

OFFICE OF TOXIC SUBSTANCES
CODING FORM FOR GLOBAL INDEXING

REV. 7/27/82

Microfiche No. (7) •	OTS 0206825	1	No. of Pages	2
Doc I.D.	878216070	3	Old Doc I.D.	80M
Case No.(s)	OTS 84003A			5
Date Produced (6)	1029 74	6	Date Rec'd (6)	072485
		7	Conf. Code •	N
Check One:	<input type="checkbox"/> Publication	<input type="checkbox"/> Internally Generated	<input checked="" type="checkbox"/> 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	2420 WILLARD H DOW CTR
City	MIDLAND	15	State	MI
		16	Zip	48674
		17	Country	_____
MID No. (7)	_____	19	D & B NO. (11)	_____
Contractor	_____			21
Doc Type	• R.I. • U.P. • H.E.A.S.D. & D. • SU HS FN			22
Doc Title	TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF: DOW AND TMH WITH COVER LETTER			23
Chemical Name (300 per name)	25		CAS No. (10)	24
TRIETHYLENE GLYCOL			112-35-6	uc
MONOMETHYL ETHER			_____	4/28

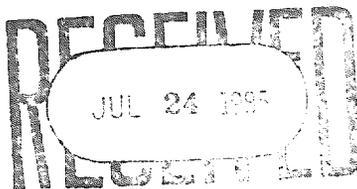
13



THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN 48674

July 22, 1985



Document Control Officer
U.S. Environmental Protection Agency
TSCA-8D1
P.O. Box 2060
Rockville, MD 20852

Re: OPTS-82022

Dear Sir or Madam:

As required by 40 CFR 716, as amended effective June 20, 1985 we herewith submit copies of reports of 12 health and safety studies.

Each report is marked with an identifying number at the top of the first page of the report, e.g., D-1722. Use of this identification number in future correspondence regarding this submission will facilitate handling of questions.

The index required by 40 CFR 716.6(b) is enclosed. It lists the Dow identification number and title of each report submitted in CAS number order.

Dow manufactures three products, Dowanol* TMH, Dowanol TFH and Dowanol TBH, which are, respectively, the monomethyl, monoethyl and monobutyl ethers of polyethylene glycol. Each contains 70% or more of the respective monoalkylether of triethylene glycol. Further, the monoalkyl ethers of polyethylene glycol were listed on the Initial Inventory, respectively, under CAS numbers 9004-74-4, 27879-07-8, and 9004-77-7. Thus, for puposes of this submission, please understand that the products reported on the Inventory correspond to products which are listed on the enclosed index as follows:

9004-74-4 contains 112-35-6
27879-07-8 contains 112-50-5
9004-77-7 contains 143-22-6

*Trademark of The Dow Chemical Company

10

Document Control Officer

Page 2

July 22, 1985

These reports contain some information which is not relevant to health or safety studies of listed chemicals, e.g., references to unlisted chemicals, marketing or process data, account numbers, internal document identification codes or distribution lists. Such information has been deleted from all copies submitted.

Very truly yours,

Leroy Hampton / R.H.
Leroy Hampton
Research Associate

Regulatory and Legislative Issues
Health and Environmental Sciences
2020 The Willard H. Dow Center
(517) 636-6226

rt

Enclosures

10

SUBMITTED BY	CHARGE	DATE	LABORATORY NUMBER
		October 29, 1974	

TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF: DOWANOL TMH

REPORTED BY: P.A. Keeler and L.W. Rampy
P.A.K. *LWR* CHECKED BY: K.J. Olson
K.J.O.

D-001724

INFORMATIVE SUMMARY WITH CONCLUSIONS BASED ON THE SAMPLE RECEIVED. ADDITIONAL INFORMATION INCLUDING THE EFFECTS OF REPEATED EXPOSURE MAY BE REQUIRED AS SPECIFIC USES AND FORMULATIONS ARE DEVELOPED OR IF PROCESS CHANGES OCCUR.

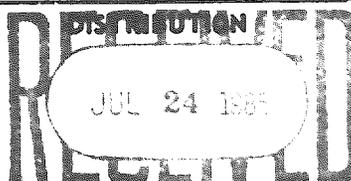
A sample of Dowanol TMH, a colorless liquid identified as Lot Number 1973, was submitted to Toxicology Research Laboratory for evaluation of acute oral toxicity, eye and skin irritation properties, acute inhalation toxicity and for definition of industrial handling hazards involving acute exposures. The test material is used as a solvent. The Toxicology Research and/or Industrial Hygiene Laboratories should be consulted for recommendation of additional safety evaluations which may be needed to support manufacture and use of this material.

