



DOW CHEMICAL U.S.A.

MIDLAND, MICHIGAN 48640

1803 BUILDING
22 February 1984

W. Clark Cooper, M.D.
I. Tabershaw, M.D.
C. Tamburro, M.D.
O. Wong, Ph.D.

ANGIOSARCOMA REGISTRY

Dr. Brian Bennett of ICI has taken the responsibility of monitoring this registry of sarcoma cases associated with vinyl chloride. Since this registry, which Dr. John Stafford started, has been most useful in maintaining proper perspective on the angiosarcoma issue, I am sending you the 17 January 1984 update.

Sincerely yours,


T. R. Torkelson, Sc.D.
Health & Environmental Sciences
517/636-5197

g

Enclosure

cc: Dr. B. Bennett, ICI

bcc: K. Beutel, Horgen
E. Blair, 2020
T. Burtch, 2030
W. Chen, Sarnia
R. Cook, 1803
H. Farber/S. Dombrowski, 2020
P. Gehring, 2030
B. Holder, 2030
J. Lanham, Sarnia
J. Norris, 1803
R. Oubre, Oyster Creek
C. Park, 1803
J. Reuvers, Terneuzen
L. Rinzema, Horgen
L. Skory, 2020
J. Triebwasser, 607
H. Verschuuren, Rotterdam
P. Watanabe, 1803

R&S 039785

Liver Angiosarcoma Cases

Circulation

Dr A Noua Adams, Air Products
Mr P M Anderson, Wilton
Dr W C Barnes Jr, Monsanto USA
Dr John Barr, Air Products
Dr Peter Baxter, EMAS
Dr Brian Bennett, Millhouse (20 copies - ICI, AECI, Duperial)
Dr Pietro Bertazzi, Milan University
Dr Besche, Dynamit Nobel, Troisdorf
Dr F W Best, Everberg
Dr C Bishop, EMAS
Dr E Bougea, AECI Ltd, Plastics Div'n, PO Box 1122,
Johannesburg 2000, South Africa
Dr David Bryson, AG Division
Mr David Burgess, ICI Americas
Dr David Dyren, Kemunord
Dr J T Carter, BP
Mr C Cella, Montepolimeri
Mr H Chance, VCH Technical Manager, Mond
Mr P Q Claus, AFME
Mr Harold Clayton, Norsk Hydro
Dr Contassot, Chloé Chimie, St Fons
Dr E W Dacey - NIOSH, Cincinnati
Mr J Q Davison, Everberg
Sir Richard Dull, Warden, Green College, Oxford
Mr G Dupont, AFME
Mr H Emsinger, VKE
Dr W Ernst, Berufsgenossenschaft der chemischen
Industrie, Murnberg
Dr Henry Fulk, CDC Atlanta
Dr D M Ferguson, ICI Americas
Dr H P Friedel, Berufsgenossenschaft der chemischen
Industrie, Heidelberg
Prof L Gullberg, Duke University Medical Center, Box 2914
Durham, North Carolina 27710, USA
Dr R E Gostonyi Jr, Tenneco Chemicals, Saddle Brook (NJ)
Dr Walter D Harris, Uniroyal Inc
Dr Donald W Hillman, Diamond Shamrock
Dr Robert K Hinderer, BF Goodrich (Cleveland)
Mr J Hodgson, EMAS
Dr W A Hogg - Imperial Oil Ltd, Canada
Dr J K Howard, Wellington Clinical School of Medicine,
University of Otago, Wellington Hospital,
Wellington, New Zealand
Dr N F Humphry, ICI Australia Operations Pty Ltd, PO Box 4311
Melbourne, Victoria 3001, Australia
Mr J Jauvert, Chloé Chimie, Paris
Mr H H Jarvis, Millbank
Dr M N Johnson, BF Goodrich
Dr Bruce Karrh - Dupont
Dr R A Krueger, BF Goodrich
Dr J P Laloine, Solvay

