

CONFIDENTIAL

File
RECEIVED

*Angio
Sarcoma*
FEB 17 1988

R. W. FRASE

W O R L D R E G I S T E R
O F C A S E S O F

A N G I O S A R C O M A O F T H E

L I V E R (A S L)

REVIEW DATE

1 JANUARY 1988

Collated by:

Dr Brian Bennett
Occupational Health Department
ICI Chemicals and Polymers Limited
Hillhouse Site
PO Box 4
Thornton-Cleveleys
Blackpool FY4 4QD
England

(Telephone 0253 861632)
(Telex 67483 ICIPLHG)
(Facsimile 0253 861861)

GENC 008424

CIRCULATION OF REGISTER

RAGSHAW Dr I M M	Norsk Hydro, Newton Aycliffe, UK
BAND Dr P R	Cancer Control Agency of British Columbia, Vancouver, Canada
BARON Dr C	ICI Runcorn, UK
BARRAT Dr G	AECRP, Commeny, France
BAXTER Dr Peter	University of Cambridge, UK
BAYLAC Dr	Atochem, Chauny, France
BEAUPRE M	Government of Quebec Cancer Registry, Canada
BELLE C Dr	Rhone Poulenc, Aubervilliers, France
BENECH Dr M	Naphtachimie, Laveran, France
BENNETT Dr B	ICI Hillhouse, UK
BERTAZZI Dr P	Inst of Occupational Health, Milan University, Italy
BISHOP Dr C	EMAS, Cardiff, UK
BORRELLI F E	Georgia Gulf, Delaware City, USA
BOYER R W	Formosa Plastics, Delaware City, USA
BRAUN Dr C L J	Akzo, Arnhem, Holland
BREWER Dr M	Imperial Oil, Sarnia, Ontario, Canada
BRYSON Dr D D	ICI Billingham, UK
BURGESS Mr David	ICI Americas, Wilmington, Delaware USA
BYREN Dr David	Kemanord, Stockholm, Sweden
CARTER Dr J T	EMAS, London, UK
CATANZARITI A	EVC, Brussels, Belgium
CELLA Mr C	EVC, Brussels, Belgium
CHANCE Mr M	ICI Runcorn, UK
CLARKE Dr E A	Ontario Cancer Foundation, Toronto, Canada
CLAUS Mr P G	APME, Brussels, Belgium
CLAYTON Mr H	Norsk Hydro, Newton Aycliffe, UK
CONTASSOT Dr J C	Atochem, Saint-Fons, France
DAVIES Mr J G	ICI, Everberg, Belgium
DEJONG Dr G	Shell, An Den Haag, Holland
DELORME Dr F	Quebec, Canada
DEPLAN Dr	Atochem, Jarrige, France
DE VOS Mr A J	EVC, Welwyn Garden City, UK
DIETZ Dr H W	B F Goodrich, Akron, Ohio, USA
DOLL Sir Richard	Imperial Cancer Research Fund, Oxford University, UK
DOMBROWSKI S L	Dow Chemical, Midland, Michigan, USA
DRUMWRIGHT Dr J R	Vista Chemical, Houston, Texas, USA
DUPONT Mr G	APME, Brussels, Belgium
EMMINGER Mr H	VKE, Frankfurt, Germany
ERNST Dr W	Berufsgenossenschaft der Chemischen Industries, Nurnberg, Germany
EVANS Dr A E J	Lever Bros, Warrington, UK
FALK, Dr H	Chronic Diseases Div, US Dept of Health & Human Services, Atlanta, USA
FAVRE Dr	Atochem, Montluet, France
FERGUSON Dr D M	ICI Americas, Wilmington, Delaware, USA
FINCHAM Ms Shirley	Alberta Cancer Board, Edmonton, Canada
FORMAN Dr D	Imperial Cancer Research Fund, Oxford University, UK
FRASE R W	DiversiTech General, Akron, Ohio, USA
FRIEDEL Dr H P	Berufsgenossenschaft der Chemischen Industries, Heidelberg, Germany
GOSZTONYI Jnr Dr	R E Tenneco Chemicals, Piscataway, New Jersey, USA
GOTTESMAN R T	The Vinyl Institute, Wayne, NJ, USA
HARRIS Dr W D	Uniroyal Inc, Middlebury, Connecticut, USA
HENDERSON I B	ICI, Hillhouse, UK
HILLMAN Dr D W	Diamond Shamrock Corp, Dallas, Texas, USA
HINDERER Dr R K	BF Goodrich, Cleveland, Ohio, USA
HOWARD Dr J K	University of Otago School of Medicine, Wellington, New Zealand
HUMPHRY Dr N F	ICI Australia, Melbourne, Australia
JAUVERT Mr J	Chloe Chimie, Paris, France
JERVIS Mr H R	ICI Millbank, London UK
JONES Dr R D	EMAS, Bootle, UK

