

Liver Angiosarcoma Cases

URL 15923

5/1/80

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W D Harris file vinyl chloride

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Dr P Lazard, RP, St Auban
Dr I A Friedel, Berufsgenossenschaft der chemischen
Industrie, Heidelberg

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MEDICAL
DEPARTMENT

MAY 14 1980

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JS/MJT/D-58
1 May 1980

Case No.	Start	Yrs. of ^{Diagnosis} PS	Date of Death	Age at Death	Internal to death ()
03	28/11/45	19/12/73	19/12/73	(28)	58 yrs 7 mos
05	19/06/44	09/04/64	09/04/64	(20)	52
07	27/08/44	- - 68	23/03/66	(23 1/2)	44
08	07/10/46	00/08/61	29/08/61	(15)	41 Hodgkin
09	28/05/45	01/03/74	11/03/75	(30)	46
11	14/10/46	16/03/70	16/03/70	(23 1/2)	61
13	11/12/42	00/05/74	07/04/74	(31 1/2)	52 1/2
19	00/00/43	19/06/75 00/00/73	06/04/76	(33)	61
21	00/12/40	Early 1977	02/01/77	(30)	67
22	12/07/47	00/01/76	04/12/76	(29 1/2)	53
26	03/10/47	00/00/79	11/02/75	(27)	52
27	01/07/41	30/11/78	25/11/78	(37)	62 1/2
28	1944	1977	03/11/78	(34)	61 1/2
Avg				27.8	54.7 yrs

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Shared in 13 cases of workers there 1947
 years Average years lat exposure till death 27.8 yrs.
 324 workers

1 case per 24.9 workers.

If we remove the cases ^{age at death} 05, 07, 08 and 11 which are ^{20.5} internally
 1949-1977 The remaining 9 average 31.1 yrs. interval

Cases having 25 years exposure by end of 78

03, 09, 13, 19, 21, 22, 27, 28

38.6
 8 253.8
 86
 68

1948 thru 1952 677 workers entered

Case	Started	Diagnosis	Death	Int. till death	Age at death
01	09/12/48	03/03/72	03/03/73	24	49
04	06/07/52	19/08/67	07/01/68	15 1/2	44
10	12/06/51	00/05/68	10/05/68	17	55
12	13/07/49	02/05/69	02/05/69	20	50 1/2
16	08/05/50	00/00/69	27/03/69	19 19	41 1/2
Avg.				19.1	47.8

5 cases out of 677 died within 24 years of exposure
26 years from end of the period thru 1978

1953 thru 1957 1007 workers

02	15/11/55	00/05/70	27/09/71	16	38
17	23/06/55	11/10/74	Qline	(25)	(49) 47
18	15/09/54	1975	02/11/75	21 21	47
20	1955	30/01/76	30/01/76	21	58 1/2

1958 thru 1962 946 workers

06	17/01/62	00/02/74	24/07/75	13	47
23	08/09/58	06/04/73	06/04/76	18	53

IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISION

URL 15926

LIVER ANGIOSARCOMA CASES (REVIEW DATA - 1 MAY 1980)

<u>Table Sequence</u>		<u>Acknowledgements Significant Changes & Comments</u>
Belgium	1	1 Page 11 - German Case 13 - In the 8 January listing I did not notice a typographical error. This man was born <u>1904</u> and not <u>1914</u> . This error is corrected in the present issue.
Canada	2-3	
Czechoslovakia	4	2 At the OSHA/NIOSH/NIEHS Symposium at Bethesda on 20/21 March 1980 Dr H WEBER of Der Staatliche Gewerbearzt stated that there were now 17 confirmed ASL cases in W Germany. I presume cases 13 and 14 are now histologically confirmed. Perhaps Dr Friedel or Mr Emminger would care to comment and also give me the data I don't yet have on case 14.
France	5-7	
Germany	8-11	3 In the 8 January issue, I commented that, after a long interval without any cases, the UK had had two new cases bringing the total to 4. This total unfortunately became five on 9 January! It is curious that the five UK cases should have occurred 1 in 1972, 1 in 1974, 2 late in 1979 and 1 early 1980.
Italy	12	
Japan	13	4 As a continuation of the above point 3, no one has commented to me on Table 5 and the geographical split of ASL deaths. I would repeat my questions. Have North American ASL deaths tapered off? Or is this just a temporary lull? Are West European ASL death rates increasing? North America started to have ASL deaths a decade before W Europe. Has North America peaked out and (hopefully) finished before W Europe.
Norway	14	
Sweden	15	5 We still do not have any answers to the bizarre clustering of cases in certain factories. Even the distribution of "clusters" is peculiar. Table 3 confronts us with the question why so few plants in N America have been affected while the ASL cases are more evenly and broadly distributed over W Europe plants.
UK	16-17	
USA	18-22	
Yugoslavia	23	
Incidence of Cases per (Table 1)	24	
Distribution of Cases by Country (Table 2)	25	
Pattern of Cases by Factory (Table 3)	26	
Latency Periods (Table 4)	27	
Annual Geographical Incidence (Table 5)	28	