Mr J Lawrence, SPI
Dr F I Lee, Victoria Hospital, Blackpool
Prof W K Lalbach - University of Bonn
Dr D A Levison - St Bartholomew's Hospital, London
Dr P Lewis, CIA
Mr Lollivier, Solvay
Prof R N M MacSwain - Western Infirmary, Glasgow
Dr J M Maillard, Medizinische Abteilung, Suva,
Postfach 6002, Luzern, Switzerland
Prof C Maltoni, Bologna
Dr Menzo Maltinasi, Montedison
Mr Mokku, Nute Oy
Dr R Montessano, Iarc, Lyons
Dr A A Motti, Duperial SAIC, Buenos Aires
Dr A Munn, Monsanto, Brussels
Mr H Munoz Monton - Rio Rodeno
Mr S Nakamura, Japanese PVC Association
Dr John J O'Sullivan Mond
Dr R Owen - TUC
Dr G H Puddle
Dr S Paglielunga - Montedison
Dr Hans Popper, Mount Sinai Medical Centre
Dr J Ponsberg, Wacker
Dr James Purdum - Canadian Centre for OHS
Mr P Rangnes, Norsk Hydro
Dr R Saracci, Iarc, Lyons
Dr David Seronne, Diamond Shamrock
Dr Paul M Smith, Llandough Hospital
Dr R Spirtes - NCI/NIH Bethesda
Dr Carol Stack, CNA Washington
Dr J Stafford
Mr Stahnacker, BASF
Prof C H Tamburro - University of Louisville
Dr Gury Ter Haar, Ethyl Corporation
Dr B Terwiesch, CMI
Dr Gilles Theriault - McGill University
Prof Dr Thiess, BASF
Dr E Thies - Evensen, Norsk Hydro
Dr W Turdoir, Shell
Dr T R Torkelson, Dow
Mr J R Wallace, Esso Chemical, Sarnia, Canada
Mr S O Wejling, Kemunord
Mr R H Wheeler, UCC
Dr J Whiston, Millhouse
Mr K H White, Duperial SAIC, Buenos Aires
Dr I W Williams, Norsk Hydro
Dr D M J Williams, BP Barry
Dr K S Williamson
Dr Peter Wright, P & P Wilton
Mr John York, Everberg

PREFACE

ACKNOWLEDGEMENTS, SIGNIFICANT CHANGES AND COMMENTS

- 1) Since John Stafford's retirement from ICI, I am pleased to say that he has been elected an Honorary Fellow of the Faculty of Occupational Medicine at the Royal College of Physicians, London.
- 2) I would like to thank Dr Paglialunga for all his patience and hard work in helping me to acquire the necessary facts which enabled me to place the recent Pansac ASL in the Register.
- 3) I would like to thank Dr Laundrie, General Tire and Rubber Company, Akron, Ohio, and Dr Dacey, Robert A Taft Laboratories, Cincinnati, for informing me of recent ASL cases.
- 4) I am grateful to Dr Contassot for sending me information about three new ASL cases which have occurred at the St Fons' Factory in Lyons, and also for the full account which he gave.
- 5) I should be very grateful if I could be kept up to date with the five ASL cases which I have placed in the Register, who are all still alive at this present time.
- 6) I would like to express my appreciation for all the help I have been given in carrying on the work of John Stafford by everybody who has sent me their helpful comments and communications.
- 7) On taking over the Register, I discussed with Dr John Stafford his present format. We both felt this would be the appropriate time to consider any worthwhile comments about its presentation, and also suggestions for any way it could be improved, in order to benefit future analysis.

