OFFICE OF TOXIC SUBSTANCES REV. 7/27/82

CODING FORM FOR GLOBAL INDEXING

Microfiche No. (7) • 206131		1 No. of Pages					2
Doc I.D. 878211151		3 Old Doc I.D. 8DS					4
Case No.(s) 01S 84Ø03A II							5
Date Produced (6)	6 Date Rec'd (6)	7 Conf. Code •					8
Ø73Ø53	122Ø82	N					

Check One: ☐ Publication ☐ Internally Generated ☑ Externally Generated

Pub/Journal Name	9
	9
Author(s)	10
Organ. Name DOW CHEM CO	11
Dept/Div	12
P.O. Box — 13 Street No./Name —	14
City MIDLAND 15 State MI 16 Zip 48640 17 Country —	18
mID No. (7) ØØ1Ø264 19 D & B NO. (11) ØØ13-815-81	20
Contractor —	21
Doc Type • RI • UP • HEAD 8D SU HS FN	22
Doc Title RESULTS OF RANGE FINDING- TOXICOLOGICAL TESTS ON 7-OXABICYCLO (4.1.Ø) HEPTANE	23

Chemical Name (300 per name) 25	CAS No. (10) 24
ALKYL EPOXIDES	999999994
7-OXABICYCLO(4.1.Ø) HEPTANE	286-2Ø-4

D-226 87821151

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Biochemical Research Department
The Dow Chemical Company

Subject: RESULTS OF RANGE FINDING TOXICOLOGICAL TESTS ON 7-OXABICYCLO (4.1.0) HEPTANE

File
Chg.
Rec'd 12-12-52
Fin'd 6-29-53
Rept.By A. Kandel

Signed A. Kandel Date 7/30/53 Checked A.C. Spencer Date 7-30-53

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UNIT INDEX

7-Oxabicyclo (4.1.0) heptane has a low acute oral toxicity. It is irritating to the eyes upon direct contact, and by way of its vapors. Its vapors induce general anesthesia. Although not irritating to the skin, the undiluted material is readily absorbed in toxic quantities. Hazards, handling precautions and first aid measures are discussed.

INDEX HEADING

7-Oxabicyclo (4.1.0) heptane

PROBLEM

Subject material is a new compound being offered to research groups. What are its hazards, and the precautions for handling and use?

CONCLUSIONS

Subject material has a low acute oral toxicity. It is irritating to the eyes and its vapors, as well, to the nose. Its vapors induce a general anesthesia. It is not irritating to the skin, but is readily absorbed through the skin in toxic quantities. Protection against eye and skin contamination and fool-proof exhaustive type ventilation are necessary to reduce the hazards of handling.

SAMPLE INFORMATION

C.R.I. Name: 7-Oxabicyclo (4.1.0) heptane

Source: D. C. Young

Ref.:

B.P.: 129°C at 760 mm.Hg.

K No.:

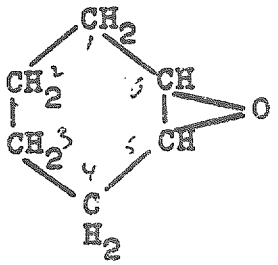
Date Sample Rec'd.: 12-12-52

Physical State: Water clear liquid.

Sol.: Slightly soluble in water.

Molecular Formula: $C_6H_{10}O$

Structural Formula:



SUMMARY OF RANGE FINDING TOXICOLOGICAL DATA

Acute Oral Toxicity

Animal	Preparation Fed	Dose (g./kg.)	No.Died / No.Fed	Response-Remarks
Rat	30% - corn oil	0.50	0/2	Essentially no pathology.
Rat	30% - corn oil	1.0	0/2	
Rat	30% - corn oil	2.0	2/2	Died in 1 to 24 hours.

Eye Irritation - Rabbit

Material	Treatment	Response-Remarks
100%	Unwashed	Severe pain, corneal injury and conjunctivitis. Corneal damage reduced in 48 hours while conjunctivitis persists.
100%	Washed	Slight pain; moderate corneal injury and conjunctivitis - reduced after 24 hours.