J STAFFORD
Division Manager
Health and Environment Protection
ICI Plastics Division
Bessemer Road
Welwyn Garden City
Hertfordshire
England

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LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
<u>BELGIUM</u>															
01		12.01.13	Solvay	Jemeppe	00.07.58	00.05.76	63	18	17	29.06.76	Yes	High 1958-1968 exposed to 200 ppm for 8 hrs per day and certainly under 500 ppm in 5 to 9m autoclaves 1968-1972 exposed to 50-200 ppm 8 hrs per day in 25m autoclaves 1972-1974 exposed to 30-200 ppm in auto- clave room 1974-1975 ppm 1975- 50 ppm RETIRED 1 Feb 1975	Autocleaner 14 yrs Polyworker 3 yrs	Driller in a foundry (2 yrs) Farmer (15 yrs) Work in glass ind. & chemi- cal industry	Hepatic tests in Oct 1974 were normal. Retired Feb 1975 Hospitalised May 1976 Complete Clinical and career details are given in a paper by Hublet et al in Arch. Belg. Med. Soc., Hyg. Med., Trav. Med. Leg. 1977 pages 601-622

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PLASTICS DIVISION

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

* All dates are UK system
DAY - MONTH - YEAR** Data published in Journal of
Occ Med 1978 pages 338-340

*** Many of dates altered to fit NIOSH 31/3/77 list

Canada
Sheet 1

Page 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
CANADA			BRANWICK												
01		15.12.13			1944	1955	41	10	11	02.09.55	Yes		Reactor cleaner	Operator polymerisation	Smoker
02		06.03.14			1943	1957	43	14	14	21.12.57	Yes		Maintenance, millwright, pipefitter	Operator	Worked overtime Smoker
03		26.08.19			1941	1962	42	21	20	23.03.62	Yes		Operator, foreman		Worked overtime Non-smoker
04		05.04.19			1945	1967	48	22	22	21.01.68	Yes		Reactor cleaner	Operator, foreman, water cooling unit	Worked overtime Smoker
05		07.05.11			1944	1968	57	24	05	05.07.68	Yes		Reactor cleaner	Water cooling unit	Worked overtime Smoker
06		15.12.19			1947	1971	51	24	23	10.04.71	Yes		Reactor cleaner	Maintenance, millwright	Worked overtime Smoker
07		09.11.19			1946	1972	53	26	25	26.12.72	Yes		Reactor cleaner	Machine shop operator and poly unit	Worked overtime Smoker
08		13.05.20			1961	1973	53	12	05	12.06.73	Yes		Reactor cleaner	Maintenance machine shop	In plant 25 yrs Smoker
09		19.07.21			1946	1974	53	28	26	04.09.74	Yes		Furnace op. pipefitter maintenance		Worked overtime Smoker

UPL 15929

**PLASTICS DIVISION
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LIVER Angiosarcoma Cases - (Review dates: 1 May 1980)

DAY - MONTH - YEAR
 * All dates use UK system
 ** Data published in Journal of
 Oct had 1978 pages 318-350
 *** Many of dates altered to fit NIOSH 31/3/77 list

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THEIRAL CHEMICAL INDUSTRIES LIMITED
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LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

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COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	CURRENT FACTORY	FIRST WC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS	
C22C080510- VALLA															
01		00.00.28	State Co	Novak	00.00.37	00.00.73	46	16	16	00.00.74	Yes				
02		00.00.26	State Co	Novak	00.00.31	00.00.66	40	15	15	00.00.66	Yes				

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IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISIONFrance
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LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
FRANCE															
01	M	15.04.24	RP	Rouss- illon	00.01.46	18.02.67	43	21	19	19.02.67	Yes	High	Autoclave worker and cleaner 19 yrs		Ref. Ravier et al Arch. Mal. Prof. 1 30 n° 3 Nov 75 p 171-177
02	SH	03.06.11	PCUK	Brignoud	06.07.59	13.01.75	63	16	12	24.01.75	Yes (HOSH no comment)	High	2 yrs on monomer 10 yrs on polymer- isation	Italian origin	Ref. G Bonnaton et al "Nouvelle presse medicale" 5 Nov 1977 p 735
03	NAV	06.01.20	RP	St Pons	00.00.46	23.01.75	55	29	29	29.06.75	Yes	High	Polyworker 10 yrs as autoclave cleaner Compounding 3 yrs	VCM production 16 yrs Italian POW Shepherd, Sawyer, Mason	Ref. Rety et al Arch. Mal. Prof. 1 37 n° 6 June 71 p 551-555
04	MOR	27.01.27	PCUK	Brignoud	19.10.49	16.01.76	49	26	26	04.01.76	Yes	High	Monomer production worker 8 yrs PVC filtration 18 yrs		
05	B	29.01.38	PCUK	Brignoud	18.01.65	13.05.76	38	11	11	13.05.76	Yes	High	Polyworker 11 yrs		Ref. P Coudere et al "Semaine des hopitaux" 10 Septembre 1976 Previously had bone angiosarcoma