GENC 008425

KAIPERT Dr J H	Dow Chemical Europe, Horgen, Switzerland
KARRH Dr Bruce	Dupont, Wilmington, Delaware USA
KLEIN Dr H	Dynamit Nobel, Troisdorf, Germany
KREUGER Dr R A	BF Goodrich, Akron, Ohio, USA
LAGAST Dr H	Solvay, Brussels, Belgium
LALOINE Dr J P	Solvay, Brussels, Belgium
LANHAM Dr John	Dow Chemical, Midland, Michigan, USA
LANOUZIERE Dr	Solvay, Tavaux, France
LAWRENCE-JONES	Sir Christopher, Chief Medical Officer, ICI, London UK
LEE Dr F I	Victoria Hospital, Blackpool, Lancs, UK
LELBACH Prof WK	University of Bonn, West Germany
LEVEQUE Dr G	ODF Chimie, AZF, Bully-les-Mines, France
LEVISON Dr D A	St Bartholomew's Hospital, London, UK
LEWIS Dr P	Chemical Industries Association, London, UK
LOLIVIER Mr	Solvay, Brussels, Belgium
LUSS R D	Occidental Chemical, Pottstown, Pennsylvania, USA
LUSSATO Dr Josette	Atochem, France
MAILLARD Dr J M	Suva, Luzern, Switzerland
MALTONI Prof C	Institute di Oncologia, Bologna, Italy
MARGETTS, Mr R J	ICI Directorate, Wilton HQ, UK
MATIRE Prof Lo	Medil-Aric-S, Milan, Italy
MATTIUSI Dr R	Montedison, Milan, Italy
MIDDLETON D	Norsk Hydro, Newton Aycliffe, UK
MOKKA Mr	Neste Oy, Espoo, Finland
MONDESANO Dr R	IARC, Lyon, France
MOTTI Dr A A	Duperial SAIC, Buenos Aires, Argentina
MUNOZ MOUTON Dr M	Rio Rodano, Madrid, Spain
MacSWEEN Prof RNM	Western Infirmary, Glasgow, Scotland
NAKAMURA Dr S	Japanese PVC Association, Tokyo
OLSON H G	VC Safety Association, Louisiana, USA
OWEN Dr R	Trades Union Congress, London, UK
PADDLE Dr G M	ICI Central Medical Group, Alderley Park, UK
PAGLIALUNGA Dr S	Montedison, Novara, Italy
PAQUET Dr	Atochem, Serquigny, France
PATERSON Dr J C	ICI Runcorn, UK
PIRASTU Dr Roberta	Istituto Superiore di Sanita, Rome, Italy
POPPER Dr Hans	Mount Sinai Medical Center, New York, USA
POSSBERG Dr J	Wacker-Chemie, Munich, Germany
PUECH Dr A M	Atochem, Brignoud, France
PURDHAM Dr J	Canadian Centre for Occupational Health & Safety, Hamilton, Canada
RAMBALD Dr J	RP Recherches, Antony, France
RICHARD Dr P	Rhone Poulenc, Roussillon, France
ROBSON Mrs D	Saskatchewan Cancer Foundation, Regina, Canada
RODRIGUES Dr MJF	ICI, Sao Paulo, Brazil
ROUSH Dr G	Monsanto, St Louis, Missouri, USA
RUTY Dr J	Atochem, St Auban, France
SALG Dr Joyce A	NIOSH, Cincinnati, USA
SARACCI Dr R	IARC, Lyon, France
SCHEFFERS Dr T M L	DSM/CVMD, Geleen, Holland
SCHIPPER Dr H	University of Manitoba, Winnipeg, Canada
SERONNE Dr D	Diamond Shamrock, Dallas, USA
SHAH Dr Has	QMA, Washington DC, USA
SIGRIST Dr J	Shell Chimie, Berre L'Etang, France
SMITH Prof Allan H	University of California, Berkeley, USA
SMITH Dr E	Division of Environmental Health, World Health Organisation, Geneva, Switzerland
SMITH Mr J S	ICI Hillhouse, UK
SMITH Dr P M	Llandough Hospital, Penarth, UK
SPIRTAS Dr R	NCI/NIH, Bethesda, Maryland, USA
STAFFORD Dr J	Somerset, UK
STAHNECKER Mr	BASF, Ludwigshafen, Germany
SULAIMAN Dr	Arabian Petrochemical Co, Saudi Arabia

