

VCMA MCA *REI*
Manufacturing Chemists Association

Minutes of Meeting

TECHNICAL TASK GROUP ON VINYL CHLORIDE RESEARCH

Sheraton O'Hare Hotel

Rosemont, Illinois

February 20, 1974

06-0085078

SHELL CHEMICAL COMPANY Environment and Safety RECEIVED APR 15 1974			
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FILE			
MFG. & DISTRIB. Plans & Analysis			

MEMBERS PRESENT:

T. R. Torkelson, CHAIRMAN
T. R. Aalto
Z. G. Bell, Jr.
R. S. Brookman
E. M. Dixon, M.D. for
W. A. Knapp
R. J. Dowling for
W. D. Harris
B. W. Duck

M. R. Gasque, M.D.
N. V. Hendricks
C. A. Johnson, M.D.
Flynt Kennedy
H. L. Kusnetz for
R. L. Maycock
A. B. Lindquist
R. W. McBurney, M.D.
W. E. Rinehart
George Roush, Jr., M.D.
H. L. Schmidt, Jr.

W. M. Smith
R. N. Wheeler, Jr.
K. D. Johnson

The Dow Chemical Company
Tenneco Chemicals, Inc.
PPG Industries, Inc.
Firestone Plastics Company
Allied Chemical Corporation

UNIROYAL Chemical Division/
UNIROYAL, Inc.
The British Petroleum Company
Limited, England
Olin Corporation
Exxon Corporation
The Goodyear Tire & Rubber Company
Continental Oil Company
Shell Oil Company

Stauffer Chemical Company
Diamond Shamrock Corporation
Ethyl Corporation
Monsanto Company
Borden Chemical/Division of
Borden, Inc.
Air Products & Chemicals, Inc.
Union Carbide Corporation
MCA Staff

GUESTS PRESENT:

L. H. Ballou, M.D.
A. W. Barnes
Emilio Bartalini, M.D.
K. H. C. Bessant
R. L. Bourget
W. J. Boyne

W. C. Cooper, M.D.

Firestone Plastics Company
ICI, Ltd., Plastics Division, England
MONTEDISON, Italy
BP Chemicals Int., Ltd., England
Monsanto Company
Borden Chemical/Division of
Borden, Inc.
Tabershaw-Cooper Associates, Inc.

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GUESTS (cont.)

C. U. Dernehl, M.D.	Union Carbide Corporation
D. P. Duffield, M.D.	ICI, Mond Division, England
B. W. Eley	Monsanto Company
J. D. Forbes, M.D.	UNIROYAL, Inc.
W. R. Gaffey	Tabershaw-Cooper Associates, Inc.
J. W. Goode	Industrial BIO-TEST Laboratories, Inc.
D. E. Gordon, D.V.M.	Industrial BIO-TEST Laboratories, Inc.
R. B. Howard	Shell Chemical Company
E. Q. Hull, M.D.	Union Carbide Corporation
M. L. Keplinger	Industrial BIO-TEST Laboratories, Inc.
C. H. Kim	UNIROYAL Chemical Division/ UNIROYAL, Inc.
J. R. Livingston, Jr.	Exxon Chemical Company
W. F. Madden	ICI, Plastics Division, England
Richard Maier	Stauffer Chemical Company
Cesare Maltoni, M.D.	Institute of Oncology of Bologna, Italy
I. S. Pasternak	Esso Chemical Canada
Oddi Pietro	Montecatini Edison, Italy
D. P. Reid, M.D.	London School of Hygiene and Tropical Medicine, England
D. E. Rhoads	Tenneco Chemicals, Inc.
Ken Schadeberg	Industrial BIO-TEST Laboratories, Inc.
I. R. Tabershaw, M.D.	Tabershaw-Cooper Associates, Inc.
C. H. Whetstone, M.D.	Continental Oil Company
B. M. G. Zwicker	B. F. Goodrich Chemical Company, A Division of The B. F. Goodrich Company

1. Minutes of the Meeting of January 25, 1974

The subject minutes were approved as distributed.