B BENNETT
17 Jan 84

R&S 039787

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

LIVER ANGIOSARCOMA CASES (REVIEW DATE - 1 JANUARY 1984)

Table Sequence

Belgium	1	ASL Case Numbers by year of Death (Table 6)	40
Canada	2-3		
Czechoslovakia	4	ASL Case Numbers by year of first exposure (Table 7)	41
France	5-8	Western Europe PVC Producers - Start-up Dates vs ASL Cases (Table 8)	42
Germany	9-13		
Italy	14	USA PVC Producers - Start-up Dates vs ASL Cases (Table 9)	43-44
Japan	15	Canadian PVC Producers - Start-up Dates vs ASL Cases (Table 10)	45
Norway	16		
Sweden	17	East European PVC Producers - Start-up Dates vs ASL Cases (Table 11)	46
UK	18-20	Japanese PVC Producers - Start-up Dates vs ASL Cases (Table 12)	47
USA	21-26		
Yugoslavia	27	South & Central American PVC Producers - Start-Up Dates (Table 13)	48
Incidence of Cases pa (Table 1)	28		
Distribution of Cases by Country (Table 2)	29		
Pattern of Cases by Factory (Table 3)	30		
Latency Periods (Table 4A)	31		
Distribution of Latency Periods (Table 4B-4H)	32-8		
Annual Geographical Incidence (Table 5)	39		

R&S 039788

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Page 1

LIVER Angiosarcoma Cases - (Review Date: 1 January 1984)

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
BELGIUM															
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 6 to 9m autoclaves 1968-1972 exposed to 50-200 ppm 8 hrs per day in 25m autoclaves 1972-1974 exposed to 50-200 ppm in auto- clave room 1974-100 ppm 1975- 50 ppm RETIRED 1 Feb 1975	Autocleaner 14 yrs Polyworker 3 yrs Work in glass ind. & chemi- cal industry	Driller in a foundry (2 yrs) Farmer (15 yrs) Hospitalised May 1976	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., Toxic. Med., Leg. 1977 pages 601-622

R&S 039789

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

* All dates use 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			SHAWINIGAN												
01		15.12.13			1944	1955	41	11	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	24.12.72	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 yal Smoker
09		19.07.21			1946	1974	53	28	26	04.09.74	Yes		Furnace op. pipefitter maintenance		Worked overtime Smoker

* Paper by Dr F DELORHE in Annales d'Anatomie pathologique Paris, 1978 Vol 23 No 2 pp105-114 claims this case had both a hepatoma and ASL simultaneously.

R&S 039790

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Page 4

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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
CZECHOSLO- VAKIA															
01		28.06.28	State Co	Novaky	01.07.57	24.12.73	45	16	16	24.12.73	Yes		Autoclave Cleaner	IARC letter of 1-4-82 giving details from Prof A David of Centre for Hygiene and Occup diseases.	
02		06.07.27	State Co	Novaky	01.11.50	27.11.64	37	14	15	26.11.64	Yes		Autoclave Cleaner	IARC letter of 11-4-82 gave somewhat altered dates for this case. I have accepted the changes since the dates come from Prof A David of the Centre of Industrial Hygiene and Occupational Diseases. My dates come originally from NIOSH.	

R&S 039792

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

France
Sheet 1

Page 5

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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	HM	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° 13 Nov 75 p 171-177
02	SHM	03.06.11	PCUK	Brignoud	06.07.59	15.01.75	63	16	12	24.01.75	Yes (NIOSH no comment)	High	12 yrs on monomer 10 yrs on polymer- ization	Italian origin	Ref. G Bonneton et al "Nouvelle presse medicale" 15 Nov 1977 p 735
03	NAV	06.01.20	RP	St Fons	00.00.46	15.01.75	55	29	29	29.06.75	Yes	High	Polyworker 10 yrs as autoclave cleaner Compounding 13 yrs	VCM production 16 yrs Italian POW Shepherd, Sawyer, Mason	Ref. Rutz et al Arch. Mal. Prof. 1 37 n° 16 June 77 p 551-555
04	HUR	27.01.27	PCUK	Brignoud	19.10.49	16.01.76	49	26	26	04.01.76	Yes	High	Monomer production worker 18 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	1) Thoracotomy 19th Feb 1976 costal angiosarcoma 2) Scintigraphy found ASI. 3) Haemorrhage from ASI. 4) Right Hepatectomy	Ref. P Candere et al "Semaine des hopitaux" 10 Septembre 1976 Previously had bone angiosarcoma Also Pillchowski et al "La Nouvelle Presse Medicale" 17th July 1979 Page 2483