The acute oral lethality of the test material is low. There is little likelihood that internal injury would result from acute ingestion of amounts of the material one might encounter incidental to industrial handling.

Eye contact with the test material would not be likely to produce irritation. However, safety glasses are recommended whenever the likelihood of eye contact exists.

Skin contact with the test material would not likely produce skin irritation. The material is not likely to be absorbed through the skin in acutely toxic amounts. Reasonable care and cleanliness practiced during industrial handling should avert skin contact problems.

No problem is anticipated from a single, short-term exposure to the vapors or fumes of the test formulation even when heated as high as 100°C.



000002

SUBMITTED BY

CHARGE

DATE

K NUMBER

October 29, 1974

TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF: DOWANOL TMH

REPORTED BY: P.A. Keeler and L.W. Rampy

CHECKED BY: K.J. Olson

D-001724

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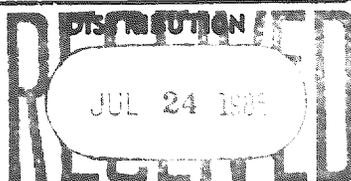
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No problem is anticipated from a single, short-term exposure to the vapors or fumes of the test formulation even when heated as high as 100°C.



000002

HEALTH & ENVIRONMENTAL RESEARCH
Industrial Hygiene & Toxicology Laboratories

GENERAL

THE DOW CHEMICAL COMPANY

DATA SHEET OF PROPERTIES, HEALTH HAZARDS, AND PRECAUTIONS
FOR SAFE HANDLING OF MATERIALS

MOLECULAR FORMULA		NAME DOWANOL TMH	
MOLECULAR WEIGHT	INDUSTRIAL HYGIENE GUIDE	SYNONYMS Triethylene glycol, methyl ether and higher; Dowanol 22;	

STRUCTURAL FORMULA - OR COMPOSITION		% H₂O:	0.01
DOWANOL TMH, lot 1973		Acidity as HAc:	less than 0.001
Reflux Boiling Point: 489°F		APHA Color:	5
Viscosity - 40°, 326 centistokes		ppm Cl⁻:	less than 1
pH 1:1/H₂O: 10.6			

PHYSICAL AND CHEMICAL PROPERTIES	BOILING POINT °C	EXPLOSIVE LIMITS % VOL. IN AIR	FLASH POINT °F	IGNITION TEMP. °C	MELTING POINT °C	VAPOR PRESS. mmHg. 25°C.	
	CORROSIVENESS (To Common Metals)			PHYSICAL STATE	COLOR		
	Low			Liquid	Colorless		
	CHEMICAL REACTIVITY				ODOR (Include Concentration in Air)		
Not dangerously reactive				Ethereal			
STABILITY (To pH Change, Heat, Light)							
Good							