TACHECI Dr H	Hoechst AG, Frankfurt, Germany
TAMBURO Prof CH	University of Louisville, USA
ten BERGE Dr W F	DSM, Geleen, Holland
TENKHOFF Dr N	Huls AG, Marl, Germany
TEPPER Dr L B	Air Products, Allentown, Pennsylvania, USA
TER HAAR Dr Gary	Ethyl Corporation, Baton Rouge, Louisiana, USA
TERWIESCH Dr B	Chemische Werke Huls, Kreis Recklinghausen, Germany
THERIAULT Dr Gilles	McGill University, Montreal, Canada
THIESS Prof Dr A M	BASF, Ludwigshafen, Germany
THIIS-EVENSEN Dr E	Norsk Hydro, Porsgrunn, Norway
THOMSON Dr D H	Cancer Treatment & Research Foundation, Halifax, NS, Canada
TONER H P	Society of the Plastics Industry, Washington DC, USA
VAN DER MERWE Dr H J	AECI, Sasolburg, South Africa
WALLACE J R	Esso, Sarnia, Ontario, Canada
WALTEMAE H	BF Goodrich, Cleveland, Ohio, Usa
WEJDLING S O	Norsk Hydro, Stenungsund, Sweden
WHITE K H	Duperial, Buenos Aires, Argentina
WILINSKI O	Electrochemical Industries, Acre, Israel
WILLIAMS Dr DMJ	BP Chemicals, Penarth, UK
WILSON Prof R	Harvard University, Cambridge, Massachusetts, USA
WRIGHT Dr A P	ICI Wilton, UK
YORK J	ICI Everberg, Belgium

From: Dr B Bennett, Occupational Health Department, ICI Chemicals & Polymers Group,
Hillhouse Site, PO Box 4, Thornton-Cleveleys, Blackpool FY5 4QD, England

