

CONFIDENTIAL

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)

CMA 009941

TABLE 8
WESTERN EUROPE PVC PRODUCERS - START-UP DATES vs ASL CASES (OMITTING GD3 & It.01)

START-UP YEAR	COUNTRY NAME	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st Exposure
1931	West Germany	BASF	Ludwigshafen		
1933	West Germany	Wacker	Burghausen	04,07,11,15,23,24	57,54,55,53,55,69,60,53
				25,31,32	55
1938	Italy	Montecatini	Acna		
1939	France	Rhone-Poulenc/ Chloe/Atochem	St Fons	03,09,10,11,14	46,48,56,41,43,
				15,16,17	55,41,48
1940	United Kingdom	ICI/EVC	Runcorn (Closed 1948)		
	United Kingdom	ICI/EVC	Hillhouse	01,04,12	44,54,57
1945	Sweden	Kemnord/Nobel	Sundsvall (Stockvik)	01,02,03,04,05	51,45,47,46,64
1946	France	Rhone-Poulenc	Roussillon	01	46
1948	United Kingdom	BP Chem/ICI/EVC	Barry	03,05,06,07,08,09	66,51,62,63,50,50
				10,11,13,14	66,65,68,66
	West Germany	CWH/Huls	Marl	09,10,26,29	61,61,53,62
1949	Belgium	Solvay	Jeneppe	01,02	58,62
1950	France	PCUK/Atochem	Brignoud	02,04,05,06,12,19	59,49,65,58,49,59,51
				20	
	France	Rhone-Poulenc/ Chloe/Atochem	St Auban	07,22	50,58
	Holland	Shell	Pernis, Rotterdam		
	Norway	Norsk	Heroya, Porsgrunn	01	50
1951	Switzerland	Lonza/ICI/EVC	Sins		
1952	Italy	Montedison	Terni		
	Italy	Montedison/EVC	Porto Marghera	02,06	57,60
1953	Austria	Halvic/Solvay	Hallein		
	France	Solvay	Tavaux	08,13,18	57,63,63
	Italy	Solvay	Ferrara	03	53
	Spain	Rio Rodano	Hernani		
	United Kingdom	EXL/BIP/NORSK	Aycliffe		
	West Germany	Hoechst	Gendorf	18	55
1954	West Germany	Dynamit	Troisdorf	01,02,08,12,16,17	56,57,54,61,55,61,
				19,20,21,22,27,30	54,61,62,61,55,51
1955	Spain	Monsanto Iberia	Monzon		
1956	Spain	Calqsa	Sabinanigo		
		Hispavic/Solvay	Torrelavega		
1958	West Germany	Solvay	Rheinberg		
1960	Italy	S C Ravenna/EVC	Ravenna	04	59
	West Germany	Lonza/ICI/EVC	Waldshut	06,13,28	62,60,60
1961	Italy	Montedison/EVC	Brindisi		
1962	Portugal	Cires	Oporto		
1965	France	Rhone-Poulenc	Montlucon	21	59
	Italy	Pozzi	Ferrandina		
	Italy	Pensac	Mira, Venice	05	67
	West Germany	Wacker	Cologne		
1966	West Germany	Hoechst	Knapsack (Frankfurt)	05*	60
1967	France	Atochem	Balan		
	Spain	Rio Rodano	Miranda de Ebro		
	Greece	Esso Pappas	Diavata Salonika		
1968	Belgium	Badiphil	Antwerp		
1969	United Kingdom	Vinatex/Norsk	Staveley		
	Italy	Rumantica/EVC	Cagliari Sardina		

Continued

CMA 009942

Table 8 - Continued

WESTERN EUROPE PVC PRODUCERS - START UP DATES vs ASL CASES (OMITTING G03 & It.01)

START-UP YEAR	COUNTRY NAME	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st Exposure
1970	Italy	SIR	Porto Torres Sar		
	United Kingdom	ICI/EVC	Runcorn		
1971	Spain	Hispanic/Solvay	Martorell		
	Sweden	Kemabord/Norsk	Stenungsund		
	United Kingdom	BP Chem	Baglan Bay		
1972	Finland	Pekema	Svartback		
	Holland	DSM	Beek Limburg		
1976	France	Soc Art D'vinyl (CDF)	Mazingarbe		
1977	Spain	Monsanto Iberia	Tarragona		
1982	West Germany	ICI/EVC	Voslapp Wilhelmshaven		

