

October 4, 2006

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Document Control Office (DCO 7407M)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001
ATTN: 8(d) Health and Safety Reporting Rule (Notification/Reporting)

CONTAIN NO CBI

Dear Administrator,

The Eastman Chemical Company has reviewed their files in response to requests by the Environmental Protection Agency to report unpublished health and safety data pursuant to Section 8(d) of the Toxic Substances Control Act (71 Fed. Reg. 47,130, August 16, 2006; 71 Fed. Reg. 57,439, September 29, 2006).

The table below lists those chemicals for which Eastman possessed health and safety data. Copies of this data are organized by the chemical's CAS number on the enclosed compact disc. Please contact Dr. James A. Deyo at 423-229-5208 should you have any problems extracting the information from the disc.

| CAS No. | Chemical Name |
|------------|---|
| 110-18-9 | 1,2-Ethanediamine, N,N,N',N'-tetramethyl- |
| 110-33-8 | Hexanedioic acid, dihexyl ester |
| 111-85-3 | Octane, 1-chloro- |
| 124-63-0 | Methanesulfonyl chloride |
| 131-57-7 | Methanone, (2-hydroxy-4-methoxyphenyl)phenyl- |
| 25646-71-3 | Methanesulfonamide, N-[2-[(4-amino-3-methylphenyl)ethylamino]ethyl]-, sulfate (2:3) |
| 4170-30-3 | 2-Butenal |
| 645-62-5 | 2-Hexenal, 2-ethyl- |
| 68987-66-6 | Ethene, hydrated, by-products from |
| 7795-95-1 | 1-Octanesulfonyl chloride |
| 81-07-2 | 1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide |
| 94-96-2 | 1,3-Hexanediol, 2-ethyl- |
| 97-00-7 | Benzene, 1-chloro-2,4-dinitro- |

Regards,


Marc G. Schurger
Director, Product Safety & Health



Enclosure: Compact Disc labeled "Eastman TSCA 8(d) Submission; October 4, 2006"

299312

8607000001
Eastman Attachments

(MR-299312)

81-07-2

94-96-2

97-00-7

110-18-9

110-33-8

111-85-3

124-63-0

131-57-7

4170-30-3

7795-95-1

25646-71-3

68987-66-6

JAN 19 1979

905388
20
06

EKE

~~WARD~~

104730Q

~~REK~~

RWY/RWY

~~BZ~~ (BDR) 1/26/79 JW

~~DBA~~

~~EFL~~ JFR JFR

LHA LHM 2-21

Basic Toxicity of Methanesulfonyl Chloride,

Acc. No. 905388, HS&HFL No. 77-241

Toxicology Section

Written by: C. J. Terhaar

December 15, 1978

Basic Toxicity of Methanesulfonyl Chloride,

Acc. No. 905388, HS&HFL No. 77-241

The oral LD50 was determined to be approximately 175 mg/kg for rats and 200 mg/kg for mice. Deaths occurred immediately after dosing and hematuria developed in the surviving rats. The compound is a severe skin irritant with a dermal LD50 of from 0.1 to 1.0 ml/kg. It may cause necrosis when placed on the uncovered skin. It elicited a potent (3/10), moderate (2/10) and weak (1/10) allergic contact dermatitis in 10 guinea pigs tested. It is a severe eye irritant.

Rats were given daily gavages of 100 mg/kg or 50 mg/kg. All animals lost weight and failed to eat normally. Three of the five animals given 100 mg/kg died within six days. The remaining two were discarded. All animals developed discolored (green) urine. The animals receiving 50 mg/kg daily for two work weeks maintained a normal hemoglobin concentration, hematocrit and differential white blood cell count. However, they exhibited an increase in circulating white blood cells. In the 50 mg/kg group, serum glutamic oxaloacetic transaminase, serum lactic dehydrogenase, serum urea nitrogen and serum glucose values were normal but the glutamic pyruvic transaminase and alkaline phosphatase values were depressed. At necropsy, the absolute liver and kidney weights of the 50 mg/kg group were depressed although the relative organ weights were normal. Gross examination of the 100 mg/kg group showed cytotoxicity to the mucosal surfaces of the gastrointestinal tract. Repeated doses resulted in perforation of the wall of the gastrointestinal tract and

adhesions to adjacent viscera. Toxic hepatitis was also noted in all 100 mg/kg treated animals surviving 24 hours. Anemia was present clinically as a loss of color to the eyes and skin. Microscopically, the 50 mg/kg group was characterized by severe necrotizing esophagitis, gastritis with or without ulceration.