GENC 008427

C O N F I D E N T I A L

REGISTER OF CASES OF ANGIOSARCOMA OF THE LIVER DUE TO EXPOSURE TO VINYL CHLORIDE - REVIEW DATE 1 JANUARY 1988

P R E F A C E : ACKNOWLEDGMENTS, SIGNIFICANT CHANGES, COMMENTS AND REQUESTS

- 1 The 8 new cases in the Register are the following: Canada 11 and 12; France 22; Italy 06; Japan 03; UK 14; US 40 and 41.
- 2 There are amendments from the previous Register against the following cases: Japan 01 and 02.
- 3 I would like to thank the following for informing me of new cases: Dr Delorme, Dr Contassot, Dr Chiozzini, Dr Nakamura, Dr Evans, Dr Williams, Dr Dietz, and Professor Tamburro.
- 4 For the case corrections I thank Dr Nakamura.
- 5 It will be noted that there are gaps in our knowledge of several cases, notably Canada 11 and 12 and US 41. Also, so far as we know the following people are still alive: cases Canada 11, France 15 and 22, Germany 31 and 32, UK 14, US 33, 36, 41. Is this correct? This is important information for the industry world-wide and we would appreciate news.
- 6 I should be glad if all recipients of the Register would continue to keep me fully informed of any new cases, or give the name and address of someone who can give me the necessary details. I have again attached a blank sheet at the back of the Register so that information can be supplied under the appropriate headings, so far as possible.
- 7 As a result of the request sent with last year's Register, regarding Co-factors, we received a great deal of information about PVC Plants, which has resulted in many amendments to Tables 8, 9, 10 and 13. Further corrections will be appreciated, bearing in mind that the Tables are confined to PVC.
- 8 RESEARCH: (a) May I again ask that all individuals involved in relevant research keep me informed and if possible send me reports. Perhaps recipients of this Register would pass on my request.

(b) Co-factors: In response to the questionnaire enclosed with the 1987 Register, regarding possible co-factors with Vinyl Chloride, I received replies from 26 Companies, covering 61 factories. This material is now being analysed by Professor Carlo Tamburro at the University of Louisville, Kentucky, USA, and we shall report on the results as soon as possible. We are extremely grateful to all who took the trouble to give this information. If any Company has not yet completed the Co-factor questionnaire I should be grateful if it could be completed and sent back to me as soon as possible.
- 9 I would also be glad of help to keep the mailing list correct and up to date, with news of retirements, etc.

FROM: Dr Brian Bennett, Occupational Health Department, ICI Chemicals and Polymers Limited
Hillhouse Site, P O Box 4, Thornton-Cleveleys, Blackpool, FY5 4QD, England

February 1988
BB/BGS

GENC 008428

ICI CHEMICALS & POLYMERS

WPX/ASO - LANGIOCASES,4

LIVER ANGIOSARCOMA CASES (REVIEW DATE - 1 JANUARY 1988)

<u>Index</u>			
<u>Table Sequence</u>	<u>Page</u>		<u>Page</u>
Belgium	1	ASL Case Numbers by year of Death (Table 6)	46
Canada	2-3		
Czechoslovakia	4	ASL Case Numbers by year of first exposure (Table 7)	47
France	5-9	Western Europe PVC Producers - Start-up Dates vs ASL Cases (Table 8)	48-49
Germany	10-15		
Italy	16-17	USA PVC Producers - Start-up Dates vs ASL Cases (Table 9)	50-51
Japan	18	Canadian PVC Producers - Start-up Dates vs ASL Cases (Table 10)	52
Norway	19		
Sweden	20	East European PVC Producers - Start-up Dates vs ASL Cases (Table 11)	53
UK	21-24	Japanese PVC Producers - Start-up Dates vs ASL Cases (Table 12)	54
USA	25-32		
Yugoslavia	33	South & Central American PVC Producers - Start-Up Dates (Table 13)	55
Incidence of Cases per annum (Table 1)	34	Australasian PVC Producers - Start-up Dates (Table 14)	56
Distribution of Cases by Country (Table 2)	35	Middle Eastern PVC Producers - Start-up Dates (Table 15)	57
Pattern of Cases by Factory (Table 3)	36	Blank form for notifying new cases	-
Latency Periods (Table 4A)	37		
Distribution of Latency Periods (Tables 4B-4H)	38-44		
Annual Geographical Incidence (Table 5)	45		

GENC 008429

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCASES,6

ge 1

LGIUM

LIVER Angiosarcoma Cases - (Review Date : 1 January 1988)

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 ³ autoclaves 1968-1972 exposed to 50-200 ppm 8 hrs per day in 25m ³ 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 13 yrs Work in glass ind. & chemi- cal industry	Driller in a foundry (2 yrs) Farmer (15 yrs) Hospitalised 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
02	SR	29 09 40	Solvay	Jemeppe	20 08 62	00.10.79	39	17	9	23 10 83	Yes	08.62-03. 63 01.67 -10.71 200 ppm 8h/day 04.63-12. 66 - 200 ppm	Autocleaner 15 yrs 5 mths Operator 13 yrs 9mths	Fireman since 10 71. Hepatic tests altered 10.79. Positive echography 11.79. Hepa- tectomy 02.80. Chemotherapy. Information given in letter 12 Nov 1984 from Dr De Sloover.	

