GB

THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN 48674

1803 BUILDING
February 24, 1989

bcc: R. R Cook, M.D., 1803 Bldg.

PLAINTIFF'S EXHIBIT
DOW-1311

Klaus Giersiepen, M.D., M.P.H.
BIPS
2800 Bremen
St.-Jurgen-StraBe 1
Federal Republic of Germany

Dear Dr. Giersiepen:

Thank you for your letter and comments regarding our work history validation paper recently published in the American Journal of Epidemiology, Vol. 128 pages 343-351. My colleagues and I have attempted to provide you with the information you requested. Enclosed find:

1. A listing of the 50 homogeneous work areas we used for analysis.

1a. A sample of the department titles which were combined together to form the work areas.

2. The 171 chemical and physical agents that were listed as potential exposures by the industrial hygienists.

3. Recall rates for some specific substances (the most commonly reported).

4a. The average number of agents listed by the hygienists for each subject.

4b. The average number of agents listed by the interviewee for each subject.

5. A copy of the questionnaire administered to the next-of-kin (identical to the one administered to living subjects except "your relative" was substituted for "your"). We have also included our interviewer instructions, etc. for your use.

Ironically, much of this information was included in the original document that we had submitted for publication, but was eliminated at the request of the editor owing to space considerations.

We hope this information meets your needs.

Sincerely yours,

Gregory G. Bond, Ph.D., M.P.H.
Research Leader and Technical Coordinator
The Dow Chemical Company
Department of Epidemiology, Health and Environmental Sciences
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sjl

Enclosure

cc: K. M. Bodner
Epidemiology, H&ES
1803 Building
Midland, MI 48674

Examples of Department Titles
Grouped into Work Areas

Work Area	Department Titles
Glycerine	Glycerine
	Glycerine #1
	Glycerine #2
	Glycerine production
	Glycerine technical services
	Allyl chloride
Chlorinated methanes	Chlorinated methanes
	Carbon tetrachloride
	Chlorinated methanes per-tet facility
	Chloromethanes
	CMP per-tet and HCl distribution
	Chloromethanes per-tet maintenance
	Perchloroethylene
	Perchloroethylene A

Bremer Institut für Präventionsforschung und Sozialmedizin (BIPS)

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Dr. Gregory G. Bond
Dow Chemical Company
Epidemiology,Health and
Environmental Sciences
1803 Building

Midland, MI 48674
USA

Ihr Zeichen	Ihre Nachricht vom	unser Zeichen	Bremen, den
		KG/br Az.30/11	January 6,1989

Dear Dr. Bond:

Our research group is presently conducting a study looking at work-related exposures and the development of lung cancer in order to generate hypothesis in this context.

We are planning to recruit 1000 lung cancer patients and 1000 population controls for this case control study, attempting to include all incident lung cancer patients in the city of Bremen for a period of two years. Population controls are matched to cases by sex, age, and residence. Study participants are given a 1 1/2 hour lasting interview either at the hospital or at their homes by trained interviewers. While the emphasis of the study is on obtaining an accurate work history and to determine work related exposures, we also obtain a detailed active smoking history and - to a lesser extent - information on vitamin A/beta carotene intake, the family history of cancer, and passive smoking in non-smokers.

In the context of questionnaire-derived data on work-related exposures we came across your article in the American Journal of Epidemiology, Vol. 128 p.343-351. We would like to congratulate you to this excellent study as it gives valuable information on the agreement between interview-derived data and industrial hygiene data within a particular company.

We would like to ask you a few questions concerning the article, as we are planning to write a grant proposal on the same subject and we would like clarify a few items before writing up our proposal.

1. On page 344 you are mentioning that "50 homogeneous work area classifications were condensed from more than 400 departmental titles". Could you please supply us with a listing of these 50 work areas and possibly with another listing of the original for 400 + departmental titles so that we can understand the condensation process and see how specific the subgroups were after condensation.

2. On page 345 you are explaining that 96 chemical /physical agent exposures were mentioned by study subjects while 171 chemical/physical agents were catalogued by industrial hygienists. Again we are interested in listings of these different exposures to get an idea of the specificity of the entities.

3. On page 348 you are mentioning recall-rates for some specific substances. We would be very interested in obtaining a more detailed list of recall rates for the specific substances.