R&S 039793

IMPETAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

France
Sheet 2

Page 6

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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															
06	Pa	14.04.34	PCUK	Brignoud	01.03.58	12.08.76	42	18	13	11.09.76 (NIOSH says 12.09.76)	Yes	Moderate	(1958-1960) 12 yrs Filtration 10-11 yrs polyworker land works lab?		This man had AOL prior to AS. Ann. de Mal. Prof. July '77 p 645 & 6. AOL was found in 1971 five yrs before ASI.
07	GLK	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	Tavaux	23.05.57	03.12.75	42	19	19	30.01.77	Yes	Moderate	6 yrs packer 14 autoclave clnr 14 yrs autoclave worker		Had been tunnel worker previously
09	RFX	08.10.14	RP	St Fons	10.01.48	26.04.76	63	28	28	25.12.77	Yes	Very High 1948-1966 Lesser Exposure 1966-1976	Polymer- isation operator, autocleaner, autoclave maintenance	10 yrs in sulphuric acid factory, autocleaner & general servicau	Operated 4.76 for removal of tumour from liver and died after second surgical operation for bilio bronchial flatula Paper by Dr Rety et al in Archives des Malades Professionals Vol 40 No 6 1974 pages 741-3.

R&S 039794

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

France
Sheet 3

Page 7

LIVER Angiosarcoma Cancer - (Review Date: 1 Jan 1984)

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																
10	VP	24.05.19	RP	St Fons	00.12.56	10.01.78	58	21	21	10.01.78	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- ization general purpose worker 1946-1972 VCM synthesis (HCl & Acetylene) Foreman (agent de maitrise) 1972 retired			
12		16.08.14	PCUK	Brignoud	09.02.49	00.05.79	65	30	27	23.06.79	Yes	High	Monomer production and polymer- ization operator			
13		19.01.31	Solvay	Tavaux	23.09.63	26.06.79	40	16	13	22.08.79	Yes		Autocleaner 12 yrs, Auto- operator 19 yrs, Copolymers 14 yrs	2 yrs as cycle mechanic. 10 yrs as operator in sanitary ware manufacture	Cigarette smoker until 1974. Ill all of 1977 due to Oesophageal varices. Surgical intervention 25.05.79 (right hepatectomy)	
14	RI	05-04-24	Chlor Chimie (Formerly RP)	St Fons	1943	00.07.81	57	38	36	29.07.81	Yes	Very High	1943-1975 1943-1975 and Intermitt- ently 1975-1979	1943-1975 All types of jobs on work manufacture & maintenance in VCM Poly Process	1975-1979 maintenance work	

562960 R&S 039795

R&S 039795

IMPERIAL CHEMICAL INDUSTRIES LIMITED
PLASTICS DIVISION

France
Sheet 4

Page 8

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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 15	DEP	03.01.37	Chloe Chimie (formerly RP)	St Fons	07.07.55	28.09.82	45	27	27	Alive	Yes	High-20 yr Moderate 17 yrs	Autoclave cleaner 1955-1962 autoclave operator 1962-1982		J C Contassot Letter of 15 10 1983
16	GIM	13.07.22	Chloe Chimie (formerly RP)	St Fons	27.10.41	05.01.83	61	41	38	Alive	Yes	High-33 yrs Moderate- Low - 5 yrs	Polymerizat- ion Process Man Maintenance Worker Health & Safety Agent		Retired Jan 1979. J C Contassot Letter of 15 10 1983
17	HAH	22.02.23	Chloe Chimie (formerly RP)	St Fons	17.06.48	03.04.83	60	34	28	03.04.83	Yes	High - 123 yrs	Autoclave Cleaner 1948-1971	Other sectors of St Fons Factory 1971- 1978	Retired 01.01.79 J C Contassot Letter of 15 10 1983