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COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
FRANCE															
06	Pa	14.04.34	PCUK	Brignood	01.03.58	12.08.76	42	18	13	11.09.76 (NIOSH says 12.09.76)	Yes	Moderate	(1958-1960) 2 yrs filtration 10-11 yrs polyworker and works lab?		This man had AOL prior to AS. Ann. de Med. Prof. July '77 p 645 & 6. AOL was found in 1971 five yrs before ASL
07	GIR	26.04.27	RP	St Auban	01.07.50	After death NIOSH says 00.07.76	49	26	22	02.07.76	Yes (NIOSH no comment)	High	Plant fore- man in polymer- isation	1972-6 admin section in St Auban	Died of septicaemia Small liver lesion found after autopsy
08	B	01.04.34	Solvay	Taveun	23.05.57	03.12.75	42	19	19	30.01.77	Yes	Moderate	6 yrs packer & autoclave cler 14 yrs autoclave worker		Had been tunnel worker previously
09	RFX	08.10.14	RP	St Fons	10.01.48	26.04.76	62	28	28	16.12.77	Yes	High	Polymer- isation operator, autocleaner, autoclave maintenance	10 yrs in sulphuric acid factory, storekeeper & general services	Operated 4.76 for removal of tumour from liver and died after second surgical operation for bilio bronchial fistula

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
<u>France</u>															
10	VP	24.05.19	RP	St Fons	00.12.56	00.01.78	58	21	21	00.01.78	Yes	High	Autoclave cleaner	10 yrs in mechanical engineering industry 1946-1956	Died of pulmonary embolism 5 days after surgery
11	L	15.02.12	RP	St Fons	00.01.41	12.08.78	66	37	31	13.11.78	Yes	High	1941-1946 polymer- isation general purpose worker 1946-1972 VCM synthesis (ICI 4 Acetylene) Foreman (agent de maîtrise) 1972 retired	* General Comment At APHC mtg of 9 June 1978 Mr J C Thomas reported that 8 out of the 10 French cases had been involved in plant start-up and 5 out of 10 had been in combined VCM and PVC plants where VCM made from acetylene. (In his letter of 1 February 1979 Mr J C Thomas confirms that Cases 2, 3, 4, 6 and 11 had worked in monomer as well as polymer)	
12		16.08.14	PCUK	Brignoud	09.02.49	00.05.79	65	30	27	23.06.79	Yes	High	Monomer production and polymer- isation operator		
13		19.01.31	Solvay	Taveux	23.09.63	26.06.79	40	16	13	22.08.79			Autocleaner 2 yrs, Auto- operator 9 yrs, Copolymers 4 yrs	2 yrs as cycle mechanic. 10 yrs as assembler in sanitary ware manufacture	Cigarette smoker until 1974. Ill all of 1977 due to Oesophageal varices. Surgical intervention 25.05.79 (right hepatectomy)

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
<u>GERMANY</u>															
01		00.00.30	Dynamit	Troisdorf	01.10.56	19.09.68	38	12	12	25.01.69	Yes (NIOSH)		Polyworker		
02		00.00.31	Dynamit	Troisdorf	14.10.57	25.09.70	39	13	11	14.12.71	Yes (NIOSH)		Polyworker		
03		00.00.30	Dynamit	Rheinfel- den	09.06.52	00.03.73	43	21	16	10.10.73	Yes (NIOSH)		Filling pesticide aerosol cans with VC		Reported under non polymer- isation workers in NIOSH list of 31.3.77. This of course is strictly correct. However I wonder whether this man had high exposure to VCM in his can filling operation!
04		00.00.30	Wacker	Berg- hausen	16.04.57	26.11.74	44	17	17	25.11.74	Yes (NIOSH - no comment)	200-500 ppm but high during 1 yr autocleaner	Polyworker & temporary autocleaner	1958 was autocleaner for 1 yr	Clinical details in paper by Cokel et al Virchows Arch A Path 1976 372 p 195-203