TYPE OF CONTACT		CLASSIFICATION OF TOXIC PROPERTIES	
TOXIC PROPERTIES	EYE	<input checked="" type="checkbox"/> MAY CAUSE NO RESPONSE OR NO MORE THAN VERY SLIGHT TO SLIGHT TRANSITORY PAIN AND/OR SLIGHT TRANSIENT CORNEAL INJURY AND/OR IRRITATION OF THE EYELIDS. MAY CAUSE SUFFICIENT INJURY TO THE EYE TO RESULT IN LOSS OF TIME FROM WORK. (THIS INCLUDES DAMAGE TO THE CORNEA WHICH HEALS OR NEARLY HEALS IN A WEEK AND OR CONSIDERABLE CONJUNCTIVAL IRRITATION WITH EDEMA.)	<input type="checkbox"/> MAY CAUSE SOME PERMANENT LOSS OF VISION (THIS INCLUDES DAMAGE TO CORNEA OR INTERNAL INJURY WHICH IS INCOMPLETELY HEALED IN ONE WEEK.)
		<input type="checkbox"/> SINGLE PROLONGED EXPOSURE (HOURS) CAUSES NO EFFECT SEVERAL REPEATED PROLONGED EXPOSURES MAY OR MAY NOT CAUSE THE DEVELOPMENT OF SOME SLIGHT IRRITATION.	<input type="checkbox"/> VAPOR EXPOSURE MAY CAUSE SEVERE PAIN, LACRYMATION OR SERIOUS INJURY TO THE EYES.
TOXIC PROPERTIES	SKIN	<input checked="" type="checkbox"/> SINGLE PROLONGED EXPOSURE (HOURS) CAUSES NO EFFECT SEVERAL REPEATED PROLONGED EXPOSURES MAY OR MAY NOT CAUSE THE DEVELOPMENT OF SOME SLIGHT IRRITATION.	<input type="checkbox"/> SINGLE SHORT EXPOSURE (MINUTES) MAY CAUSE CONSIDERABLE IRRITATION AND/OR SINGLE PROLONGED OR FREQUENTLY REPEATED SHORT EXPOSURES CAUSE A BURN AND/OR MAY CAUSE SYSTEMIC INJURY, EVEN DEATH.
		<input type="checkbox"/> SINGLE PROLONGED EXPOSURE MAY CAUSE SOME REDDENING OF THE SKIN. REPEATED PROLONGED CONTACTS MAY CAUSE APPRECIABLE IRRITATION, POSSIBLY A MILD BURN AND/OR MAY CAUSE APPRECIABLE SYSTEMIC INJURY DUE TO ABSORPTION.	<input type="checkbox"/> AN EXPOSURE RAPIDLY CAUSES SEVERE BURNS AND OR SERIOUS SYSTEMIC INJURY, EVEN DEATH.
TOXIC PROPERTIES	DUST OR MIST	<input type="checkbox"/> NO SYSTEMIC INJURY EXPECTED. NO IRRITATION TO NOSE AND THROAT IN DUSTY OR MISTY ATMOSPHERES.	<input type="checkbox"/> DUSTY OR MISTY ATMOSPHERE PAINFUL TO NOSE AND THROAT (INTOLERABLE TO MOST PEOPLE) AND OR EXPOSURE MAY CAUSE SERIOUS SYSTEMIC INJURY, EVEN DEATH.
		<input type="checkbox"/> THROAT AND NOSE IRRITATION IN A DUSTY OR MISTY ATMOSPHERE IS PAINFUL BUT NOT INTOLERABLE AND OR PROLONGED OR REPEATED EXPOSURES MAY CAUSE SYSTEMIC INJURY.	<input type="checkbox"/> SHORT EXPOSURE (MINUTES) MAY CAUSE DEATH OR SERIOUS SYSTEMIC INJURY.
TOXIC PROPERTIES	VAPOR 100°C	<input checked="" type="checkbox"/> EXPOSURES DO NOT CAUSE ANY EFFECTS OTHER THAN SOME VERY SLIGHT IRRITATION OR PAIN TO THE EYES OR RESPIRATORY PASSAGES AT THE MOST.	<input type="checkbox"/> EXPOSURES MAY CAUSE EXTREME DROWSINESS, AND OR SERIOUS SYSTEMIC INJURY, AND/OR MAY CAUSE INTOLERABLE IRRITATION TO THE RESPIRATORY PASSAGES.
		<input type="checkbox"/> SINGLE EXPOSURES EXCEEDING 1/2 HOUR, OR FREQUENTLY REPEATED EXPOSURES OF SHORTER DURATION, MAY CAUSE SLIGHT ANESTHESIA AND/OR SLIGHT SYSTEMIC INJURY, AND/OR CAUSE APPRECIABLE, BUT NOT INTOLERABLE, IRRITATION OF RESPIRATORY PASSAGES.	<input type="checkbox"/> SHORT EXPOSURES MAY CAUSE UNCONCIOUSNESS, AND/OR SERIOUS SYSTEMIC INJURY, INCLUDING DEATH.
		<input type="checkbox"/> EVEN VERY SHORT EXPOSURE WILL CAUSE SERIOUS SYSTEMIC INJURY OR DEATH.	
TOXIC PROPERTIES	INGESTION	<input checked="" type="checkbox"/> AMOUNTS WHICH MAY BE SWALLOWED INCIDENTAL TO INDUSTRIAL HANDLING WILL NOT CAUSE INJURY. HOWEVER, IF SUBSTANTIAL QUANTITIES SHOULD BE SWALLOWED, MORE OR LESS SERIOUS EFFECTS MAY OCCUR.	<input type="checkbox"/> AMOUNTS WHICH MAY BE SWALLOWED INCIDENTAL TO INDUSTRIAL HANDLING AND USE MAY CAUSE SERIOUS INJURY.