R&S 039796

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Germany
Sheet 1

Page 9

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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															
01		100.00.30	Dynalut	Troisdorf	01.10.56	19.09.68	38	12	12	25.01.69	Yes (NIOSH)		Polyworker		
02		100.00.31	Dynalut	Troisdorf	14.10.57	25.09.70	39	13	11	14.12.71	Yes (NIOSH)		Polyworker		
03		100.00.30	Dynalut	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		100.00.30	Wacker	Burg- hausen	16.04.57	26.11.74	44	17	17	25.11.74	Yes (NIOSH)	200-500 ppm but high during 1 yr autocleaner	Polyworker & temporary autocleaner for 1 yr	1958 was autocleaner	Clinical details in paper by Gokel et al Virchows Arch A Path 1976 172 p 195-203

R&S 039797

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Germany
Sheet 2

Page 10

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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 05 (NIOSH gives as Case 06)		00.00.36	Hoechst	Frankfurt	02.04.60	10.12.73	38	13	05	16.12.74	Yes (NIOSH)		HC 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- fication 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 polymerisation in pilot plant or in main plant.
06 (NIOSH gives as Case 05)		00.00.32	Lanza	Waldahut	16.12.62	00.00.75	43	13	12	09.01.75	Yes		PVC - Manu- facture Shift leader		
07		00.00.26	Wacker	Burg- 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 18 yrs (1967-1975)		
08		00.00.17	Dynamic	Trolsdorf	19.07.54	06.04.75	58	20	20	25.12.75	Yes	?	Polyworker	?	

R&S 039798

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Germany
Sheet 3

Page 11

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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	CMI	Harl	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 11 yr		10/78 Confirmed Average exposure first 19 yrs 150 ppm, 1000 ppm, Next 3 yrs av, 175 ppm, last, 1 yr av 35 ppm
10 (NIOSH gives as Case 11)		00.00.36	CMI	Harl	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 19 yrs 150 ppm, 1000 ppm, last yr av 175 ppm, CMI letter of 12.04.78
11 (NIOSH gives as Case 10)		00.00.29	Wacker	Burg- hausen	10.10.55	28.06.77	47	21	22	28.06.77	Yes	High	13 yrs auto- clave cleaner 19 yrs filter operator		
12		00.00.38	Dynamit	Troisdorf	00.00.61	00.10.77	39	16	6	07.10.77	Yes	?	PVC Manu- facture Autoclave worker for 16 yrs		

R&S 039799

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Germany
Sheet 4

Page 12

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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															
13		00.00.14	Lonza	Waldshut	00.00.60	08.04.78	63	18	14	19.05.78	Yes				F W Best letter of 30th June 1980 enclosing data from Mr R P Friedel of BG Chemie
14											Not an Angiosarcoma In his letter of 21 12 81, Mr Friedel said this was a "Plattenepi- thelkarzinom der Speiseröhre" (a carcinoma of the oesophagus) not attribut- able to VCM & not recognised as an indust- rial disease				F W Best letter of 30th June 1980 enclosing data from R P Friedel of BG Chemie withdrawing this case
15	(NIOSH gives this as Case 13)	00.00.29	Wacker	Burghausen	19.10.53	09.10.78	49	25	25	23.10.78	Yes	?	Autoclave cleaner and worker. Drier operator. Later shift leader		Angiosarcoma confirmed 09/79. Some detail of this & also cases 19, 13, 15, 16 & 17 given in NRW Report for 1978
16		00.00.23	Dynamin	Troisdorf	10.01.55	07.08.78 (Leibach suspected ASL at Feb 1975 (laparotomy))	55	23	20	07.08.78	Yes ASL and hepatocellular carcinoma	High	Autoclave worker till 1964. Leader and master		Angiosarcoma confirmed, full details of illness since March 1971 given in NRW Med Insp Rep for 1978. Different details given in "VC Associated Disease" by Leibach and Muntzeller (1981) p71.