2. Industrial BIO-TEST Oral Progress Report

As copies of the detailed quarterly progress report had been earlier distributed to members of the Technical Task Group on Vinyl Chloride Research, the oral presentation was primarily a summary report, augmented by slides illustrating the physical

facilities set up for this project. The tabular data presented by Mr. Schadeberg on his slides is reproduced in Appendix A to these minutes.

It was suggested that, in future progress reports, the summary tables, as exemplified by this appendix, be furnished in the copies provided for general distribution to the group, and that the detailed data be filed with MCA for the record, but not included in the general reports. Mr. Schadeberg agreed to follow this format in the future.

The mortality revealed in Table I was discussed at some length. Members were somewhat relieved to note the improving picture, particularly with respect to losses from hamster cannibalism. It was agreed not to try to replace any animals lost to date, on the grounds that the stresses introduced by such disturbances to established orders of social dominance in the populations in any given cage would tend to perpetuate the earlier situation.

The reduced weight gain of the TE-IV Group rats (those with bedding and food in the cages during exposures) was noted, but the significance of this observation, if any, could not be determined. This group will be observed carefully for evidence of systemic toxicity.

3. Report of European Research

Dr. Maltoni repeated his presentation of the results of the European research programs, and the description of on-going experiments, that he had earlier presented to the OSHA hearing on February 15 in Washington. An updated version of his report, with the inclusion of the tabular data that appeared on his slides, will, upon receipt, be distributed as a separate mailing.

The only experiment that is now essentially complete is the initial series of exposures of Sprague-Dawley rats to levels of 10,000 ppm VCM down to 50 ppm. With the exception of the highest exposure group for which early mortality limited the incidence of such cancers, the rats showed a dose-related incidence of angiosarcomas of the liver, as shown in the following table:

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Exposure levels ^a (p.p.m.)	Rats with liver angio- sarcomas	Number of rats exposed
10,000	6	69
6,000	11	72
2,500	9	74
500	7	67
250	2	67
50	0	64

^a Atmospheric exposure of Sprague-Dawley rats to vinyl chloride, four hours daily, five days a week, for 12 months.
Note: No liver angiosarcomas were observed in controls or rats exposed similarly to 2500 p.p.m. vinyl acetate.

4. Support of Dow Proposals

The TTGVCR voted to request their managements to provide \$80,000 for the support of the Dow research as described in their proposal distributed to the group in the MCA mailing of January 29, 1974.

5. Support for Other Research

The TTGVCR endorsed the position of the Research Coordinators with respect to current support of research in the areas of mutagenicity, three-generation feeding studies, and 90-day feeding studies, recommending that these be deferred for the present.

6. Revision of SD-56 - Vinyl Chloride

This matter will be attended to after completion of the sub-task groups of their tasks of the development of work practices standards, medical surveillance, and industrial hygiene monitoring and analysis.

7. Progress Report from Tabershaw-Cooper Association on the Epidemiology Study

The staff of TCA distributed copies of an updated progress report (copy attached to these minutes as Appendix B). They pointed out that, in its present format and state, their tabulation merely reflects a distribution of death and is not

intended to indicate the existence or non-existence of any specific risk or excess mortality in any category.

8. Tabershaw-Cooper Associates Proposals for Expanded Epidemiological Research

Dr. Tabershaw summarized his pending proposals for new studies involving (1) intensifying their efforts to trace missing cases, (2) clinical study of suspect deaths in the mortality study, and (3) undertaking a prospective epidemiology study among high-risk segments of the worker population. He indicated that he would soon be submitting formal proposals for these projects. (Prior to the publication of the present minutes, these proposals were received and distributed to the Technical Task Group by MCA under date of March 12, 1974.)

9. Establishment of a Vinyl Chloride Pathology Register

The full task group endorsed the recommendations of the Research Coordinators that the University of Michigan be requested to reactivate and expand their acro-osteolysis registry program to include all categories of occupational illnesses specifically related to vinyl chloride exposure. They requested that MCA pursue this matter with the University, and if necessary, to seek other agencies willing to perform such a service.

10. Report of the Working Group on Analysis and Monitoring

The report of the group, in the absence of its chairman, was read, and is attached to these minutes as Appendix C. The tenor of the resulting discussion was that member companies should submit their candidate analytical and monitoring methods for consideration by the working group as soon as possible. The latter should attempt to draft its recommendations in format that provided the maximum flexibility of implementation, as long as the methods employed met appropriate standards of sensitivity, selectivity, and precision.