COMMENTS

000003

MATERIAL Dovanal TMH 20 % SOLUTION IN:

SPECIES RAT CAVEY RABBIT MOUSE SEX MALE FEMALE

UNDILUTED WATER CORN OIL
 WEIGH OUT (OTHER)

CAGE	DATE FED	ANIMAL MARKING	WEIGHT CM.	DOSE GM./KG.	DOSE CC.	ANIMAL WEIGHT (GM.)		DATE
						1/23	1-30	
108-12	1-22-74 11:05 AM	00	187	.5	.47	✓	Path	
		01	204		.51	✓	284 300	
		10	180		.45	✓	200 260	
-13		11	199		.50	✓	227 287	
		02	197		.49	✓	230 300	
		20	196		.49	✓	219 280	
-14		06	189	1.0	.95	✓	221 284	
		01	201		1.00	✓	Path	
		10	178		.89	✓	197 252	
-15		11	185		.93	✓	210 272	<i>Sacked</i>
		02	221		1.11	✓	246 316	
		20	192		.96	✓	208 277	
-16		00	191	2.0	1.91	✓	212 2.72	
		01	188		1.88	✓	215 270	
		10	207		2.07	✓	Path	
-17		11	193		1.93	✓	222 280	
		02	199		1.99	✓	222 280	
		20	188		1.88	✓	212 280	
			0.5		✓	OB. 4.88		

OBSERVATION BY

COMMENTS ON BACK OF THIS PAGE

SIGNED *Daynard*

DATE 1-30-74 C00004

MATERIAL

Downal TMH

PIECES

TEST

CAVY

RABBIT

MOUSE

SEX

MALE

FEMALE

UNDILUTED

SOLUTION IN:

WATER OR

OTHER

CASE	DATE FED	ANIMAL MARKING	WEIGHT GM.	DOSE GM./KG.	DOSE CC.	ANIMAL WEIGHT	
						1-23	1-30
108-18	1-22-74	00	190	3.98	3.78	210	263
	1-15-74	01	190		3.78	213	277
		10	184 185		3.88 3.64	219	283
-19		11	201		4.00	Path	
		02	195		3.88	213	260
		20	191		3.80	210	272

stacked

OBSERVATION BY

O.B.

107

O.B.

F2H

COMMENTS ON BACK OF THIS PAGE

SIGNED

[Signature]

DATE

1-30-74

000005

DOW - TOXICOLOGY

REQUEST FOR PATHOLOGY

REQUESTED BY <i>Decap</i>		Class I		ANIMAL NUMBER	T NUMBER
EAR MARK		SEX <i>♂</i>	SPECIES <i>Rat</i>	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM <i>49</i>
				CHARGE NUMBER	DATE <i>1-23-74</i>

MATERIAL <i>Dexamol TMT</i>		
DOSE CONCENTRATION <i>20% in corn oil</i>	NUMBER OF DOSES <i>1</i>	ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input type="checkbox"/> INHALATION <input checked="" type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)
DURATION OF DOSAGE	TIME SINCE LAST DOSE <i>24 hrs.</i>	
CLINICAL SIGNS - (IF PRESENT)		

GROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE <i>1-23-74</i>
MODE OF DEATH DECAP	

NECROPSY*	<i>Cage</i>	<i>Exam</i>	<i>Dose gm/kg</i>
	<i>108-12</i>	<i>00</i>	<i>.5</i>
	<i>-14</i>	<i>01</i>	<i>1.0</i>
	<i>-16</i>	<i>10</i>	<i>2.0</i>
	<i>-19</i>	<i>11</i>	<i>3.98</i>
EARMARK 1-1		NVL	
EARMARK 1-0		NVL	
EARMARK 0-1		NVL	
EARMARK 0-0		NVL	

PATHOLOGIST

Richard J. Kociba, D.V.M., Ph.D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

000006

ISM GRADE:
 COLOR:
 ODOUR:

*Sol. No 0
 ENK
 12/1/74*

ACCOUNT NO. _____
 CHARGE NO. _____

MATERIAL Davonal TMH RABBIT NO. 333
 SEX MALE FEMALE
 CASE NO. 200-5
 CONCENTRATION 5% V UNBLUTED
 SOLVENT: WATER PROPYLENE GLYCOL (OTHER)

COMMENTS

IMMEDIATE:	RESPONSE	NOT WASHED (L/PT)	WASHED (RIGHT)	DATE AND INITIALS
	PAIN	2	2	1/16/74 Hoy
	CONJUNCTIVA	1	1	
	CORNEA	1	1	