This compound can be described as a severe tissue irritant and can be expected to cause necrosis of any tissue with which it comes in contact. The nominal six hour LC50 in rats is probably between 0.14 and 0.62 mg/l.

The approximate 96 hour static LC50 was determined to be 3.2 µl/l for flatworms, 8 µl/l for daphnids, 12 µl/l for fathead minnows and 32 µl/l for snails. The Industrial Laboratory, Kodak Park, reported a Chemical Oxygen Demand of 4.5 g O₂/g sample. Biochemical Oxygen Demand and Total Oxygen Demand studies could not be run due to the insolubility of the compound.

CJT:bdo

Summary of Basic Toxicity

Chemical Methanesulfonyl Chloride

Acc. No. 905388 HS&HFL No. 77-241 ⁷³⁻²⁸⁶69-136 Date 12-15-78
⁵⁸⁻¹⁶⁶⁻²
 LD₅₀ (mg/kg) P.O. Rats 175 Mice 200

Remarks: Hematuria. Death within 5 min. except for two mice at the LD₅₀ that survived for two days.

Skin Irritation (covered) Slight Moderate Strong Absorption: Probably

Remarks: LD₅₀ 0.1-1.0 ml/kg

Eye Irritation

| | Slight | Moderate | Strong | <u>Fluorescein stain</u> | |
|--------------|--------|----------|--------|--------------------------|--------|
| | | | | Cornea | Adnexa |
| No. washed | | | 1/1 | 1/1 | 1/1 |
| No. unwashed | | | 1/1 | 1/1 | 1/1 |

Remarks:

Skin Sensitization Potential No. guinea pigs 10

None 4/10 Weak 1/10 Moderate 2/10 Potent 3/10

Remarks:

Repeated (10 days) Skin Application (uncovered) No. guinea pigs 5

Remarks: Day 1: Moderate to severe erythema, slight edema.
 Day 6: Necrotic, eschars formed.

Other Tests 0.5 ml single uncovered application caused apparent pain and necrosis of treated area on three rabbits.

Summary of Basic Toxicity--2

100 mg/kg/day 5 days
 50 mg/kg/day 10 days (two work weeks)
 Repeated Feeding No. rats/group 5 No. days ~~XXXXXX~~ gavage
 100 mg/kg 50 mg/kg 100 mg/kg 50 mg/kg

Weight gain lost weight
 Feed intake +3 +3
 Signs/behavior 3/5 died
discolored (green) urine

Hematology
 Hgb. N
 Hct. N
 WBC +2
 Diff. N

Clinical Chemistry:

GOT N
 GPT +1
 LDH N
 AP +1
 UN N
 Gluc. N

Organ Weight:

Liver
 Abs. +3
 Rel. N
 Kidney
 Abs. +3
 Rel. N

Pathology Gross: 1.0% see text.
 Micro.: Severely irritating, see text.

Single
~~Repeated~~ Inhalation* Conc. 0.14 mg/l No. rats 3 No. days 1

Wt. change +3 Signs/behavior slight irritation

Hemat.: Hgb. ND Hct. ND WBC ND Diff. ND

Clin. Chem.: GOT ND GPT ND LDH ND AP ND UN ND Gluc. ND

Pathology ND

*10 mg/l killed 3/3 rats in 45 min. at 0.62 mg/l (6 hr.). 3/3 rats died within 3 days after exposure.