GENC 008430

ANADA
heet 1

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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 yrs! 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 DELORME in Annales d'Anatomie pathologique Paris, 1978 Vol 23 No 2 pp105-114 claims this case had both a hepatoma and ASL simultaneously.

GENC 008431

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1986)

DAY - MONTH - YEAR
All dates use UK system

WPX/ASL - LANGIOCASES,B

[illegible]

GENC 008432

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 88)

GENC 008433

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCAS, 10

ge 5

ANCE
set 1

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 88)

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
ANCE 01	M	15.04.24	RP	Rousse- fillon	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	SIM	03.06.11	PCUK	Brignoud	06.07.59	15.01.75	63	16	12	24.01.75	Yes (NIOSH no comment)	High	2 yrs on monomer 10 yrs on polymer- isation	Italian origin	Ref. G Bonneton et al "Nouvelle Presse Medicale" 15 Nov 1977 p 735
03	NAV	06.01.20	RP	St Fome	00.00.46	15.01.75	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° 16 June 77 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 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 9th Feb 1976 costal angiosarcoma 2) Scintigraphy found ASL 3) Haemorrhage from ASL 4) Right Hepatectomy	Ref. P Coudere et al "Semaine des hopitaux" 10 Septembre 1976 Previously had bone angiosarcoma" Alao Pilichowski et al "La Nouvelle Presse Medicale" 7th July 1979 Page 2485

GENC 008434

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCASES,11

e 6

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

ANCE

et 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
ANCE 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 and works lab?		This man had AOL prior to IAS. Ann. de Mal. Prof. July '77 p 645 & 6. AOL was found in 1971 five yrs before IASL
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	Tavaux	23.05.57	03.12.75	42	19	19	30.01.77	Yes	Moderate	6 yrs packer & autoclave clnr 14 yrs autoclave worker		Had been tunnel worker previously
09	REFX	08.10.14	RP	St Pons	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, storekeeper & general services	Operated 4.76 for removal of tumour from liver and died after second surgical operation for bilio bronchial fistula Paper by Dr Rety et al in Archives de Malades Professionals Vol 40 No 6 1979 pages 741-3.

GENC 008435

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCAS, 12

FRANCE
Sheet 3

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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	LC	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 (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- isation 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	12 yrs as cycle mechanic. 10 yrs as enameller in sanitary ware manufacture	Cigarette smoker until 1974. Ill all of 1977 due to oesophageal varices. Surgical intervention 25.05.79 (right hepatectomy)	
14	LMJ	05-04-24	Chloe Chimie (Formerly RP)	St Fons	1943	00.07.81	57	38	36	29.07.81	Yes	Very High	1943-1975 All types of and Intermitt- ently 1975-1979 in VCM Poly Process	1943-1975 All types of maintenance work manufacture in maintenance in VCM Poly Process	1975-1979 maintenance work	
														GENC 008436		

GENC 008436

FRANCE
Sheet 4

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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															Left Hepatectomy 1983
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 7 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	17.10.41	05.01.83	61	41	38	03.04.83	Yes	High-33 yrs Moderate- Low - 5 yrs	Polymerisat- ion Process Man Maintenance Worker Health & Safety Agent		Retired Jan 1979. J C Contassot Letters of 15 10 1983 and 25 7 84.
17	HAR	22.02.23	Chloe Chimie (Formerly RP)	St Fons	17.06.48	03.04.83	60	34	28	03.04.83	Yes	High - 23 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
18	IR	14.07.42	Solvay	Tavaux	09.09.63	21.03.84	42	21	21	27.12.84	21.03.84	High-12 yrs Low - 9 yrs	Autoclave Cleaner		09.03.84 Right Hepatectomy 05.05.84- 24.09.84 chemotherapy for lung- metastasis : partial remission. 08.84 - liver recurrence. 10.84 - lung evolution of the disease