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

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COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
<u>GERMANY</u> 05		00.00.36	Noechet	Frankfurt	02.04.60	10.12.73	38	13	05	16.12.74	Yes (NIOSH)		SG Chemie says "chemistry laboratorian in the Techno- logical Research Department" (NIOSH says assistant factory chemist which may be wrong translation)		Confirmed Reported under non-polymer- ization workers in NIOSH list of 31.3.77 and 1.78. I don't think this is a correct classification by NIOSH. The man may have been involved in VCM polymerization in pilot plant or in main
06 (NIOSH gives as Case 05)		00.00.32	Lonze	Waldshut	16.12.62	00.00.75	43	13	12	10.01.75	Yes		PVC - Manu- facture Shift Leader		
07		00.00.26	Wecker	Berg- hausen	15.04.54	12.11.75	49	21	21 (NIOSH says 12)	13.11.75	Yes		PVC Manu- facture and all work incl auto- cleaning 12 yrs (1954-66) Foreman Tech Dev 8 yrs (1967-1975)		
08		00.00.17	Dynamit	Troisdorf	19.07.54	06.04.75	58	22	21	25.12.75	Yes	1	Polyworker	1	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
GERMANY 09		00.00.34	GMH	Mart	20.02.61	16.06.76	41	15	13	24.03.78	Yes	High peaks	12 yrs poly- worker incl 17% auto- clave cleaning Control room 1 yr		10/78 Confirmed Average exposure first 9 yrs 150 ppm, occ >1000 ppm. Went 3 yrs av, 75 ppm. Last. yr av 35 ppm
10 (MOSH given as Case 11)		00.00.36	GMH	Mart	01.01.61	00.01.77	40	16	10	07.03.77	Yes	High peaks	10 yrs poly- worker incl 17% auto- clave cleaning		Average exposure first 9 yrs 150 ppm, occ 1000 ppm. Last yr av 75 ppm. GMH letter of 21.06.78
11 (MOSH given as Case 10)		00.07.29	Wecker	Berg- hausen	10.10.55	28.06.77	47	22	22	28.06.77	Yes	High	3 yrs auto- clave cleaner 19 yrs filter operator		
12		00.00.38	Dynamic	Treisdorf	00.00.61	00.10.77	39	16	6	07.10.77	Yes	1	PVC manu- facture Autoclave worker for 6 yrs		

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IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISIONGermany
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
<u>GERMANY</u>															
13		00.00.04	Lonza	Waldshut	00.00.60	08.04.78	64	18	14	19.05.78	No*				Not yet confirmed
14		00.00.27	CMI	Marl	03.12.56	at death?	51?	22?	17	29.07.78	No*				Not yet confirmed
15		00.00.29	Wacker	Burghausen	19.10.53	09.10.78	49	25	20 (VKI says 25)	23.10.78	Yes	?	Autoclave cleaner and worker. Drier operator. later shift leader		Angiosarcoma confirmed 09/79
16		00.00.33	Dynamit	Troisdorf	10.01.55	07.08.78	44	23	20	07.08.78	Yes	High	Autoclave worker till 1964. Leader and master		Angiosarcoma confirmed
17		00.00.37	Dynamit	Troisdorf	01.11.61	14.08.78	41	16	11	28.08.78	Yes	High	Autoclave worker	No	Angiosarcoma confirmed

* At the NIOSH/OSHA/NIHUS Symposium in Bethesda 20/21 March 1980 Dr Ueber said there were now 17 confirmed cases in Germany. I presume cases 13 and 14 are now histologically confirmed.

**IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISION**

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

- Should this case be removed from the list? NIOSH have it on their supplementary list relating to non-polymerisation workers.
JS 1/8/77

[illegible]

IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISION

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
JAPAN															
01	Tomoji Mori	01.08.22	Mitsui Toatsu (no comment by Jap PVC Assoc)	Nagoya	00.04.53	24.10.75	53	22	13	24.10.75	Yes	PVC Assoc says not known. * Japan Times indicated on 25.10.75 exposures often at 3000 ppm up to 1974	13 yrs auto- clave cleaner 1964 - assigned to different work since had ill health		Japan Times 25.10.75 & Japanese PVC Assoc letter of 31.03.78
02	SO	02.08.39			00.11.58	10.08.76	37	17	13	10.08.76	Yes	Not known	in polymer- isation work including autoclave cleaning		Japanese PVC Association letter of 31.03.78