Static 96 hour LC₅₀ ~~mg/l~~ μl/l Added to aquaria in acetone

Fathead minnows 12 Daphnids 8 Snails 32 Flatworms 3.2

No effect concn. ~~mg/l~~ μl/l

| | Germination | Hypocotyl Growth | Root Growth |
|----------|-------------|------------------|-------------|
| Ryegrass | <u>100</u> | <u>100</u> | <u>100</u> |
| Radish | <u>"</u> | <u>"</u> | <u>"</u> |
| Lettuce | <u>"</u> | <u>"</u> | <u>"</u> |

Remarks:

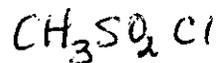
REQUEST FOR TOXICITY INFORMATION

Submit To: Dr. R. L. Sharp
Health and Safety Laboratory
Building 320, Kodak Park

Accession No. 905388
H & S Lab No. 77-241

PLEASE READ REVERSE SIDE BEFORE
FILLING OUT THE NUMBERED ITEMS BELOW.

Compound Methanesulfonyl Chloride



Synonyms (#1) Mesyl Chloride

Structural Formula

Physical-Chemical Properties (#2):

Solid _____ Liquid X Paste _____ M.P. _____ B.P. 160-62 at 760 mm Hg. pH _____

Solubility (#3) _____

Stability (Hydrolysis, Decomp., etc.) (#4) _____

Impurities (Probable, with amounts) _____

Manufacturer of Sample (#5) TEOC

Describe Proposed Use (#6):
1) Kodak Manufacture of color developers

2) Customer _____

Indicate Probable Human Exposure: Check appropriate space(s) (#7)

| | Kodak | Consumer | Industrial |
|---------------|-------|----------|------------|
| 1) Skin/Eye | _____ | _____ | _____ |
| 2) Inhalation | _____ | _____ | _____ |
| 3) Oral | _____ | _____ | _____ |

Quantities to be Handled 1,000,000 lb per year 5,000 lb per use.

Extent of Present Handling: Laboratory _____ Pilot Plant _____ Plant X

Warning Label Being Used (Enclose sample label) _____

References and Comments _____

Are you aware of adverse effects due to human exposure? _____

Send copies of report to: Signed R. B. Clark / RLS
Dept. TEC Dev & Control
Date 10/25/77

DO NOT WRITE BELOW LINE--FOR H & S LAB. USE ONLY

LD₅₀ PO IP Rats Mice

Skin Irritation Sensitization Aquatic

Inhalation Eye Basic Toxicology 7261 S AON

CHE Initiated
See 76-279 & 58-166

Charge No. 8830

905388

905388

66

SKIN ABSORPTION AND IRRITATION

Chemical: Methane sulfonyl chloride

| Chemical | Formula | Animals* No. and Species | Route | Dose Range cc/kg | Approx. LD ₅₀ cc/kg | Symptoms | Time of Death | Wt. Change 2 wks |
|----------|---------|--------------------------------|---------|---------------------|--------------------------------------|---|------------------|------------------------|
| Undilute | | 3 RB | Drop on | 0.5 ml | >0.5 ml | <p>Immediate: Squawling, skin in drop on area puckered.</p> <p>1 hr.: Necrotic.</p> <p>24 hr.: Ivory white to grey necrosis surrounded by hard #3 ery., sl. edema.</p> <p>48 hr.: White blanched area with darker brownish areas, surrounded by #3 ery.</p> <p>1 wk.: To #4 ery., hemorrhagic areas, dark color raised edges, sl. to mod. edema.</p> <p>2 wk.: Hard eschar over entire cpd. area.</p> | | |
| | | | | | | | 69 | 136 |