R&S 039800

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Germany
Sheet 5

Page 11

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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															
17 (NIOSH gives as Case 15)		00.00.37	Dynamit	Troisdorf	01.11.61	14.08.78	41	16	11	28.08.78	Yes	High	Autoclave worker	No	Angiosarcoma confirmed. Annual report of the North Rhine Westphalia Medical Inspectorate for 1978 pages 347-377 gives full details. Vinyl chloride disease diagnosed 02-02-73. Oesophageal varices. Radiologically confirmed acri- outenlysis.
18		00.00.13	Hoechst	Cendorf	00.00.55	25.12.79	66	24	21	25.12.79	Yes		Autoclave Worker		
19		00.00.25	Dynamit	Troisdorf	18.10.54	00.08.79	54	25	18	22.02.80	Yes Metastasing ASL	High	Autoclave Worker		Dr Besche letter of 13-04-82 to Dr W G F Adams
20		00.00.15	Dynamit	Troisdorf	14.02.61	00.04.80	65	19	13	19.10.80	Yes Haemangio- Endothelioma of liver with Metastases	High	Autoclave Worker		Dr Besche letter of 13-04-82 to Dr W G F Adams
21		00.00.13	Dynamit	Troisdorf	01.01.62	00.09.79 (pronounced clinical liver syndrome)	66	17	13	19.06.80	Yes Haemangio- Endothelioma of liver with Metastases	High	Autoclave Worker and worked in drying shop		Dr Besche letter of 13-04-82 to Dr W G F Adams
22		00.00.21	Dynamit	Troisdorf	15.10.61	17-09-80	59	18	11	06.12.81	Yes Metastasing ASL	High	Autoclave Worker	Chargehand, subsequently Foreman	Dr Besche letter of 13-04-82 to Dr W G F Adams

R&S 039801

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

* Should this case be removed from the list? NIOSH have it on their supplementary list relating to non-polymerisation workers exposed to VCM.

Page 14

JS 1/8/77

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
ITALY															
01 (On NIOSH supplementary list)	LG	15.06.34	PANSAC		00.00.65	19.04.71	36	06	03	16.04.71	Yes		PVC Bag extruder		* [Primary tumour] [may have been] [pericardium]. [Not homo-] [geneous with] [other cases]. ***
02	SE	13.11.29	Montedison	Porto Marghera	00.00.57	13.12.72	43	15	06	27.12.72	Yes		Polyworker		***
03	VC	14.03.20	Solvay	Ferrara	00.01.53	10.07.75	55	22	21	10.07.75	Yes	High	[Autocleaner] [8 yrs (1953-] [61) Autoclave] [operator] [12 yrs (1961-] [72)]	1972-5 did a variety of jobs including PVC packing.	***
04	FB	20.07.37	ANIC	Ravenna	00.04.59	00.01.81	43	21	21	30.03.81	Yes	12 yrs - Very High 5 yrs - Medium 4 yrs - Low	11 yr - Monomer operator [See paper by CHIAPPINO et al Med Lavoro Vol 6 (1982) pp 555-563 [other duties] [in suspension [on polymer-] [isation]. [Area Foreman] [in same Dept] [since 1975.]	[Never cleaned [autoclaves. [See paper by CHIAPPINO et al Med Lavoro Vol 6 (1982) pp 555-563 [little [alcohol. No [AOL.	***
05	GC Borewin	19.03.37	Pannac	Mira Venice	00.00.67	07.03.83	46	16	8	06.04.83	Yes	Medium-7 High	Bag extruder 1967-1975 Commercial Dept 1976- 1983		S Paglia- lunga telex of 12 Aug 1983

R&S 039802

** See Maltoni Med di Lavoro 65 p445, 1974. Further details in letter from IARC on April 1st 1982.

*** Also see Maltoni and Rondinella in Acta Oncologica Vol 1 1980 pages 35 - 49. (ICI has made a translation of this paper into English and copies of the translation can be made available on request).