AFTER ONE HOUR (OR _____ HOURS)	CONJUNCTIVA	NOT WASHED (L/PT)	WASHED (RIGHT)	DATE AND INITIALS
	CONJUNCTIVA	1	1	1/16 Hoy
	BEFORE STAIN	1	1	
	AFTER STAIN	1	1	
	INTERNAL EFFECTS*	1	1	

AFTER 24 HOURS	CONJUNCTIVA	NOT WASHED (L/PT)	WASHED (RIGHT)	DATE AND INITIALS
	CONJUNCTIVA	1	1	1/17 Hoy
	BEFORE STAIN	1	1	
	AFTER STAIN	1	1	
	INTERNAL EFFECTS*	1	1	

AFTER 48 HOURS	CONJUNCTIVA	NOT WASHED (L/PT)	WASHED (RIGHT)	DATE AND INITIALS
	CONJUNCTIVA	1	1	1/18 Hoy
	BEFORE STAIN	1	1	
	AFTER STAIN	1	2	
	INTERNAL EFFECTS*	1	1	

AFTER <u>6</u> DAYS	CONJUNCTIVA	NOT WASHED (L/PT)	WASHED (RIGHT)	DATE AND INITIALS
	CONJUNCTIVA	1	1	1/22 Hoy
	BEFORE STAIN	1	1	
	AFTER STAIN	1	1	
	INTERNAL EFFECTS*	1	1	

* RECORD UNDER COMMENTS SIGNED [Signature] DATE 1-22-74

000007

L.S.M. GRADE _____
 EAR _____
 INTACT ABDOMEN _____
 ABRASED ABDOMEN _____

ACCOUNT NO. _____
 CHARGE NO. _____

MATERIAL Dorsal TMH RABBIT NO. 459 03
 CASE NO. ~~211~~ 211-1

TEST BY REPEATED APPLICATION AS 15 MATERIAL SOLUTION IN.

DATE	1/16	1/17	1/18	1/19	1/20	1/21	1/22	1/23	1/24	1/25	1/26	1/27	1/28	1/29	1/30	1/31
DAYS ON EXPOSURE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ON BAR	1	2	3	4	5	6	7	8	9	10						
METHOD A°	APPLICATION NO.															
	HYPEREMIA															
	EDEMA															
	NECROSIS															
	EXFOLIATION															
	HAIR LOSS															
	SCAB															
	SCAR															
THICKNESS (MM)																

ON ABDOMEN INTACT	APPLICATION NO.	1	2	3	4	5	6	7	8	9	10					
METHOD B°	HYPEREMIA															
	EDEMA															
	NECROSIS															
	EXFOLIATION						3									
	SCAB															
	SCAR															
	THICKNESS (MM)															

ON ABDOMEN ABRASED	APPLICATION NO.	1	2	3												
METHOD C°	HYPEREMIA		3	3												
	EDEMA															
	NECROSIS															
	EXFOLIATION															
	SCAB				3											
	SCAR															

WEIGHT IN KG	200			206					209		227					
OBSERVATION BY	NY															

* COMMENTS ON BACK OF THIS PAGE
 SIGNED Doyenal DATE 2-4-74

000008

Summary of Acute Inhalation Toxicity

Material Tested: Dowanol TMH

Methods:

- 1) species: *rats*
- 2) sex: *male*
- 3) # exposed: *6*
- 4) # control: *5*
- 5) chamber type: *19 l. glass*
- 6) bubbler temperature: *100°C*
- 7) airflow: *1 l/min*
- 8) duration of exposure: *7 hrs*
- 9) nominal vapor concentration: *1.7 mg/L*

Observations and Results

A) Observations During Exposure

① no signs of toxicity, irritation, or mortality
or 2)

B. Observations Post Exposure

① no signs of toxicity, irritation or mortality
or 2)

3) Mean body weight gain of exposed animals was comparable to the mean body weight gain of control rats.
or ④ *exposed animal weight gain was lower but not statistically significant at $p < .05$*

⑤ Terminal body weights exceeded the pre-exposure body weights.
or 6)

C. Gross Pathology

① NVL in a single control and exposed animal sacrificed 24 hours post exposure.
or 2)

000009

- ③ NVL in the remaining exposed and control animals sacrificed.
2 weeks post exposure.
- or 4)
- 5) NVL in _____ animals which died _____
- or ⑥ none died