11. Report of the Working Group on Medical Surveillance

The recommendations of this group have been incorporated in the work practices draft submitted by that group (see the following item in these minutes). It was pointed out that the recommended surveillance is required to document the effectiveness

TABLE I

TEST MATERIAL: Vinyl Chloride (Ethylene Derived)

Chronic Vapor Inhalation Toxicity Study - Albino Rats,
Albino Mice, and Golden Hamsters

Summary of Mortality Data

Total Number of Mortalities at End of Month										
<u>ALBINO RATS</u>										
Month No.	Control		T-I		T-II		T-III		T-IV	
	M	F	M	F	M	F	M	F	M	F
1	0	0	0	0	0	0	0	0	-	0
2	0	0	2	0	1	0	0	0	-	0
3	0	1	2	0	1	0	1	4	-	0
4	0	2	4	1	3	0	1	4	-	0
5	2	3	5	1	6	1	3	4	-	0

<u>ALBINO MICE</u>										
Month No.	Control		T-I		T-II		T-III			
	M	F	M	F	M	F	M	F		
1	0	0	0	0	0	0	0	0		
2	0	0	0	3	0	0	0	0		
3	2	0	6	4	3	0	1	0		
4	5	1	19	5	4	1	4	7		
5	8	2	26	6	4	2	8	7		

<u>GOLDEN HAMSTERS</u>										
Month No.	Control		T-I		T-II		T-III			
	M	F	M	F	M	F	M	F		
1	5	4	4	4	7	5	2	5		
2	8	11	10	12	9	16	10	11		
3	8	13	12	14	12	18	14	13		
4	9	15	16	16	15	19	15	13		
5	9	18	16	16	16	20	15	15		

TABLE II

TEST MATERIAL: Vinyl Chloride (Ethylene Derived)

Chronic Vapor Inhalation Toxicity Study - Albino Rats, Albino Mice, Golden Hamsters

Summary of Mean Body Weight Values - Rats

Group and Test Level	Sex	Mean Body Weights at Week Indicated (grams)							Total Weight Gain (grams/animal)
		0	1	2	3	4	8	12	
Control	M	205	258	294	335	363	456	498	293
	F	160	188	214	223	235	275	299	139
TE-I 50 ppm	M	209	246	286	331	346	448	491	282
	F	168	184	207	223	232	274	297	129
TE-II 200 ppm	M	201	261	301	335	360	457	490	289
	F	171	200	208	228	242	289	302	131
TE-III 2500 ppm	M	200	245	302	326	351	453	499	299
	F	165	185	216	228	240	287	303	138
TE-IV 2500 ppm	F	181	209	223	236	251	282	288	107

TABLE III

TEST MATERIAL: Vinyl Chloride (Ethylene Derived)

Chronic Vapor Inhalation Toxicity Study - Albino Rats, Albino Mice, Golden Hamsters

Summary of Mean Body Weight Values - Mice

Group and Test Level	Sex	Mean Body Weights at Week Indicated (grams)							Total Weight Gain (grams/animal)
		0	1	2	3	4	8	12	
Control	M	35	36	37	39	40	41	43	8
	F	29	29	29	30	32	33	35	6
TE-I 50 ppm	M	33	34	35	37	39	39	43	10
	F	30	29	31	31	34	34	37	7
TE-II 200 ppm	M	36	37	37	40	40	38	42	6
	F	28	29	29	31	31	34	35	7
TE-III 2500 ppm	M	36	35	35	38	38	40	43	7
	F	28	28	27	30	31	34	34	6

TABLE IV

TEST MATERIAL: Vinyl Chloride (Ethylene Derived)

Chronic Vapor Inhalation Toxicity Study - Albino Rats, Albino Mice, Golden Hamsters