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Page 15

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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 Hori	01.08.22	Hitechi 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

* In his letter of 1st April 1982, Dr Montemano of IARC says Japanese Ministry of Labour give

Date of diagnosis - 21-08-74

Age of diagnosis - 52

Years of exposure - 22

R&S 039803

Page 16

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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
NORWAY															
01	AM	23.12.15	Norsk Hydro	Hleroya	00.03.50	21.12.71	56	22	21	04.01.72	Yes	High	Foreman & Autoclave supervisor		Confirmed by Dr Thilo- Evanson of NH. At APNE Hlg of 19 June 1978 Mr P Ragnæs stated that AM had been a member of a start-up team. VCM & PVC were made in same building. The VCM was made from acetylene

R&S 039804

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

Page 17

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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
SWEDEN															
01	HU	23.06.27	Kemanord	Sundsvall	14.08.51	20.10.70 ^A	43	19	18	20.10.70	Yes		Polyworker		
02	BL	27.11.11	Kemanord	Sundsvall	00.01.45	00.08.72 ^A	61	27	27	16.08.72	Yes	High	VCM production		Mr Sjostin's letter of 28 March 1978 confirms BL was a monomer worker who was heavily exposed, probably even more so than a normal reactor cleaner
03	HE	10.06.10	Kemanord	Sundsvall	00.05.47	18.03.76	65	29	21	19.03.76	Yes	High	Polyworker		
04	AL	16.11.14	Kemanord	Sundsvall	00.00.46	12.05.77	62	31	31	12.05.77	Yes	High	1946-1958 polymer- isation worker (12 yrs) & 1958- 1977 foreman (19 yrs)		In first 12 yrs of employment had been heavily exposed. In 1974, liver abnormality and necrosis diagnosed. Data confirmed in Dr D Byron letter 18.8.77 to CEFIC
05		12.03.19	Kemanord	Sundsvall	11.05.64	22.11.80	61	16	16	22.11.80	Yes	High - 6 Years Low - 10 Years	1944-1970 centrifuge operator 1970-1980 drier operator		Letter of 2nd Nov 1981 from Dr David Byron

R&S 039805

^A In his letter of 1st April 1982, Dr Montenegro of IARC says in Sweden's National Board of OS Health gives 20-02-70 as date of diagnosis for Case 01 and 15-05-72 for Case 02.

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

UK
Sheet 1

Page 18

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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 01	WJ	20.04.01	ICI	Hillhouse	04.04.44	03.12.72 (Fox & Collier paper says 23.12.72)	71	28	22	03.12.72 (Fox & Collier paper says 23.12.72)	Yes	500 ppm	1944-7 VCM 1947-8 Drier 1948-61 Autoclave operator 1961-66 Drier		Lee and Harry Lancet 29-06074 pages 1316-8
02															Dubious fabrication case
03	HJW	02.06.37	BP	Barry	00.02.66	00.12.74	37	09	3.5	24.12.74	Yes	High	Autoclave cleaner		Exposure limited to 2.66 - 9.69
04	JSH	23.06.20	ICI	Hillhouse	26.04.54	00.06.79	59	25	18	12.10.79	Yes	Medium- high	54-5 Bagging plant 55-6 Drier Plant 56-58 Autoclave worker 58-61 Chargehand Drier Plant 61-72 Foreman C 2/3 Plant	Pre-war fish packer 1939-45 army vehicle maintenance 1945-54 fish packer	

R&S 039806

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

UK
Sheet 2

Page 19

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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	JK	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 Chargeland 1964-70 Charging operator 1970-72 Drier operator		
06	CEP	1931	BP	Barry	1962	09.01.80	48/9	18	12	09.01.80			17 yrs Poly Floor Operator 15 yrs Crewer on Poly Floor		
07	RCB	26.04.20	BP	Barry	1963	00.00.80	60	17	82	13.06.80			Polycleaner 1963-5 Recovery 1965-1971		
08	WH	08.05.24	BP	Barry	19.09.50	27.11.81	57	31	24	25.12.81		1950-1958 500 ppm 1968-1974 200 ppm	1950-51 Autoclave operator 1951-1957 Operator on Chargeman autoclave building 1957-1974 Shift supervisor autoclave building - Revur cleaned autoclaves but supervisor's job entailed monitoring autoclaves to suspect them	1938-1948 Motor Mechanic 1948-1950 Operator on Acetylene Production Plant	