GENC 008437

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOLAS, 14

FRANCE
Sheet 5

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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															
19	MAZ	15.12.32	Atochem	Brignoud	07.04.59	26.10.84	52	25	25	06.11.85	Yes	High	Autoclave operator and cleaner		Myocardial infarction 1980. Coronary bypass 1981. Letter from Dr Contassot 15.4.86
20	BR	02.03.23	Atochem	Brignoud	1951	27.12.85	63	34	22	26.12.85	Yes	High	Autoclave operator and cleaner	In other parts of factory since 1946	Portal fibrosis from 26.04.74. The illness was diagnosed as presumably work related on 20.04.74. Letter from Dr Contassot 05.04.86
21	Pa	01.10.40	RP	SEP (Montluçon)	1959	03.06.86	45	27	4	28.06.86	Yes	High	Autocleaner 4 years	Maintenance worker	Hepatic test May 84 normal. Hepatic test May 86 showed abnormalities. Letter from Dr Barrat 18.07.86.
22	AL	13.08.28	Atochem	St Auban	01.09.58	05.11.87	59	29	26	Alive	Yes	High 1958-70 Low 1970-84	12 years Autoclave worker. 14 years in (Control Room)		Letter from Dr Contassot, Atochem 12.12.87

GENC 008438

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCAS25,15

GERMANY
Sheet 1

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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	4	4	01.10.56	19.09.68	38	12	12	25.01.69	Yes (NIOSH)		Polyworker		
02		00.00.31	4	4	14.10.57	25.09.70	39	13	11	14.12.71	Yes (NIOSH)		Polyworker		
03		00.00.30	12	12	09.06.52	00.03.73	43	21	16	10.10.73	Yes (NIOSH)		Filling pesticide aerosol cans with VC		Reported under non polymer- ization 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	8	8	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 Cokel et al Virchows Arch A Path 1976 372 p 195-203

GENC 008439

Age 11

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCASCS,16

GERMANY
Sheet 2

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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 (is Case 06)		00.00.36	11	11	02.04.60	10.12.73	38	13	05	16.12.74	Yes (NIOSH)		IG 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- isation workers in NIOSH list of 131.3.77 and 11.78. 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 (is Case 05)		00.00.32	7	7	16.12.62	00.00.75	43	13	12	09.01.75	Yes		PVC - Manu- facture Shift Leader		
07		00.00.26	8	8	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	4	4	19.07.54	06.04.75	58	20	20	25.12.75	Yes	?	Polyworker	?	

GENC 008440

age 12

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOMAS, 17

ERMANY
heet 3

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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	2	2	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		110/78 Confirmed Average exposure first 19 yrs 150 ppm, 1000 ppm. Next 3 yrs av, 75 ppm. Last, 1 yr av 35 ppm
10 NIOSH gives as Case 11)		00.00.36	2	2	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 75 ppm. CWH letter of 21.04.78
11 NIOSH gives as Case 10)		00.00.29	8	8	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	4	4	00.00.61	00.10.77	39	16	6	07.10.77	Yes	?	PVC Manu- facture Autoclave worker for 16 yrs		

GENC 008441

GERMANY
Sheet 4

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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		100.00.14	7	7	00.00.60	08.04.78	63	18	14	19.05.78	Yes				IF W Best letter of 130th June 1980 enclosing data from Mr H 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 "Speiserohre" (a carcinoma of the oesophagus) not attribut- able to VCM & not recognised as an indust- rial disease				IF W Best letter of 130th June 1980 enclosing data from H P Friedel of BG Chemie withdrawing this case
15	NIOSH gives his as (case 13)	100.00.29	8	8	19.10.53	09.10.78	49	25	25	23.10.78	Yes	?	Autoclave cleaner and worker. Drier operator. Later shift leader		Angiosarcoma confirmed 109/79. Some detail of this & also cases 19, 13, 15, 16 & 17 given in NRW Report for 1978
16		100.00.23	4	4	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 1973 given in NRW Med Insp Rep for 1978. Different details given in "VC Associated Disease" by Leibach and Marateller

