CODING FORM FOR SRC INDEXING

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Document Title	INITIAL SUBMISSION: RESULTS OF RANGE FINDING TOXICOLOGICAL TESTS OF DIMETHYL SULFIDE		
Chemical Category	DIMETHYL SULFIDE		

DOW

The Dow Chemical Company

Midland, Michigan 48674

2030 Dow Center
October 21, 1992

CONTAINS NO CBI"

8EHQ-1092-8546

CONTAINS NO CONFIDENTIAL
BUSINESS INFORMATION

CERTIFIED MAIL--RETURN RECEIPT
REQUESTED

Document Processing Center (TS-790)
Office of Toxic Substances
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

Attn: 8(e) Coordinator

Re: Dimethyl sulfide

Dear Sir/Madam:

The following information is being submitted by The Dow Chemical Company (Dow) pursuant to current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substance Control Act. Dow has made no determination as to whether a significant risk of injury to health or the environment is actually presented by the findings.

During a file review requested by an outside organization, Dow became newly aware of the results contained within the enclosed report concerning dimethyl sulfide which was written in 1957. The report indicates observations in an acute inhalation toxicity study included increased respiration, nasal irritation followed by unconsciousness. The exposures were conducted at the saturation point for 9 minutes. The animals were observed to walk in a drunken manner after removal from the inhalation chamber. Pathology results were negative.

Sincerely,

Paul A Wright

Paul A. Wright
Attorney
Legal Department
517/636-1853

8EHQ-92-8546
INIT 10/28/92

88930000028

7 pages

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Biochemical Research Department

The Dow Chemical Company

BC T46.13-33-1

RESULTS OF RANGE FINDING TOXICOLOGICAL TESTS ON DIMETHYL SULFIDE

File T46.13-33-1
K No. 10,776-2
Chg. 1270-26
Rept. By K. J. Olson

Signed K. J. Olson Checked D. McCollister

Date July 8, 1957 Date July 10, 1957

PROBLEM

Dimethyl sulfide is the starting material for a chelating agent in the Styrene Polymerization Laboratory. Are there any particular problems incidental to the industrial handling and use of this material?

CONCLUSIONS

Dimethyl sulfide has a low acute oral toxicity. There should be no problem from ingestion incidental to the handling and use of this substance. If large quantities are swallowed accidentally or willfully some injury may result. The likelihood of serious injury is remote.

Dimethyl sulfide has a definite effect on the eye. Pain and conjunctival irritation may be quite severe with both the undiluted material and the 10% solution in propylene glycol. Corneal injury may be such that vision will be impaired for several days. Healing will probably be complete but may be delayed. Special precautions must be taken to prevent contact with the eye. Face

(Continued)

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(CONCLUSIONS CONTINUED)

shields, goggles with side shields or the equivalent should afford suitable protection.

The undiluted dimethyl sulfide and the 10% solution in Dowanol 50B have a moderate effect on intact and abraded skin. Repeated prolonged contact over a period of several days may be expected to cause blistering and a superficial burn. Precautions must be taken to prevent skin contact with the subject material.

The material may present a serious problem from a single exposure to the vapor or fumes at room temperatures. Vapor concentrations which might well be dangerous to life in a few minutes are readily attainable at room conditions. Unconsciousness is likely to occur following exposures of a few minutes. The vapor in a concentration sufficient to cause death probably are irritating to the nose. Precautions must be taken to avoid exposure to the vapor of this material. The material must be handled under a hood. For cleaning up accidental spills, it is recommended that a full face gas mask equipped with a suitable canister be used in well ventilated areas or a self contained breathing apparatus to be used in poorly ventilated areas.

Due to a high vapor pressure dimethyl sulfide reaches high atmospheric concentrations rapidly. The material has a pungent odor and is detectable in trace amounts. One should detect its presence before dangerous concentrations are attained. It is quite possible, however, that the material may deaden olfactory

(Continued)

(CONCLUSIONS CONTINUED)

sensory organs and render them incapable of performing the normal smelling process. Any indication of its presence as a vapor in the work area should be thoroughly investigated.

SAMPLE INFORMATION

C.R.I. Name: Dimethyl Sulfide

Source: Leonard A. Mattano, Styrene Polymerization Lab.

M.P.: -83.2°C

B.P.: 37.3°C at 760 mm of Hg.

K No.: 10,776-2

Date Request Received: 2-11-57

Date Sample Received: 2-11-57

Physical State: Clear liquid

Sol.: In acetone, 95% ethanol and xylene, slightly soluble in water and sodium hydroxide.

Molecular Formula: C_2H_6S

Structural Formula: CH_3-S-CH_3

SUMMARY OF RANGE FINDING TOXICOLOGICAL DATA

Acute Oral Toxicity

Animal	Preparation Fed	Dose (g./kg.)	No. Died No. Fed	Response-Remarks
Rat	10% solution in corn oil	2.0	0/2	Slight liver damage at autopsy.

Eye Contact - Rabbit

Material	Treatment	Response-Remarks
Undiluted	Washed and unwashed	Slight immediate pain. Slight to moderate conjunctival irritation persisting for over 48 hours. Slight corneal damage and slight iritis; both of which cleared in 24 hours.
10% solution in propylene glycol	Washed and unwashed	Same as above.

Skin Contact - Rabbit

Material	Condition Of Skin	No. Of Appl.	Site	Response-Remarks
Undiluted	Intact	10	Ear	No irritation observed.
Undiluted	Intact	10	Belly	Slight to moderate hyperemia, slight necrosis and slight to moderate exfoliation with the formation of a slight scab. Healing progressed rapidly after last application. Essentially normal in 21 days.
Undiluted	Abraded	3	Belly	Moderate hyperemia, slight edema, and necrosis, moderate exfoliation and slight scab formation. Healing essentially normal in 16 days.
10% solution in Dowanol 50B	Intact	10	Ear	Questionable hyperemia, slight exfoliation. Skin normal after last application.
10% solution in Dowanol 50B	Intact	10	Belly	Slight to moderate hyperemia, slight edema and slight to moderate exfoliation. Healing normal after last application and complete in 18 days.
10% solution in Dowanol 50B	Abraded	3	Belly	Slight hyperemia, edema, necrosis, exfoliation, and scab formation. Healing essentially normal in 16 days without scar formation.

Skin Absorption

There is no indication, from the skin irritation tests conducted, that this material is absorbed through the skin in toxic amounts.

Inhalation (Saturated Atmosphere)

Animal	Bath Temperature	Hours Exposed	No. Died No. Treated	Response-Remarks
Rat	Room	9 min.	2/3	Immediate unconsciousness of animals. Labored breathing. Death of one animal in nine minutes. Second animal died within one half hour after remova from chamber. Pathology negative.
Rat	Room	3 min.	0/3	Immediate increased respira tion, nasal irritation the unconsciousness. Animals walked and moved in a drun manner after removal from chamber. Pathology negati