* G.P. - Guinea Pig, M - Mouse,
R - Rat, RB - Rabbit

A - Acetone, D - Dioxane, CO - Corn oil, O - Olive oil
P.G. - Propylene glycol

TOXICITY REPORT - E.K.CO. - LABORATORY OF INDUSTRIAL MEDICINE

905388
06

Chemical: Methane Sulfonyl Chloride

No: 1089
5388

Source: R. L. Roudabush
Medical, KP

Formula: CH₃SO₂Cl

| Solution | Animals* No. and Species | Route** | Dose Range | Approx. LD ₅₀ | Symptoms | Time of Death | Wt. Change 2 wks |
|---------------------------------------|--------------------------------|---------|------------|-----------------------------|---|------------------|------------------------|
| <u>Acute Toxicity</u> | | | mg/kg | mg/kg | | | |
| 5% in Corn Oil | 12 R | PO | 10-400 | 100-200 | Normal to mod. weakness, prostration, cyanosis, dark eyes. | 15 min-2 hrs. | 7+ |
| 5% and 1% in Corn Oil | 12 R | IP | 1-50 | 1-10 | Sl. cyanosis, rough coat, sides caved in, dyspnea, dark eyes, tremor. | 1 1/2 hr-5 days | 2+ |
| " " " " | 12M | PO | 10-200 | 100-200 | Normal to q. weak, rough coat, tremor. | 2 days | 10+ |
| " " " " | 12M | IP | 1-50 | 10-25 | Normal to q. weak, rough coat, sides caved in. | 4 hrs-4 days. | 3+ |
| <u>Skin Absorption and Irritation</u> | | | cc/kg | cc/kg | | | |
| Undiluted | 3 G.P. | Cuff | 0.1-1.0 | 0.1-0.5 | Mod. to gross edema, #2 erythema and either part or all of patch area is necrotic. Eschar and up to 3 erythema at periphery at 1 wk. Eschars or up to 3 erythema at 2 wk. | 1 day 58 P | -2 166-2 |

*G.P. - Guinea Pig, M - Mouse,
R - Rat, RB - Rabbit

**PO - Orally, IP - Intraperitoneally,
IM - Intramuscularly, IC - Intracutaneously

4/26/63

Remarks: ^{Moderately} Moderately toxic orally, slightly toxic IP.
Moderate skin irritant-absorbed through the skin.

MAY 21 1963

R-3
S-3

TOXICITY REPORT - E. K. CO. - LABORATORY OF INDUSTRIAL MEDICINE

Methane Sulfonyl Chloride

No: 5388

Source: R. L. Roudabush
Medical, KP

Formula: CH₃SO₂Cl

INHALATION

| Chemical Type of Exposure | Formula | Animals* No. and Species | Conc. | Time | Mortality | Symptoms |
|--|---------|--------------------------------|-----------------------|-------|-----------------------------|--|
| 1/2 l/min gas washing bottle Room temp. | | 3R | 12.2 mg/l 2594 ppm | 6 hr. | 1/3 3/3 in 3 days | Gaspings, dull eyes in first hour; loss of coordination in 5 hrs. |
| 1/2 l/min and 2 l/min by pass, gas washing bottle. Room temp. | | 3 R | 1.2 mg/l 255 ppm | 6 hr. | 0/3 | Pink extremities. Average 2 wk wt. (+3) = 69 g. |
| 1/2 l/min gas washing bottle and 2 l/min by pass. Room temp. | | 3R | 2.28 mg/l 485 | 6 hr. | 0/3 | Labored breathing. Average 2 wk wt. (+3) = 62 g. |
| | | | | | | 58-166-2 |

* G.P. - Guinea Pig, M - Mouse,
R - Rat, RB - Rabbit

MAY 21 1963

'Chemical: Methanesulfonyl Chloride

No:

Source: P. Giunta

Formula:

| Solution | Animals* No. and Species | Route** | Dose Range | Approx. LD ₅₀ | Symptoms | Time of Death | Wt. Change 2 wks | |
|---------------------------------------|--------------------------------|---------|------------|------------------------------|---|--------------------|------------------------|-----|
| <u>Acute Toxicity</u> | | | | | | | | |
| 10% in corn oil | 10 R | PO | 25-400 | mg/kg 50-100 | Mod. to very wk. with convulsions - gross hematuria. | 2 hr.- 1 day | 4+ | |
| 1 and 10% in corn oil | 16 R | IP | 5-400 | <5(1%) | Sl. to very wk. with convulsions - rough coat - hematuria. | 15 min.- 7 days | 1+ | |
| As received and 10% in corn oil | 10 M | PO | 25-400 | >100(10%) <200 (undil) | Sl. to very wk. - convulsions - ataxia. | 1 min. | 6+ | |
| As received, 1% and 10% in corn oil | 16 M | IP | 5-400 | 10-25 (1%) | Mod. to very wk. - convulsions - rough coat - ataxia. | 2 min.- 3 days | 3+ | |
| | | | | | | Notebook No. | 73 p | 286 |
| <u>Skin Absorption and Irritation</u> | | | | | | | | |
| Undilute | 3 G.P. | Cuff | 0.1-5.0 | cc/kg 0.1-1.0 | 24 hr.: Gross edema and entire patch area necrotic. 1 wk.: Heavy depressed eschar over patch area. 2 wk.: Depressed 2° eschar over entire patch area. | <24 hr. (2) | +130 | |
| | | | | | | Notebook No. | 73 p | 286 |