Skin Irritation - Rabbit

Material	Condition of Skin	No.of Appl.	Site	Response-Remarks
100%	Intact	1	Belly	Died within 24 hours.
100%	Abraded	1	Belly	Died within 24 hours.
100%	-------	1	Ear	Died within 24 hours.
100% 100% 100%	Intact Abraded -------	1 1 1	Belly Ear	Dead within 24 hours - showed moderate denaturation of the abdomen.
10% - Dowanol 50B	Intact	10	Belly	Very slight hyperemia and scaliness.
10% - Dowanol 50B	Abraded	5	Belly	Slight delay in healing.
10% - Dowanol 50B	-------	10	Ear	Very slight hyperemia and scaliness.
1% - Dowanol 50B	Intact and Abraded	10 and 15	Belly	No reaction.
1% - Dowanol 50B	-------	10	Ear	No reaction.

Skin Absorption

The undiluted material is readily absorbed in lethal amounts through the skin.

Inhalation (Saturated Atmosphere)

Animal	Bath Temp.	Hours Exposed	No.Died No.Treated	Response-Remarks
Rat	100°C	3 hrs.	4/4	Immediate eye irritation and respiratory embarrassment.
Rat	100°C	1 hr.	4/4	Anesthetized in 15 minutes and as above.
Rat	23°C	1 hr.	4/4	As above.
Rat	23°C	0.2 hr.	0/4	Mild irritation of eyes and nose; slightly depressed.
Rat	100°C	0.1 hr.	0/4	Immediate irritation of eyes and nose and slight depression. Essentially no pathology.

Injection

Animal	Preparation	Dose (g./kg.)	Route	No.Died No.Treated	Response-Remarks
Mice	2% - prop. glycol	0.10	intra-pertoneal	0/5	No overt reaction. Gross pathology - essentially normal.

SUMMARY OF HAZARDS

Oral

The subject material has a low acute oral toxicity. It should be borne in mind, however, that serious injury may result from the accidiental or willful swallowing of large amounts of the material.

Eye

The subject material presents a slight hazard from contact with the eye. Pain and conjunctival inflammation may persist for several days. Transient corneal injury may occur, but is expected to heal completely within a few days.

Skin

Subject material upon short, repeated contact will produce slight injury. Prolonged contacts may be expected to result in severe injury.

Absorption

The subject material presents a serious hazard from skin absorption. Prolonged exposure to relatively large areas of skin may result in the absorption of toxic amounts. Skin contact with this material must be avoided.

Vapor

The subject material presents a serious acute vapor inhalation hazard. Exposure to vapors of this material should be avoided. The vapors of subject material are irritating to the eyes and nose, and have a marked anesthetic effect. Vapor concentrations dangerous to life are readily attainable at room conditions.

PRECAUTIONS FOR SAFE HANDLING AND USE

Until such time that the safe maximum concentration of the subject material in the atmosphere is determined, under no condition should workers to be exposed to them, especially in a confined space. Adequate ventilation of the exhaustive type is necessary to remove the vapors. A mask with an organic vapor cannister may be necessary to enter a contaminated space.

Safety glasses with side-shields should afford adequate protection against eye contamination. New glasses should be used in the event of contamination of the ones being used.

As far as possible direct contact of the skin with the undiluted material must be avoided. Contaminated clothes should be removed immediately and not worn again until thoroughly cleaned. This precaution should also be observed for shoes.

FIRST AID MEASURES

If overcome by inhalation of vapors of the subject material, the patient must be removed at once from the contaminated area and the attention of a physician obtained with no loss of time. The patient must have adequate air.

Eyes contaminated with the material must be flushed immediately with copious amounts of flowing water. Contaminated skin must be washed immediately with soap and water. Clothing and shoes must be removed immediately if contaminated, and showering is necessary if the skin covered by the clothing has become contaminated. A physician's services should be obtained.

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