Marilyn F. Balmer

Basil H. J. Leong

ACCOUNT NO. _____

CHARGE NO. _____

MATERIAL Dowanol TMH		SPECIES RAT. OR: Rat	SEX <input checked="" type="checkbox"/> MALE <input type="checkbox"/> FEMALE
MOLECULAR WEIGHT		CAGE NO. 2 - rack 1163	

VAPOR OR GAS CONC.		P.P.M.	SAT. VAPOR AT 100 °C	7 HOURS	PUMP HOUSE TEMP. °C	ROOM TEMP. °C
<input type="checkbox"/> LIQUID AEROSOL	<input type="checkbox"/> DUST	Mg. M ³	<input checked="" type="checkbox"/> 19 L. GLASS JAR	CHAMBER NO.	METHOD <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	

SINGLE SYRINGE PUMP		DUAL SYRINGE PUMP		A'R FLOW	
SYRINGE NO.	<input type="checkbox"/> GAS BAG RESERVOIR	<input type="checkbox"/> LIQUID RESERVOIR	ROTAMETER NO.		
SPEED SETTING	DELIVERY	ML/HR.	R.P.M. MOTOR	SETTING	
DELIVERY	ML./MIN	DRIVE GEAR	TEETH	CHANGE GEAR	TEETH

ANIMAL MARK	1	2	3	4	5	6					
DATE	OBSERVATION BY										
	BODY WEIGHT, GRAMS										
1/29/74	166	186	200	201	182	172					
1/30/74	182	202	221	222	200	184					
2/1/74	196	213	230	232	214	sent					
2/4/74	185	202	211	217	204	to	out of food			117	
2/6/74	230	244	260	270	256	path				114	
2/8/74	253	275	280	300	280	1/30				97	
2/11/74	277	296	300	332	308	1/30				129	
2/12/74	283	300	297	330	312	1/30				130	
	sent to path on 2/12/74										

REMARKS
 1/29 2 with noses into incurrent tube - curiosity at 26 hrs all very active - atleast 4 are growing at stoppers + wire lasted ≈ 20 mins. 4:10 - 4:30

TIME AIRFLOW STARTED	
TIME EXPOSURE STARTED	10:02
TIME EXPOSURE ENDED	5:02
TOTAL RUNNING TIME	7 hrs
WT. BUBBLER BEFORE	427.60
WT. BUBBLER AFTER	424.36
AMOUNT USED	3.24 g
CALC. APPROX. SATURATED VAPOR CONC.	7.7 mg/l @ 25°C

SIGNED Marilyn E. Balmer DATE 2/21/74

ACCOUNT NO. _____

CHARGE NO. _____

MATERIAL <u>Dexamol TMH</u>		SPECIES <u>Rat</u>	SEX <input checked="" type="checkbox"/> MALE <input type="checkbox"/> FEMALE
<u>control</u>		MOLECULAR WEIGHT	CAGE NO. <u>1-163</u>

VAPOR OR GAS CONC.	P.P.M.	SAT. VAPOR AT °C	HOURS	PUMP HOUSE TEMP. °C	ROOM TEMP. °C
<input type="checkbox"/> LIQUID AEROSOL <input type="checkbox"/> DUST	Mg. M ³	<input type="checkbox"/> 19 L. GLASS JAR	CHAMBER NO.	METHOD <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	

SINGLE SYRINGE PUMP		DUAL SYRINGE PUMP		AIR FLOW	
SYRINGE NO.	<input type="checkbox"/> GAS BAG RESERVOIR	<input type="checkbox"/> LIQUID RESERVOIR	ROTAMETER NO.		
SPEED SETTING		DELIVERY ML./HR.	R.P.M. MOTOR	SETTING CM.	
DELIVERY ML./MIN.	DRIVE GEAR	TEETH	CHANGE GEAR	TEETH	DELIVERY L./MIN.

ANIMAL MARK	7	8	9	10	11								
DATE	OBSERVATION BY	BODY WEIGHT, GRAMS											
1/29/74		183	168	175	177	171							
1/30/74		200	187	190	193	186							
2/1/74		218	203	204	211	sent to path							
2/4/74		235	218	214	225	sent to path	out of food						
2/6/74		271	252	249	261	1/30							149
2/8/74		300	281	268	282	1/30							150
2/11/74		327	309	292	305	1/30							123
2/12/74		332	318	298	306	1/30							129
		sent to path 2/12/74 M3P											
													mean wt gain 137.75
													S. Vav. 11.94
													Sd. 13.79
													Se. 6.59

REMARKS	TIME AIRFLOW STARTED
	TIME EXPOSURE STARTED
	TIME EXPOSURE ENDED
	TOTAL RUNNING TIME
	WT. BUBBLER BEFORE G.
	WT. BUBBLER AFTER G.
	AMOUNT USED G.
	CALC. APPROX. SATURATED VAPOR CONC. P.P.M.