*G.P. - Guinea Pig, M - Mouse,
R - Rat, RB - Rabbit**PO - Orally, IP - Intraperitoneally,
IM - Intramuscularly, IC - Intracutaneously

7-24-73/bdo

Remarks: Moderately toxic orally. Highly toxic intraperitoneally.
Strong skin irritant. May be absorbed through skin.
Severe eye irritant.

INHALATION Chemical: Methanesulfonyl chloride

Source: P. Giunta

Kf 54295

| Chemical Type of Exposure | Formula | Animals* No. and Species | Conc. | Time | Mortality | Symptoms |
|--|---------|--------------------------------|------------------------|---------|--|--|
| 1.0 L/min airflow through a gas washing bottle at room temperature. Chamber temperature, 24.5 C. | | 3 R | 10 mg/l (2145 ppm) | 45 min. | 3/3 in 45 min. | Blinking - 1 min. Nose rubbing - 1 min. Salivation - 4 min. Dyspnea - 5 min. Pilo-erection - 5 min. Lacrimation - 10 min. Clear nasal discharge - 10 min. Deaths - 1 R in 30 min.; 1 R in 40 min.; 1 R in 45 min. |
| 0.4 L/min airflow through a gas washing bottle at room temperature with 5.0 L/min air bypass. Chamber temperature, 24 C. | | 3 R | 0.62 mg/l (132 ppm) | 6 hr. | 0/3 2/3 in 20 hr. post exposure; 3/3 in 3 days post exposure | Blinking - 1 min. Nose rubbing - 1 min. Dyspnea - 10 min. Pilo-erection - 10 min. Clear nasal discharge - 15 min. Lacrimation - 25 min. Salivation - 25 min. Wheezing - 265 min. |
| 0.1 L/min airflow through a gas washing bottle at room temperature with a 5 L/min air bypass. Chamber temperature, 26 C. | | 3 R | 0.14 mg/l (29 ppm) | 6 hr. | 0/3 | Blinking - 1 min. Nose rubbing - 2 min. Pilo-erection - 5 min. Vasodilation - 15 min. 14 day wts. 3+(76.3 g.av.) |

73-286

* G.P. - Guinea Pig, M - Mouse,
R - Rat, RB - Rabbit

TOXICITY REPORT - E.K.CO. - LABORATORY OF INDUSTRIAL MEDICINE

Chemical: **Methanesulfonyl Chloride**

No:

Source: P. Giunta

RABBIT EYE

Application:

Formula:

 x 1 drop liquid (undil. as rec'd.)
 several crystals dry
 other _____

| | 1 Unwashed (No. of eyes) | 1 Washed (No. of eyes) |
|----------|---|---|
| Initial | Eye held closed severely - severe struggle - recovery from struggle occurred soon. A second drop produced no other reaction. | Mod. squealing - severe struggle - eye held closed severely - cornea dull. |
| One Hour | Sl. ery. to entire conj., lids and nict. membrane - severe edema to entire conj., lids and nict. membrane - can't see iris - cornea appears O.K. through eye is swollen shut. | Sl. ery. to entire conj., lids and nict. membrane - severe edema to entire conj., lids and nict. membrane - can't see iris - mod. corneal opacity with severe involvement of area. |
| 24 Hours | Mod. edema to lower palp. and orb. conj. - severe edema to upper orb., palp. conj., lids and nict. membrane - can't see iris - cornea white to grey - all tissues appear greyish - all tissues stained except cornea - mod. corneal opacity with severe area involvement. | Mod. ery. of entire conj., lids and nict. membrane - severe edema to entire conj., lids and nict. membrane - can't see iris - mod. corneal opacity (greyish) - severely involved area - cell tissue and cornea stained. |
| 48 Hours | Mod. edema to lower palp., upper and lower orb. - mod. ery. to lids - severe edema to lids, nict. membrane and upper palp. conj. - all conj. appears gray (necrotic) - corneal opacity and involved area severe. | Severe edema to entire conj. and lids and nict. membrane - can't see iris - severe corneal opacity and area severely involved - purulent discharge - all tissue grey - necrotic. |
| 14 Days | Mod. ery. to all conj., lids and nict. membrane - severe edema to all conj., lids and nict. membrane - cornea white - can't see iris - purulent discharge - hair pulled out around eye - all tissues appear grey (necrotic). | Severe edema to entire conj., lids and nict. membrane - can't see iris - nict. membrane white - cornea grey (what can be seen) - all tissues appear grey (necrotic) - purulent discharge - hair pulled out around eye. |