* Laboratory worker in Research Department

(Review date 1 January 1988)

TABLE 9

USA PVC PRODUCERS - START-UP DATES vs ASL CASES

START-UP YEAR	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st EXPOSURE
1939?	*UCC	S Charleston	07,13,19,21,24,27,28,29,31,35	44,42,43,46,39,41,44,42,46,44
	Dow	Midland (made Saran copolymer)		
1940?	*BFG	Louisville	01,02,03,04,05,106,09,16,17,22,26,33,34,37,40	48,55,45,52,44,162,45,50,55,47,47,54,55,53,42
1946	*UCC/Dow	Texas City (Partially closed 1977)		
1947	Goodyear	Niagara Falls	08,10,11,20,41	46,51,46,55,?
1948	Firestone/ Occidental	Pottstown	12	49
	Uniroyal	Painesville (closed 1975)		
1950	Monsanto	Springfield (Closed 1975)	32	51
1952	Dow	Midland (No PVC since c 1975)		
	BFG	Avon Lake	18	54
1953	Diamond/BFG	Deer Park		
1954	General Tire/ DiversiTech	Ashtabula (Closed 1984. Reopened 1986 by Vygen)	36	56
1956	Air Products	Pensacola (Pace)		
	Atlantic Refining	Brooklyn (Closed late 1960s)		
	Borden	Leominster (Closed 1984)		
	Conoco	Hebronville (Closed 1975)		
	BFG	Niagara		
	Great American Plastics	Fitchburg (Closed 1983)	23	58
	Hooker	Hicksville (Closed 1980-81)		
	Pantasote	Passaic (Closed 1984)	39	60
1957	Atlantic Tubing	Cranston (Closed 1967)		
	Tenneco/ Occidental	Flemington NJ (Closed 1985)	30	59
1958	Keysor Century	Saugus, Cal		
	Air Products	Calvert City (Paducah) (Closed March 1982 Re-opened October 1983)	38	63
1960	BFG	Long Beach, Cal (No PVC now. Formerly shown as Watson)		
	Borden	Illioopolis		
1962	Tenneco/Occidental	Burlington NJ		
1963	Conoco/Vista	Aberdeen, Miss		
	Stauffer	Long Beach, Cal (Closed 1982)		
1965	Conoco/Olin	Assonet, Mass (Closed by Olin 1975)		
	Ethyl	Baton Rouge (Closed 1984)		
1966	Diamond/Georgia	Delaware City		
	Gulf			
	Gen Tire/Pantasote	Mt Pleasant W Va (Closed 1982)		
	BFG	Henry, Ill		
	Stauffer/Formosa	Delaware City (Sold to Formosa 1981)		
1967	Allied/Robintech/ Georgia Pacific	Painesville, O. (No PVC made by Robintech. GP converted to polystyrene)		
	Hooker/Occidental	Burlington NJ		
1968	Firestone/Occidental	Perryville (Closed 1982)		

TABLE 9 (Continued)

USA PVC PRODUCERS - START-UP DATES vs ASL CASES

START-UP YEAR	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st EXPOSURE
1969	BFG	Pedricktown NJ		
	Goodyear/BFG	Plaquemine		
1971	Conoco/Vista	Oklahoma City		
1972	Nat Starch	Meredosia, Ill		
1973	Borden	Springfield		
1974	Atlantic Tubing/ Tallyrand	Cranston RI (Closed 1982)		
	Shintech	Freeport, Tex		
1975	Certain-teed	Lake Charles		
	Georgia Pacific/ Georgia Gulf	Plaquemine, La		
	Tenneco/Occidental	Pasadena, Tex		
1979	Firestone/ Occidental	Addis (formerly shown as Plaquemine)		
1983	Formosa	Point Comfort, Tex		
1986	Vygen	** Ashtabula, Ohio		

* My databank has no information on UCC before 1946 or BFG before 1950

** Refer to same plant at Ashtabula, bought by Vygen from DiversiTech.

NB Some of the plants in this list were closed down, some have changed ownership over the years, some have changed their product.