CASES NOT YET CONFIRMED

	Shigeo Sato		Sub- contractor to Mitsui Toatsu	Nagoya								Reactor cleaner 1964-1974			Pre-cancerous disorder of liver Japan Times 25.10.75 not confirmed by Jap PVC Assoc
	Shigeo Tanaka		Mitsui Toatsu	Nagoya	1933	Nov 1968	43	16		14.01.69					Japan Times 27.10.75 (some figures uncertain bad print). Not confirmed by Jap PVC Assoc
	Kazuyoshi Ono		Mitsui Toatsu	Nagoya		Dec 1967	47			Dec 1967					Japan Times 27.10.75. Not confirmed by Jap PVC Assoc

INTERNAL CHEMICAL INDUSTRIES, LIMITED
PLASTICS DIVISION
LIVER ANGLOsarcoma Cases - (Review Date: 1 May 1980)

URL 15940

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER REMARKS	OTHER COMMENTS
NORWAY 01	AN	23.12.15	Morak Hydro	Moroya	00.03.50	21.12.71	56	22	21	04.01.72	Yes	High	Foreman & Autoclave supervisor		Confirmed by Dr Thilo- Evanson of MM. At APRK Mtg of 9 June 1978 Mr P Bangnes stated that AN had been a member of a start-up team. VCM & PVC were made in same building. The VCM was made from acetylene

URL 15941

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

Data confirmed
in Dr D Byren
letter 18.8.77
to CEFIC

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST TO EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
UK															
01	RJ	20.04.01	ICI	Millhouse	04.04.44	03.12.72 (Fox & Collier paper mags 23.12.72)	71	20	22	03.12.72 (Fox & Collier paper mags 23.12.72)	Yes	500 ppm	1944-7 WCH 1947-8 Drifter 1948-61 Autoclave operator 1961-66 Drifter		
03	BJV	02.06.37	BP	Berry	00.02.66	00.12.74	37	09	3.5	24.12.74	Yes	High	Autoclave cleaner		Exposure related to 12.66 - 9.69
04	JBR	23.06.20	ICI	Millhouse	26.04.54	00.06.79	59	23	10	12.10.79	Yes	Medium- High	1945-5 Loading Plant 1955-6 Vehicle Drifter Plant 1956-58 Autoclave worker 1958-61 Chargehand Drifter Plant 61-72 Foreman IC 2/3 Plant	Pre-war fish packer 1938-45 army vehicle maintenance 1945-54 fish packer	

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
UK 05	K	30.03.14	BP	Barry	08.01.51	00.10.79	65	28	21	19.11.79			1951-52 Polycleaner 1952-55 Latex 1955-60 Polyfloor 1960-64 Poly Chargehand 1964-70 Charging operator 1970-72 Drier operator		
06	P	1931	BP	Barry	1962	09.01.80	48/9	18	12	09.01.80			Greener on Poly Floor		In their supplementary list HIOSH are still quoting Case 102 from IDCO (which has been discounted in the UK. IDCO spread many polymers including PVC into fabrics. The UK Government Medical Advisory Service also know of two further con- firmed ASL cases in plastics fabrication workers but it is dubious whether they ever handled PVC

URL 15944

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
USA															
01	Earl Perke	17.10.23	BFG	Lowle- ville	09.12.48	03.03.73	49	24	21	03.03.73	Yes		Pot Cleaner (Block Jama 1974) p 53		Rolling Stone Art Ref 1 NY Acad of Sc Symp 1974 Also Block Jama 1.7.74 p 53
02		19.08.33	BFG	Lowle- ville	15.11.55	00.03.70	37	14	13	27.09.71 (NLOM symp 28.09.71)	Yes		Pot Cleaner (CF Block)		Ref 1 Also Block JAMA 1.7.74 p 53
03		23.05.15	BFG	Lowle- ville	28.11.45	19.12.73	58	28	28	19.12.73	Yes		Pot Cleaner (CF Block)		Ref 1 Also Block
04		13.01.24	BFG	Lowle- ville	06.07.52	19.08.67	43	15	13	07.01.68	Yes		Pot Cleaner (CF Block)		Ref 1 Also Block
05		23.01.12	BFG	Lowle- ville	19.06.44	09.04.64	52	20	20	09.04.64	Yes		Pot Cleaner (CF Block)		Ref 1 Also Block
06	Ray Annette Jonest	23.11.28	BFG	Lowle- ville	17.01.62	00.02.74	45	12	12	24.07.75	Yes		US Air Force Pot Cleaner (CF Block)		Ref 1 + Lenterville Times 23.7.75 Retired April 1974 Also Block
07	Charles T. Smart	03.05.22	UCG	8 Charles- aton	27.08.44	00.08.68	45	24	17	23.03.68	Yes				Ref 1
08		06.05.20	Goodyear	Niagara	07.10.46	00.08.61	41	15	15	29.08.61	Yes				Ref 1