4. We agree that the overall recall rate for specific substances of 2.6 % is very low. In order to understand this very low rate we are interested in learning more about the number of substances assigned for each study subject by the industrial hygienist (median or average) and

   the number of substances given by study participants during the interview (median or average).

5. Our final question refers to your offer in the article that a copy of your questionnaire may be obtained from you. We would be very pleased to receive a copy of your questionnaire.

We would be very grateful to receive answers to our questions. Thanking you already in advance we remain,

Sincerely yours,

Klaus Giersiepen, M.D., M.P.H.

ADMINISTRATIVE SERVICES
AGRICULTURAL RESEARCH
ALLOYING DEPT
ANTIFREEZE DEPT
CATALYST DEPT
CAUSTIC DEPT
CHLORINATED ETHANES DEPT
CHLORINATED METHANES DEPT
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ETHYL DOW DEPT
ETHYLENE GLYCOL DEPT
ETHYLENE OXIDE DEPT
ETHYLENIMINE DEPT
GAS & WATER DEPT
GLYCERINE DEPT
HYDROXYLALKYL ACRYLATE DEPT
INSTRUMENT DEPT
LATEX DEPT
LEAD SHOP
LIGHT HYDROCARBONS DEPT
LIME DEPT
MACHINE SHOP
MAGNESIUM DEPT
MAINTENANCE DEPT
MARINE DEPT
MATERIAL HANDLING DEPT
METAL CLEANING & PICKLING DEPT
METALS RESEARCH DEPT
NITRO PROCESSES DEPT
ORGANIC PROD RES DEPT
ORGANIC RESEARCH DEPT
OTHER
PAINT SHOP
PIPE SHOP
PLANT SUPPORT SERVICES DEPT
POLYETHYLENE DEPT
POWER DEPT
SHELF DRYER DEPT
STYRENE DEPT
VEHICLE MAINT DEPT
VORANOL DEPT
V1 V2 DEPT
WASTE CONTROL DEPT
YARD & UTILITY DEPT

ACETALDEHYDE
ACETIC ACID
ACETONE
ACETONITRILE
ACETYLENE
ACID MORTAR
ACROLEIN
ACRYLIC ACID
ACRYLONITRILE
ALLOY: MAGNESIUM
ALLYL CHLORIDE
ALUMINUM METAL
AMMONIA
ASBESTOS
BARON HERBICIDE
BENZENE
BERYLLIUM
BISPHENOL A
BLASTING SAND (QUARTZ)
BRINE-25% NACL
BROMINE
BUTADIENE
BUTYL ACRYLATE
BUTYL MERCAPTEN
BUTYLENE
CAB-O-SIL
CADMIUM
CALCIUM FLOURIDE
CALCIUM OXIDE
CARBON
CARBON DISULFIDE
CARBON MONOXIDE
CARBON TETRACHLORIDE
CHLORINATED SOLVENTS
CHLORINE
CHLOROFORM
CLOPIDOL
COPPER CHLORIDE
CUMENE
CUPROUS AMMONIUM ACETATE
CUTTING OILS
CYCLOHEXANE
DEH 14 (POLYAMIDE)
DICHLOROETHYL ETHER
DICHLOROISOPROPYL ETHER
DIESEL FUEL
DIETHYL BENZENE
DIETHYLENE TRIAMINE
DIPROPYLENE GLYCOL
DOWANOL EE
DOWANOL EM
DOWPON GRASSKILLER
DOWTHERM A
EDB LIGHTS AS ETHYL BROMIDE
EDB STILL BOTTOMS AS CBR4
EPICHLOROHYDRIN
EPOXY RESINS: HYDROLIZED (DER 331)
ETHANE
ETHANOL
ETHYL BENZENE
ETHYLENE
ETHYLENE DIAMINE (EDA)
ETHYLENE DIBROMIDE
ETHYLENE DICHLORIDE
ETHYLENE GLYCOL
ETHYLENE OXIDE
ETHYLENEIMINE
FIBERGLASS
FLUORINE
FORMALDEHYDE
FREON 11
FUEL OIL
GALON HERBICIDE
GASOLINE
GLYCERINE
GRAPHITE
HEAT
HEXACHLOROBENZENE
HEXACHLOROBUTA-1,3-DIENE
HEXACHLOROETHANE
HEXAMETHYL PHOSPHORIC TRIAMIDE
HEXANE
HIGH EXPOSURE TO WIDE VARIETY OF STRESS
HYDROGEN (GAS)
HYDROGEN BROMIDE
HYDROGEN CHLORIDE
HYDROGEN CYANIDE
HYDROXY PROPYL ACRYLATE
HYDROXYETHYL ACRYLATE