Summary of Mean Body Weight Values - Hamsters

Group and Test Level	Sex	Mean Body Weights at Week Indicated (grams)							Total Weight Gain (grams/animal)
		0	1	2	3	4	8	12	
Control	M	73	74	86	99	98	110	120	47
	F	77	80	91	102	104	108	118	41
TE-I 50 ppm	M	71	72	79	89	90	101	114	43
	F	78	78	85	96	95	102	112	34
TE-II 200 ppm	M	63	61	82	83	89	94	99	36
	F	74	75	82	95	94	99	108	34
TE-III 2500 ppm	M	60	66	83	86	87	91	93	33
	F	69	70	87	95	92	100	106	37

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MALE HAMSTER BODY WEIGHT GAINS

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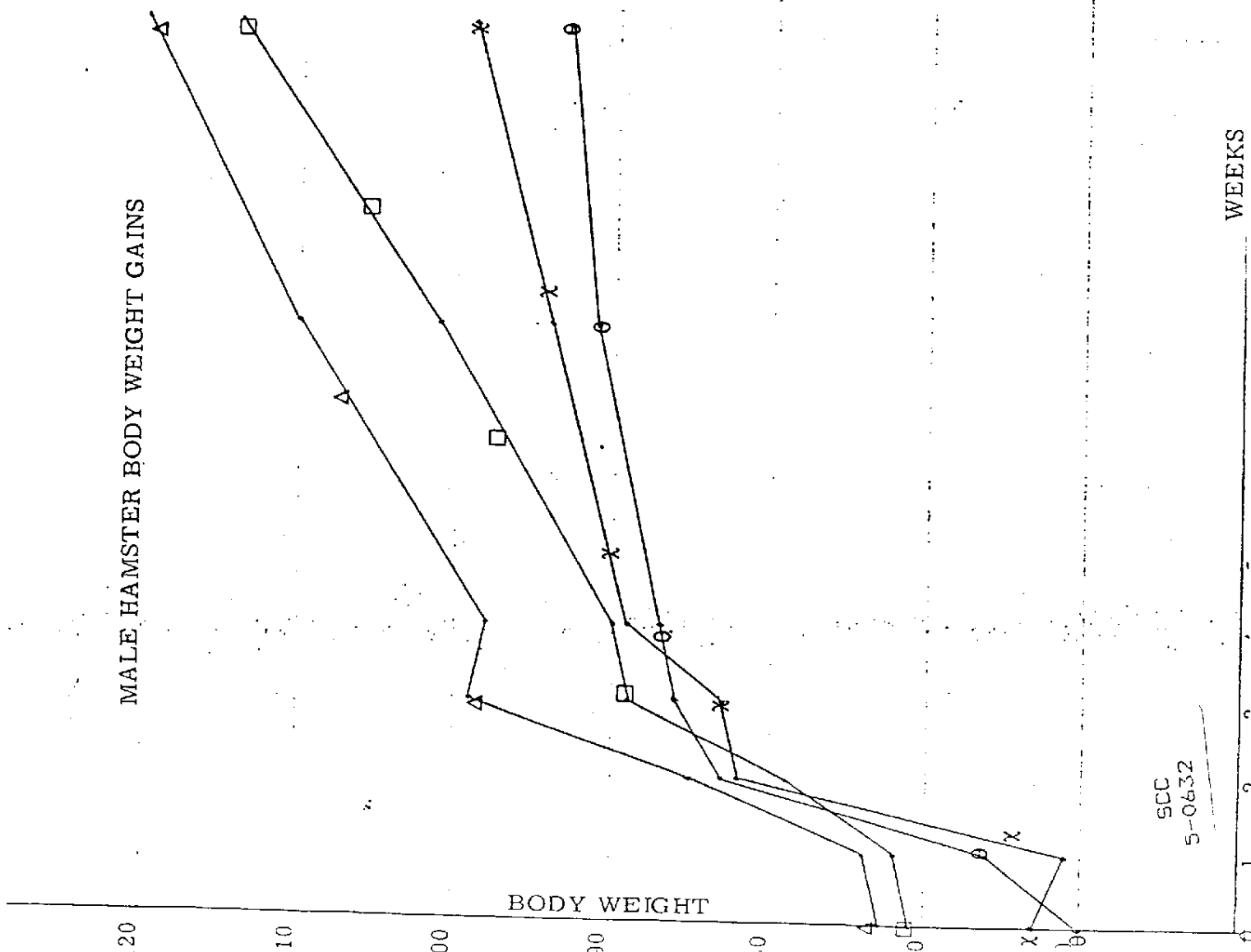
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BODY WEIGHT