URL 15945

IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISION

LIVER Anglosscreen Cases - (Review Date: 1 Aug 1980)

UK system of dates
DAY - MONTH - YEAR

USA
Sheet 2

Page 19

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
09	Raymond Geller- Vingert	08.11.31	BPC	Louis- ville	28.05.45	01.03.74	43	29	24	11.03.75	Yes	2000 ppm			Ref 1 has wrong figures re first exposure- Louisville time 29.10.74, 12.3.75, 10.3.76
10		16.06.13	Goodyear	Milagra	12.06.31	00.03.68	33	17	17	10.03.68	Yes				Ref 1
11		27.05.09	Goodyear	Milagra	16.10.46	00.03.70	61	23	23	16.03.70	Yes				Ref 1
12	Francis A Heckman	17.11.18	Pirestone	Pottstown Pa	13.07.49	02.03.69	50	20	19	02.03.69	Yes	High 10 yrs 10 yrs as reactor op. (not cleaner) - separate dryer op. - separate crew cleaned stripping op. (autoclaved) 15 yrs prior service in tyre plant	Heilly & Service op. Dagger Russell A Park to J T Seawell of MCA		
13	Richard Edward Clementis	01.12.21	BCC	Charle- ston	11.12.42	00.05.74	32	32	26	07.04.74	Yes	2000 ppm			Charleston Bally Mall 21.7.75
14															Publone fabrication case
15															Publone fabrication case

URL 15946

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
USA															
16	James Howard	04.11.27	BPG	Lewler- ville	06.05.50	00.00.69	41	19	04	27.03.69	Yes		1951-4 VCM polymer- ization	From 1954 forward in Army and other services. 16-50 Army	Table 4 in Hagener Testimony to US Senate Confirmed in 11/11/78
17		06.05.31	BPG	Lewler- ville	23.06.59	11.10.74	43	19	19	Alive	Yes				Confirmed alive & BPG case in 11/11/78
18	Charlie Archer	22.04.26	BPG	Avon Lake	15.09.54	00.00.75	46	21	13	02.11.75	Yes	13 yrs outclaimer 8 yrs on Betal plasticizer & Carboset operation	Heavy Tyre Store		Confirmed in 11/11/78 11/11/78 Also Rolling stone mag. 15.01.76
19	Virgil Charleston	00.00.15	BPG	8 Charle- ston	00.00.43	19.06.75	60	32	32	06.04.76 (Latest NIOSH says alive)	Yes	2000 ppm			Williamsport Sun Gazette 21 June 1975 Charleston Daily Mail 21.7.75
20		31.06.17	Goodyear	Elk Grove	00.00.55	30.01.76	58	21	18	30.01.76	Yes				NIOSH letter of 25.10.79
21	Charles Mickle	02.09.09	BPG	8 Charle- ston	00.12.46	Early 77	67	30	22	02.01.77	Yes				20 yrs with BPG at SC retired News release 23.2.77

IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISIONUSA
Sheet 4

Page 21

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980)

*UK system of dates
DAY - MONTH - YEAR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL CONFIRMATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
USA															
22		02.10.23	Is this BPC?	Is this 10th Louis- ville victim?	11.07.47	00.01.76	52	29	20	04.12.76	Yes				Louisville Times 26.1.76 said he was the 10th AS victim at Belle Lane of whom 8 had died by 26.1.76
23		00.00.23	Great American Chemical Company	Fitchburg Mass.	08.09.50	06.04.73	50	15	14	06.04.76	Yes				
(24) Remove from Register. Not an ASL Case	Charles Edward Moore	17.05.17	DCC	S Charle- ston	1939	27.05.77	60	30	24 (NIOSH says 26)	27.05.77	Cholangio- sarcoma (R Kaminaki 26/2/79)	Medium to high for 24 yrs	1941-65 non- solvent vinyl resin unit and dispersion vinyl resins unit first as fitter helper, then shift utility man	1937-39 was off and on labourer 1939-41 may have been exposed as reactor cleaner 1943 became shift fitter 1946 became shift utility man 26.04.65 employment was terminated	R M Wheeler letter of 18.6.77 to J Stafford gives details Rose Kaminaki letter of 26/2/79
(25) NIOSH may remove from register		07.08.10	?	?	00.02.47	10.03.77	67	30	20	10.03.77	No NIOSH may move from their register				R M Wheeler letter of 20/2/79 and Rose Kaminaki letter of 26/2/79

LIVER Angliourcome Cases - (Review Date: 1 May 1980)