SIGNED Marilyn F. Balmer DATE 2/21/74

REQUEST FOR PATHOLOGY

ANIMAL NUMBER

74-379

REQUESTED BY

Marilyn Palmer

DATE

1/30/74

EAR MARK

11

SEX

male

SPECIES

rat

SAVE TISSUES

YES NO

ROOM

88

CAGE

MATERIAL

Davanol TMH control

DOSE CONCENTRATION

control

NUMBER OF DOSES

—

ROUTE OF ADMINISTRATION

- DIETARY
- INHALATION
- ORAL
- SKIN
- EYE
- INJECTION (IP, IM, ETC.)

control

DURATION OF DOSAGE

—

TIME SINCE LAST DOSE

—

CLINICAL SIGNS - (IF PRESENT)

GROSS PATHOLOGY REPORT

PHOTOGRAPHED

DATE

1-31-74

MODE OF DEATH

MF CLAMP DECAP

NECROPSY*

NVL

PATHOLOGIST

J.F. [Signature]

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-380

REQUESTED BY Marilyn Palmer					DATE 1/30/74
EAR MARK 6	SEX male	SPECIES rat	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM 88	CAGE

MATERIAL Dexamol TMH		
DOSE CONCENTRATION 7.7 mg/l	NUMBER OF DOSES 1	ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)
DURATION OF DOSAGE 7 hrs.	TIME SINCE LAST DOSE	
CLINICAL SIGNS - (IF PRESENT)		

GROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE 1-31-74
MODE OF DEATH MF CLAMP DECAP	

NECROPSY*

NVL

PATHOLOGIST

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-732

REQUESTED BY <i>Marilyn Palmer</i>				DATE <i>2/25/74</i>	
EAR MARK <i>7</i>	SEX <i>♂</i>	SPECIES <i>rat</i>	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM <i>88</i>	CAGE

MATERIAL <i>Davanol TMH control</i>		ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION <i>control</i> <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)	
DOSE CONCENTRATION <i>control</i>	NUMBER OF DOSES <i>-</i>	DURATION OF DOSAGE <i>-</i>	TIME SINCE LAST DOSE <i>-</i>
CLINICAL SIGNS - (IF PRESENT)		PHOTOGRAPHED	

GROSS PATHOLOGY REPORT

DATE *2-16-74*

MODE OF DEATH
MF CLAMP DECAP

NECROPSY*

NVL

PATHOLOGIST

George C. Jersey
George C. Jersey, D.V.M., Ph.D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-733

REQUESTED BY Marilyn Palmer					DATE 2/22/74
EAR MARK 8	SEX ♂	SPECIES rat	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM 88	CAGE

MATERIAL Davanol TMH control		
DOSE CONCENTRATION control	NUMBER OF DOSES —	ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION control <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)
DURATION OF DOSAGE —	TIME SINCE LAST DOSE —	
CLINICAL SIGNS - (IF PRESENT)		

CROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE 2-16-74
MODE OF DEATH MF CLAMP DECAP	

NECROPSY*

NVL

000016

PATHOLOGIST
George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBL LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-734

REQUESTED BY <i>Marilyn Palmer</i>				DATE <i>2/13/74</i>	
EAR MARK <i>9</i>	SEX <i>♂</i>	SPECIES <i>rat</i>	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM <i>88</i>	CAGE

MATERIAL <i>Davanol TMH control</i>		ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION <i>control</i> <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)	
DOSE CONCENTRATION <i>control</i>	NUMBER OF DOSES —	DURATION OF DOSAGE —	TIME SINCE LAST DOSE —
CLINICAL SIGNS - (IF PRESENT)			

GROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE <i>2-15-74</i>
MODE OF DEATH <i>MF CLAMP DECAP</i>	

NECROPSY*

NVL

000017

PATHOLOGIST
[Signature]
George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-735

REQUESTED BY <i>Marilyn Palmer</i>				DATE 2/13/74	
EAR MARK 10	SEX ♂	SPECIES rat	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM 88	CAGE