GENC 008442

GERMANY
Sheet 5

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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 Case (15)		00.00.37	4	4	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 aro osteolysis.
18		00.00.13	5	5	00.00.55	25.12.79	66	24	21	25.12.79	Yes		Autoclave Worker		
19		00.00.25	4	4	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	4	4	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	4	4	01.01.62	00.09.79 pronounced clinical liver symptoms	66	18	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	4	4	15.10.61	28.08.80	59	19	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

GENC 008443

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGIOCASIS, 20

LIVER Angiosarcoma Cases (Rev Date: 1 Jan 1988)

ge 15

MANY
et 6

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	HISTO- LOGICAL CONFIRM- ATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
GERMANY 23		100.00.27	8	8	1955	26.03.79	52	24	21	29.09.81	Yes	High (>300 ppm)	Chemistry Worker		Primary hepatocellular carcinoma; proliferation of the sinusoidal cells with sinusoidal ectasia. Friedel letter 23.12.86.
24		100.00.28	8	8	1969	11.10.82	54	13	12	28.05.83	Yes	High (>300 ppm)	Autoclave Cleaner		Prof Eder (Munich) letter 22.08.83. Friedel letter 19.04.85.
25		100.00.23	8	8	1960	28.09.81	58	21	13	14.01.83	Yes	High	Polyclave Worker and Autoclave Cleaner		Prof Selmaier (Munich) letter 22.08.83. Friedel letter 19.04.85
26		100.00.22	2	2	1953	14.06.76	54	22	22	22.11.82	Yes	High	Polyworker		Chronic hepatitis, angiomatosis, sinusoidal ectasia. Friedel letter 23.12.86.
27		100.00.28	4	4	1955	18.01.83	55	28	18	02.03.84	Yes	High	Autoclave Cleaner till 1972		Leibach. Friedel letter 19.04.85
28		12.11.23	7	7	01.10.60	11.08.85	61	25	25	25.08.85	Yes	High	Process worker 1947- 1984 (01.10.60) -31.03.84 PVC product- ion, agitator (area).		Annual VCM screening 24.04.85: no complaint, no abnormality detected. 1970 two-thirds gastrectomy for ulcers. 1971 Coronary thrombosis 1983 Femoral implantation 1984 Pulmonary embolism and pleuropneumonia. Landers letters 18.09.85 and 04.02.87.
29		100.00.22	2	2	1962	15.02.83	61	21	19	15.02.84	Yes	High	Chemistry worker		Haemangiosarcoma. Friedel letter 23.12.86.
30		100.00.17	4	4	1951	07.01.80	62	29	25	25.05.83	Yes	High	Polyworker Shift leader		Haemangiosarcoma. Friedel letter 23.12.86.
31		100.00.21	8	8	1953	10.06.85	61	32	20	Alive		?	Autoclave Cleaner		Haemangiosarcoma. Friedel letter 23.12.86.
32		100.00.10	8	8	1955	00.04.85	55	30	21	Alive		?	Polyworker Autoclave Cleaner		Haemangiosarcoma. Friedel letter 23.12.86.

GENC 008444

TALY
Sheet 1

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

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>ITALY</u>															
01 In NIOSH supple- mentary (at)	LC	15.06.34	PANSAC	Mira Venice	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	VG	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	Ravenne	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) operator & other duties in suspen- sion polymer- ization. Area Foreman in same Dept since 1975.	Never cleaned autoclaves. See paper by CHIAPPINO et al Med Lavoro Vol 6 (1982) pp 555-563 alcohol. No AOL.	**
05	IG Danesin	19.03.37	PANSAC	Mira Venice	00.00.67	07.03.83	46	16	8	06.04.83	Yes	Medium-? High	Bag extruder 1967-1975 Commercial Dept 1976- 1983		(S Pagila- Lunga telex of 12 Aug 1983

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

Also see Maltoni and Rondinella in Acta Oncologica Vol 1 1980 pages 35 - 49.

GENC 008445

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 1988)

GENC 008446