40K species of dates
DAY - MONTH - YEAR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COUNTRY AND REFERENCE NO	NAME OR INITIALS	DATE OF BIRTH	COMPANY	FACTORY	FIRST VC EXPOSURE	DATE OF DIAGNOSIS	AGE AT DIAGNOSIS	YEARS OF EXPOSURE TO DIAGNOSIS	YEARS OF EXPOSURE	DATE OF DEATH	HISTOLOGICAL COMPLETION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
USA															
26	John Berry	01.07.23	BPC	Leeds- ville	03.10.67	00.00.77 (up to 2 years after death)	32 (death)	28 (death)	18	11.02.75	Yes	Exposed in house degree in PVC to 32 chemical but main exposure was to VCM. probably high	Various jobs in PVC plants from cold room to paste recovery to PVC charging operator to paste charging. 111 August 1965. Terminated employment Jan 1966		R Komiashki factor of 26/2/79 and Prof. Tamherro factor of 9/11/79
27	J L Forrest	11.05.16	BCC	8 Charles- ston	01.07.41	30.11.78	62	37	20 (MOSH days 27 and C Bully Mail 25)	25.11.78	Incomplete (MOSH now days com- pleted)	High	Operator to 10.10.76	Exposure in bulk and dispersion PVC manufacture	L R Wheeler factor of 4 Jan 1979 and Charleson Bully Mail 30.11.78 and A Komiashki 26/2/79
28		11.04.17	BCC	8 Charles- ston	1944	1977	61	33	33	03.11.78	Yes				R Komiashki factor of 6/4/79

IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISION

LIVER Angiosarcoma Cases - (Review Date: 1 May 1980

[illegible]

Incidence of ASL Cases Per Annum

	By date of diagnosis	By date of death
1955	1	1
6	0	0
7	1	1
8	0	0
9	0	0
1960	0	0
1	1	1
2	1	1
3	0	0
4	1	1
5	0	0
6	1	1
7	3	1
8	4	5
9	2	3
1970	4	2
1	2	3
2	4	5
3	9	6
4	7	6
5	10	11
6	13	12
7	7 (excluding 2 Removals)	8 (excluding 2 Removals)
8	8	10
9	4	4
1980	1	1
Total	84 (excluding 2 Removals from US list + 2/3 vague Japanese cases)	83 (excluding 2 removals from US list + 2/3 vague Japanese cases)

- N.B.
- 1 Does not include Italian 01 but does include German 03.
 - 2 Does not include Japanese suspect cases. Since post mortem examinations are rare events in Japan, confirmation of ASL is a problem as indeed is its discovery.

TABLE 2

Distribution of ASL Cases by Country

USA	24 ***
Canada	10
W Germany	17 **
France	13
Sweden	4 ****
Yugoslavia	3 *****
Italy	2 *
UK	5
Czechoslovakia	2
Norway	1
Belgium	1
Japan	2

Total 84 (allowing for 2 removals from US list due to mis-diagnosis and omitting 2/3 ill defined Japanese cases reported some years ago in Japanese newspapers).

* Omit 1t01 - atypical case of PVC bag extruder.
** Includes GE03 aerosol can filler.
*** Includes US17 - man still alive after ASL diagnosed 11.10.74 but removes Cases 24 and 25 where ASL not confirmed.
**** Includes one monomer worker.
***** Includes two monomer workers.

i.e. North America 34 (excluding 1 alive and 2 earlier cases removed)
Western Europe 43 (includes G03 aerosol can filler)
Rest of World 7 (excluding 2/3 suspect cases)

Pattern of ASL Cases by Factory(a) W Europe

Of the 43 cases in W Europe, 35 have occurred in clusters at 10 factories. Of the 17 German cases, 15 have occurred in clusters at 4 factories.

	<u>ASL Cases</u>
Kemanord, Sundsvall	4
PCUK, Brignoud	5
Dynamit, Troisdorf	6
RP, St Fons	4
Wacker, Burghausen	4
CWH, Marl	3
ICI, Hillhouse	2
BP, Barry	3
Solvay, Tavaux	2
Lonza, Waldshut	2
	<u>35</u>

(b) N America

Of the 34 cases in N America, 31 have occurred at four factories out of a total of 53 factories - in N America 46 plants have not had ASL cases.

	<u>ASL Cases</u>
BFG, Shawinigan	10
BFG, Louisville	11
UCC, S Charleston	6
Goodyear, Niagara	4
	<u>31</u>

(c) Rest of World

The 7 ASL cases are believed to be in 1 cluster of 3 and 2 clusters of 2 cases.