R&S 039807

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

UK
Sheet 3

Page 20

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

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 09	ELCP	07.05.25	BP	Barry	15.02.50	02.01.83	58	33	29	24.02.83	Yes	Medium	Polyworker	12 years on Acrylonitrile Resin Plant. Also prior to 1950, 4 years RAV maintenance. 13 years motor car paintshop. 12 years in Graving Dock.	

R&S 039808

IMPERIAL CHEMICAL INDUSTRIES PLC
PETROCHEMICALS AND PLASTICS DIVISION

USA
Sheet 1

Page 21

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

*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															
01	Earl Parks	17.10.23	BFG	Louis- ville	09.12.48	03.03.73	49	24	21	03.03.73	Yes		Pot Cleaner (Block Jama 1974) p 53	History given in Annals NY ACAD SCIENCES Vol 329 (1979) page 190 in Paper by B R Corline of IOSHA	Rolling Stone Art Ref 1 NY Acad of Sc Symp 1974 Also Block Jama 1.7.74 p 53
02		19.08.33	BFG	Louis- ville	15.11.55	00.05.70	37	14	13	27.09.71 (NIOSH says 28.09.71)	Yes		Pot Cleaner (Cf Block)		Ref 1 Also Block JAMA 1.7.74 p 53
03	Edward Dinwiddie	25.05.15	BFG	Louis- ville	28.11.45	19.12.73	58	28	28	19.12.73	Yes		Pot Cleaner (Cf Block)	Louisville Courier Journal 02-09-80	Ref 1 Also Block
04		15.01.24	BFG	Louis- ville	06.07.52	19.08.67	43	15	15	07.01.68	Yes		Pot Cleaner (Cf Block)		Ref 1 Also Block
05		25.01.12	BFG	Louis- ville	19.06.44	09.04.64	52	20	20	09.04.64	Yes		Pot Cleaner (Cf Block)		Ref 1 Also Block
06	Ray Austin Jones?	23.11.28	BFG	Louis- ville	17.01.62	00.02.74	45	12	12	24.07.75	Yes		US Air Force Pot Cleaner (Cf Block)		Ref 1 + Louisville Times 23.7.75 Retired April 1974 Also Block
07	Charles T Smart	03.05.22	UCC	S Charle- ston	27.08.44	00.00.68	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

R&S 039809

IMPERIAL CHEMICAL INDUSTRIES P.L.C.
PETROCHEMICALS AND PLASTICS DIVISION

USA
Sheet 2

Page 22

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1984)

AUK 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															
09	Raymond Guttle- Fluger?	08.11.31	BPG	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 Times 29.10.74, 12.3.75, 10.3.76
10		16.08.13	Goodyear	Niagara	12.06.51	00.05.68	55	17	17	10.05.68	Yes				Ref 1
11		27.05.09	Goodyear	Niagara	14.10.46	00.03.70	61	23	23	16.03.70	Yes				Ref 1
12	Francis A Bachman	17.11.18	Firestone	Pottstown Pa	13.07.49	02.05.69	50	20	19	02.05.69	Yes	High 10 yrs	10 yrs as reactor op. (not cleaner) - separate crow cleaned (autoclaved)	Utility & Service op. Bagger Dryer op. Stripping op. 3 yrs prior service in tyre plant	Ref 1 + letter of 26 April 1978 from Russell A Park to J T Swallow of NCA
13	Richard Edward Clendenen	01.12.21	HCC	S Charle- ston	11.12.42	00.05.74	52	32	26	07.04.74	Yes	2000 ppm			Charleston Daily Mail 21.7.75
14															Dubious fabrication case
15															Dubious fabrication case

R&S 039810