TOXICITY REPORT - E.K.CO. - LABORATORY OF INDUSTRIAL MEDICINE

905388
06

Chemical: Methanesulfonyl chloride

No: 5338

Source: W. Hartman
Syn. Chem.

Formula: $\text{CH}_3\text{SO}_2\text{Cl}$

| Solution | Animals* No. and Species | Route** | Dose Range | Approx. LD ₅₀ | Symptoms | Time of Death | Wt. Change 2 wks |
|--|--------------------------------|---------|------------------------|-----------------------------|--|-----------------------------|------------------------|
| <u>Acute Toxicity</u> Solution - undiluted | 3R | PO | mg/kg 50, 400, 3200 | mg/kg < 50 | Very weak, convulsions, gasping. | 25 min. 1 hr. 25 min. | - |
| | | | | | Notebook No. | 58 P | 166 |
| <u>Skin Absorption and Irritation</u> Undiluted | 3GP | Cuff | cc/kg 1.0-10.0 | cc/kg < 1.0 | The low dose: gross edema, entire area and outside patch, the skin is discolored from a gray to a bluish black. The entire discolored area necrotic in appearance. Large area extending around this area is lighter in color but also discolored. Animal is cold to touch. | 1-3 days | |
| | | | | | Notebook No. | 58 P | 166 |

*G.P. - Guinea Pig, M - Mouse,
R - Rat, RB - Rabbit

**PO - Orally, IP - Intraperitoneally,
IM - Intramuscularly, IC - Intracutaneously

3/16/59

Remarks: Highly toxic compound.
Moderately irritating to the skin. Absorbed through the skin.

905388

TOXICITY REPORT

Laboratory of Industrial Medicine
Eastman Kodak Company
Kodak Park

May 14, 1963

Chemical: Methane sulfonyl chloride #5388 (58-166-2)

Submitted by: R. L. Roudabush, Med. Lab. KP

Acute Toxicity

A 5% solution in corn oil killed rats given oral doses of 200 mg/kg of body weight and intraperitoneal doses of 10 mg/kg. Mice were killed by 200 mg/kg orally and 25 mg/kg intraperitoneally. Symptoms included weakness, cyanosis, darkening of the eyes, tremors, prostration and signs of abdominal irritation. Deaths were delayed for as long as 5 days.

Skin Irritation and Absorption

The undiluted compound, in quantities varying from 0.1-1 cc/kg, was used to moisten a gauze pad which was held in contact with the depilated skin of guinea pigs for a period of 24 hours. This application resulted in moderate skin irritation and animals receiving as low as 0.5 cc/kg died within a period of one day.

Inhalation

Rats were exposed to concentrations of vapor of the compound by passing air through a gas washing bottle containing the compound at room temperature. In the first exposure, rats exposed to calculated concentrations of 12.2 mg/L or 2594 ppm for a period of 6 hours showed symptoms of agsping, loss of coordination in approx. 5 hours and the corneas became dull during the first hour of exposure. One out of three animals died in the 6 hour period and all animals were dead within a period of 3 days following exposure.

In the second test in which the rats were exposed to concentrations of 2.2 mg/L or 485 ppm (calculated) for 6 hours showed only signs of labored respirations and no deaths occurred. The weight gain of the animals following exposure was normal for animals of this age.

Comment

Very hazardous if swallowed, on contact with skin or by inhalation.

David W. Fassett M.D.