of five human subjects several times a day for five days.

Results

The test material did not produce irritation in any of the subjects.

Acute Rabbit Eye

Approximately 0.5 ml of a 4% solution was placed into the conjunctival sac of five rabbits.

Results

No irritation was observed.

Acute Rat Subcutaneous

Treatment consisted of the injection of two ml of a 4% solution.

Results

There were no signs of irritation, inflammation or necrosis.

Pharmacodynamic and Metabolic Study

Studies conducted by Haskell Labortories in which sulphor distribution in the urine of dogs was determined, showed that the compound is largely

excreated in the form of sulfamic acid. In two studies each receiving one gram per day for five days, 80% and 84% of the amount was recovered. Tests were made for various constituents of the urine and blood serum which would indicate effects on liver function; no adverse effects were noted.

According to Ambrose 20 ml/Kg intravenously to dogs had no effect on blood pressure and respiration. At 100 mg/Kg slight transient effects were noted but neither system was seriously influenced.

As reported by Haugen, the blood pressure in calves was unchanged after the animals were force-fed 28 or 56 grams/day for 10 days.

Three-generation Rat Reproduction Study

Forty-eight males and forty-eight females were divided into three groups Of sixteen males and sixteen females and offered the dosage levels of 0.0, 0.035% and 0.05 (equivalent to 350 ppm and 500 ppm respectively). At three months, a three-generation reproduction study was initiated within each group. After the original generation had been on test for approximately 19 months, six males and six female rats were selected at random from the control group and the group receiving the 0.05% and was subjected to a hematological evaluation, a urinalysis and a test to measure liver function (plasma, alkaline phosphatase activity) and a test to measure kidney function (urine glutamic-oxaloacetic transaminase activity).

Results

No evidence of toxicity as measured by histopathologic appraisal, growth curves, and reproduction lactation indices was noted.

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PESTICIDES REGULATION DIVISION
WASHINGTON, D. C. 20250

INTERDEPARTMENTAL COORDINATION OF ACTIVITIES RELATING TO PESTICIDES

Referral of Application for Registration under the Federal Insecticide, Fungicide, and Rodenticide Act

1. APPLICANT

[redacted] AGRICULTURAL INSECTICIDE INC.
P. O. BOX 218
PALMETTO, FLORIDA

2. PRODUCT	3. DATE OF REFERRAL
829-6 [redacted]	9/19/67 of 9/22/67

4. COMMENTS BY COORDINATING AGENCY

5. BY (Name)	6. DATE	7. NAME OF AGENCY
		L3

#1

PR FORM 9-230 (REPLACES PR FORM 9-230, OCT 1964, WHICH IS OBSOLETE)

SA BRAND 50®

AMMATE* X

WEED & BRUSH KILLER

ACTIVE INGREDIENTS:	
Ammonium Sulfamate	95.0%
INERT INGREDIENTS	5.0%
	100.0%

Keep Out of Reach of Children

CAUTION! Avoid contact with skin and eyes. Do not breathe spray mist. In case of contact, wash with plenty of water; for eyes flush with water and obtain medical attention.

"Ammate" X Weed and Brush Killer is highly effective for killing undesirable woody plants and for use as a contact spray for control of weeds and grasses. Temporary non-productivity of soil may be caused by heavy applications of "Ammate" X; this condition usually disappears in the "over-winter" period.

Buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions and precautions given herewith.

*Registered trademark of E. I. du Pont de Nemours & Co. (Inc.)

PACKAGED AND DISTRIBUTED BY

Southern Agricultural Insecticides, Inc.

Palmetto, Florida Hendersonville, N. C. Boone, N. C.

NET_____LBS.

DIRECTIONS

"AMMATE" X is water-soluble, non-volatile, and non-flammable. It may be applied by a sprayer or sprinkling can. Direct sprays away from lawns and desirable plants to avoid injury. Coarse sprays are least likely to drift. "Ammate" X is non-selective; do not apply to, drain, or flush equipment on desirable plants or vegetation.

IMPORTANT: Wash sprayer thoroughly after use to remove all "Ammate" X and to reduce corrosion.

"Ammate" X absorbs moisture readily; keep package tightly closed.

Some species of plants are difficult to control, and retreatment may be necessary if regrowth occurs. The degree of control and duration of effect will vary with weed species, rainfall, temperature, and other conditions.

NOTE: 1 lb. of "Ammate" X is equivalent to 1¼ cupfuls.

For control of woody plants, such as poison ivy, poison oak, poison sumac, tree sprouts, brambles and other brush, use 1 lb. of "Ammate" X per gallon of water. Apply as drenching spray after foliage is well developed. Wet foliage thoroughly. For best results, spray during periods of high humidity. For foliage difficult to wet, add ¼ teaspoonful of Du Pont Spreader-Sticker or liquid household detergent per gallon. Respray if any recovery is noted.

To control vegetation in driveways, walks, tennis courts, and similar locations, use 1 lb. of "Ammate" X per gallon of water for 25 sq. ft. Apply uniformly with a sprinkling can or sprayer.

To prevent sprouting of tree stumps, apply dry "Ammate" X liberally on freshly cut stump surface especially around the outer edge, or spray surface thoroughly with solution of 4 lbs. of "Ammate" X per gallon of water.

To kill undesirable trees, make a continuous cut or "frill" around the base of the tree with downward axe strokes, cutting into the sapwood. Apply dry "Ammate" X as a continuous band in the frill, or saturate frill with solution of 4 lbs. of "Ammate" X per gallon of water.

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PESTICIDES REGULATION DIVISION
WASHINGTON, D. C. 20250

INTERDEPARTMENTAL COORDINATION OF ACTIVITIES RELATING TO PESTICIDES

Referral of Application for Registration under the Federal Insecticide, Fungicide, and Rodenticide Act

1. APPLICANT

CHAPMAN CHEMICAL COMPANY
P. O. BOX 9158
MEMPHIS, TENNESSEE

2. PRODUCT

1088-L

DF PORT ARMOUR WEED & BRUSH KILLER SOLUTION

3. DATE OF REFERRAL

9/28/67 of 9/29/67

4. COMMENTS BY COORDINATING AGENCY

15