Latency Periods (Years from first Exposure to Diagnosis)

	<u>W Europe</u>	<u>No of Cases</u>	<u>Total Years</u>	<u>Average</u>
	Belgium	1	18	18
	France	13	298	22.9 *
	Germany	17	305	17.9 *
	Italy	2	37	18.5
	Norway	1	22	22
	Sweden	4	106	26.5
	UK	<u>5</u>	<u>108</u>	<u>21.6</u>
		<u>43</u>	<u>894</u>	<u>20.8</u>
<u>N America</u>				
	US	24	557	23.2 *
	Canada	<u>10</u>	<u>204</u>	<u>20.4 *</u>
		<u>34</u>	<u>761</u>	<u>22.38</u>
<u>Rest of World</u>				
	Czechoslovakia	2	31	15.5
	Japan	2	39	19.5
	Yugoslavia	<u>3</u>	<u>65</u>	<u>21.7</u>
		<u>7</u>	<u>135</u>	<u>19.3</u>
<u>Summary</u>				
	W Europe	43	894	20.8
	N America	34	761	22.38
	Rest of World	<u>7</u>	<u>135</u>	<u>19.3</u>
		<u>84</u>	<u>1790</u>	<u>21.3</u>

* Of the countries with > 10 cases, France and USA have average latency period above world average and Germany well below.

Annual Incidence of ASL Cases (Date of Death) by Geographical Area

	Western Europe	North America	Rest of World	Annual Total
1955		1		1
7		1		1
1961		1		1
2		1		1
4		1		1
6			1	1
7	1			1
8		5		5
9	1	2		3
1970	1	1		2
1	1	2		3
2	4	1		5
3	1	3	2	6
4	3	2	1	6
5	6	4	1	11
6	6	4	2	12
7	6	2		8
8	8	2		8
9	4			4
1980	1			
	*43	33	7	83

* Includes G03 aerosol can filler but omits It 01 bag extruder

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PLEASE TO THE



Vinyl chloride

CHEMICAL MANUFACTURERS ASSOCIATION

RECEIVED

April 9, 1980

APR 14 1980

To: Vinyl Chloride Technical Panel
Vinyl Chloride Research Coordinators
Vinyl Chloride Audit Task Group

MEDICAL
DEPARTMENT

Gentlemen:

The demands for the services of the Special Projects Staff have increased considerably. In order to provide timely action and to reduce the work load of each Project Administrator to a manageable level, I am working toward a structure whereby each Project Administrator will be responsible for not more than five projects. Toward this end CMA has recently added to its staff Carol R. Stack, Ph.D. Her biographical sketch is enclosed with this letter.

Evaluation of the current work load leads me to conclude that transferring the Vinyl Chloride Project from Joe Seawell to Carol is perhaps the most feasible solution for reducing Joe's work load to a more reasonable level.

We at CMA have a high regard for Joe and Panel members have informed us of their recognition of his dedicated efforts on behalf of the Panel. Members have expressed regret that his background will be lost to future Panel operations. Let me assure you that such will not be the case as he will serve in an advisory capacity for as long as necessary.

In order to insure a smooth transition, I have met with the Panel Chairman and heads of Task Groups and explained to them the rationale for this change. I have assured them that we shall take all necessary action to preserve the continued effective operation of this Panel.

Sincerely,

Hasmukh Shah

Hasmukh C. Shah, Ph.D.
Director, Special Projects

HCS:md
Enclosure

Formerly Manufacturing Chemists Association—Serving the Chemical Industry Since 1872.

1825 Connecticut Avenue, NW • Washington, DC 20009 • Telephone 202/328-4200 • Telex 89617 (CMA WSH)

UPL 15955



CHEMICAL MANUFACTURERS ASSOCIATION

Dear Panel Member:

I would like to take this opportunity to introduce you to Dr. Carol Stack. Dr. Stack joined the CMA staff on February 1, 1980 as a project administrator currently responsible for benzene, styrene, and chlorobenzenes.

Dr. Stack received a Ph.D. in Biology from New York University in 1969. Her graduate research centered on histological and histochemical studies of internal auditory systems. Before joining CMA, she was a Biologist in the Toxicology and Biomedical Sciences Department at Equitable Environmental Health where she served as an Assistant Project Director responsible for the preparation of NIOSH multi-chemical criteria documents. Her duties included a review and evaluation of all literature pertinent to the study, preparation of the text, and defense of the contents. She also conducted site visits at plants involved in the manufacture and use of these chemicals.

Carol is looking forward to meeting with you in the near future. If she can be of any assistance to you, her phone number at CMA is 202-328-4352.

Sincerely,

A handwritten signature in cursive script that reads "Rasmukh C. Shah".

Rasmukh C. Shah, Ph.D.
Director
Special Projects

HCS/law

Formerly Manufacturing Chemists Association—Serving the Chemical Industry Since 1872.

1825 Connecticut Avenue, NW • Washington, DC 20009 • Telephone 202/328-4200 • Telex 89617 (CMA WSH)

UPL 15956