ISOBUTANE
ISOBUTYL ALCOHOL
ISOPAR C
ISOPAR E
ISOPAR M
KEROSENE
LATEX
LEAD
LUBRICATING GREASE
LUBRICATING OIL
M-DIOXANE
MAGNESIUM CHLORIDE
MAGNESIUM HYDROXIDE (SLURRY)
MAGNESIUM OXIDE
MANGANESE
MERCAPTEN: TERT-BUTYL-
MERCURY
METHANE
METHANOL
METHYL CHLORIDE
METHYLENE CHLORIDE
MINERAL OIL
MINOR EXPOSURE TO WIDE VARIETY OF STRESS
MOD EXPOSURE TO WIDE VARIETY OF STRESS
NITROGEN DIOXIDE
NO SIGNIFICANT EXPOSURE
NOISE
OTHER
OZONE
PAINT SOLVENTS AND THINNERS
PHENOL
PHENOLIC POLYMER
PHENYL BENZENE
PICLORAM
POLYETHYLENE POWDER
PORTLAND CEMENT
PROPANE (LIQ)
PROPANOL:2,3-DICHLORO-
PROPYLENE
PROPYLENE DICHLORIDE
PROPYLENE GLYCOL
PROPYLENE OXIDE
PYRIDINE
PYRIDINE: PENTA-CHLORO-
PYRIDINE: 2-CYANO
PYRIDINE: 2,3,5,6-TETRA-CHLORO
RADIATION
REDIPON HERBICIDE
RONNEL
RUELENE
SILICON DIOXIDE
SILICONE SPRAY LUBRICANT
SODA ASH
SODIUM HYDROXIDE
STERIC ACID, ZINC SALT
STYRENE
STYRENE OXIDE
STYRENE POLYMERS, FOAM
SULFUR (MOLTEN)
SULFUR DIOXIDE
SULFURIC ACID
TELONE
TETRACHLOROETHYLENE
TETRAETHYLENE PENTAMINE, TEPA
TOLUENE
TOLUENE DIISOCYANATE
TRANSFORMER OIL
TRICHLOROETHYLENE
TRIETHYLENETETRAMINE
VARNISH
VARSOL
VERSENE ACID AND ACID SLURRY PH=N3
VINYL ACETATE
VINYL CHLORIDE
VINYLIDENE CHLORIDE
VORANOL
WELDING FLUXES
WELDING FUMES
WOOD
ZINC
ZINC OXIDE
ZOALENE
1,1 DICHLOROETHANE
1,1,1 TRICHLOROETHANE
1,1,2 TRICHLOROETHANE
1,2 DICHLOROETHYLENE
1,3 DICHLORO-2-PROPANOL

Interviewee-Company Agreement Rates
for Common Physical/Chemical Agent Exposures

Agent	Employee Reports	Company Records	Percent Agreement
OTHER	81	4334	1.9
EPICHLOROHYDRIN	2	28	7.1
ETHYLENE	6	78	7.7
CARBON TETRACHLORIDE	7	264	2.7
BENZENE	4	81	4.9
SULFUR DIOXIDE	2	267	0.7
CHLORINE	36	337	10.7
ASBESTOS	13	151	8.6
HEAT	1	220	0.5
OVERALL	152	5760	2.6

CHEMICAL/PHYSICAL AGENT EXPOSURE
IN COMPANY RECORDS

Number of Agents Recorded	Number of Employees
1	80
2	24
3	53
4	80
5	67
6	94
7	51
8	30
9	26
10+	229
	734

Total Agents Recorded:	5760
Average Agents Per Employee:	7.85
Median Agents Per Employee:	6

REPORTS OF CHEMICAL/PHYSICAL AGENT EXPOSURES BY INTERVIEWEES

Number of Agents Recorded	Number of Employees
0	512
1	123
2	51
3	18
4	12
5+	18
	734

Total Agents Reported:	433
Average Agents Per Employee:	0.60
Median Agents Per Employee:	0