MATERIAL <i>Davanol TMH control</i>		
DOSE CONCENTRATION <i>control</i>	NUMBER OF DOSES —	ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION <i>control</i> <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)
DURATION OF DOSAGE —	TIME SINCE LAST DOSE —	
CLINICAL SIGNS - (IF PRESENT)		

GROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE 2-15-74
MODE OF DEATH DECAP MF CLAMP	

NECROPSY*

externally NVL
internally NVL

000013

PATHOLOGIST
George C. Jersey
George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-736

REQUESTED BY

Marilyn Palmer

DATE
2/22/74

EAR MARK

SEX

♂

SPECIES

rat

SAVE TISSUES

YES NO

ROOM

88

CAGE

MATERIAL

Dexamol TMH

DOSE CONCENTRATION

7.7 mg/l

NUMBER OF DOSES

1

DURATION OF DOSAGE

7 hrs.

TIME SINCE LAST DOSE

ROUTE OF ADMINISTRATION

- DIETARY
- INHALATION
- ORAL
- SKIN
- EYE
- INJECTION (IP, IM, ETC.)

CLINICAL SIGNS - (IF PRESENT)

GROSS PATHOLOGY REPORT

PHOTOGRAPHED

DATE

2-15-74

MODE OF DEATH

MF CLAMP DECAP

NECROPSY*

NVL

000019

PATHOLOGIST

YCF

George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-737

REQUESTED BY Marilyn Balmer				DATE 2/13/74	
EAR MARK 2	SEX ♂	SPECIES rat	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM 88	CAGE

MATERIAL Dowanol TMH		ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)	
DOSE CONCENTRATION 7.7 mg/l	NUMBER OF DOSES 1		
DURATION OF DOSAGE 7 hrs.	TIME SINCE LAST DOSE		
CLINICAL SIGNS - (IF PRESENT)			

GROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE 2-15-74
MODE OF DEATH MF CLAMP DECAP	

NECROPSY*

NVL

000020

PATHOLOGIST

 George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-738

REQUESTED BY

Marilyn Palmer

DATE: 2/12/74

EAR MARK

3

SEX

♂

SPECIES

rat

SAVE TISSUES

YES

NO

ROOM

88

CAGE

MATERIAL

Dowanol TMH

DOSE CONCENTRATION

7.7 mg/l₂

NUMBER OF DOSES

1

ROUTE OF ADMINISTRATION

- DIETARY
- INHALATION
- ORAL
- SKIN
- EYE
- INJECTION (IP, IM, ETC.)

DURATION OF DOSAGE

7 hrs.

TIME SINCE LAST DOSE

CLINICAL SIGNS - (IF PRESENT)

GROSS PATHOLOGY REPORT

PHOTOGRAPHED

DATE

2-16-74

MODE OF DEATH

MF CLAMP DECAP

NECROPSY ±

NVL

000021

PATHOLOGIST

gog

George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS

878216070

REQUEST FOR PATHOLOGY

ANIMAL NUMBER
74-739

REQUESTED BY Marilyn Palmer		CHARGE NUMBER		DATE 2/30/74
EAR MARK 4	SEX ♂	SPECIES rat	SAVE TISSUES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	ROOM 88

MATERIAL
Davanol TMH

DOSE CONCENTRATION 7.7 mg/l	NUMBER OF DOSES 1	ROUTE OF ADMINISTRATION <input type="checkbox"/> DIETARY <input checked="" type="checkbox"/> INHALATION <input type="checkbox"/> ORAL <input type="checkbox"/> SKIN <input type="checkbox"/> EYE <input type="checkbox"/> INJECTION (IP, IM, ETC.)
DURATION OF DOSAGE 7 hrs.	TIME SINCE LAST DOSE	
CLINICAL SIGNS - (IF PRESENT)		

GROSS PATHOLOGY REPORT

PHOTOGRAPHED	DATE 2-15-74
MODE OF DEATH MF CLAMP DECAP	

NECROPSY*

NVL

000022

PATHOLOGIST
George C. Jersey, D. V. M., Ph. D.

*THE FOLLOWING TISSUES WERE EXAMINED AND UNLESS NOTED ABOVE NO VISIBLE LESIONS (NVL) WERE OBSERVED: TRACHEA, LUNG, HEART, LIVER, KIDNEYS, ADRENAL, SPLEEN, PANCREAS, STOMACH, SMALL INTESTINE, LARGE INTESTINE, AND REPRODUCTIVE ORGANS