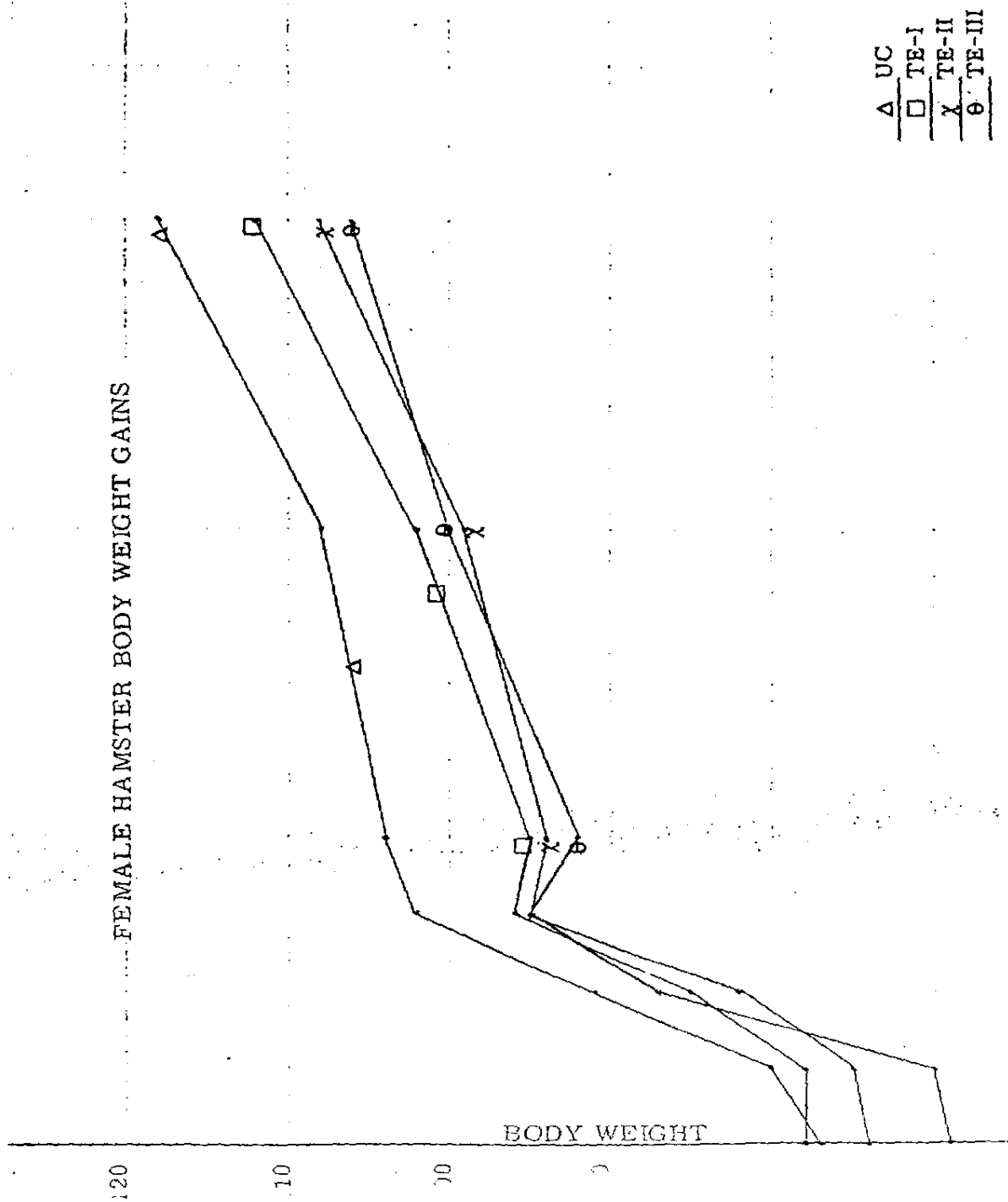
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FEMALE HAMSTER BODY WEIGHT GAINS



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WEEKS