(Review date 1 January 1988)

TABLE 10

CANADIAN PVC PRODUCERS - START-UP DATES vs ASL CASES

START-UP YEAR	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st EXPOSURE
1943 (1941?)	Goodrich (Formerly Gulf)	Shawinigan	01,02,03,04,05 06,07,08,09,10, 11,12	44,43,41,45,44, 47,46,61,46,53 ?,?
1951	Monsanto	La Salle (Closed 1975)		
1957	Goodrich	Welland (? Niagara)		
1966	Esso (Imperial Oil)	Sarnia		
1979	Diamond Shamrock Alb/ BF Goodrich	Fort Saskatchewan		

(Review date 1 January 1988)

TABLE 11

EASTERN BLOC PVC FACTORIES - START-UP DATES vs ASL CASES

START-UP YEAR	COUNTRY NAME	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st Exposure
Pre 1939	East Germany	State Company	Schopau		
1941	Russia	State Comps	Vladimir et al		
1950	Yugoslavia	Jugo Vinyl	Split	01,02,03,04	53,50,54,48
1951	Czechoslovakia	State Comps	Novaky	01,02	57,50
1955	East Germany	State Comps	Bitterfeldt		
1956	Rumania	State Comps	Icechim		
1957	Poland	State Comps	Osweicim (Dwory)		
	Rumania	State Comps	Tirnaveni		
			Turda		
1958	Rumania	State Comps	Risnov		
1959	Hungary	State Comps	Berente Borsod		
1961	Rumania	State Comps	Borzesti		
1963	Yugoslavia	Ohis	Skopje		
1965	Bulgaria	State Comps	Varna		
1967	Poland	State Comps	Tarnow		
1969	Russia	State Comps	Djerjinsk		
1970	Rumania	State Comps	Rimnicu Vilcea		
	Russia	State Comps	Volgograd		
1972	Yugoslavia	Vinilplastika	Zadar		
1975	Czechoslovakia	State Comps	Neratovice		
	Russia	State Comps	Kalush Area		
1976	Yugoslavia	Hip	Pancevo		
1977	Rumania	State Comps	Rimnicu Vilcea		

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(Review date 1 January 1988)

TABLE 12

JAPANESE PVC PRODUCERS - START-UP DATES vs ASL CASES

START-UP YEAR	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st EXPOSURE
1950	Chisso Corp	Minamata		
	Kanegafuchi Kag	Osaka	02	58
	Tekkosha	Sakata		
1951	Mitsui Toatsu	Nagoya	01, 03	53, 65
1952	Mitsubishi Mon	Yokkaichi		
	Sumitomo Kag	Kikumoto		
1951	Denki Kagaku	Shibukawa		
	Nippon Zeon	Kambara		
	Toa Gosei	Tckushima		
1955	Ryo-Nichi	Uozu		
1956	Nippon Zeon	Takoaka		
	Nisshin Kagaku	Takeo		
1957	Kureha Kasei	Nishiki		
	Shinetsu Kag	Naoetsu		
1960	Denki Kagaku	Ohmi		
	Kanegafuchi Kag	Takasago		
1964	Chisso Corp	Chiba		
1966	Tokuyama Seksui	Tokuyama		
1967	San Arrow Kagak	Tokuyama		
	Sumitomo Kag	Chiba		
1968	Ryo-Nichi	Mizushima		
	Shinetsu Kag	Tokuyama		
1970	Chisso Corp	Mizushima		
	Denki Kagaku	Goi (Chiba)		
	Kanegafuchi Kag	Kashima		
	Kawasaki Yuki	Kawasaki		
	Mitsui Toatsu	Sakai		
	Nissan Kagaku	Chiba		
	Shinetsu Kag	Kashima		
1971	Tekkosha	Yokkaichi		
1973	Asahi Glass	Hayatsuki		
1974	Toyo Soda	Sakata		
		Yokkaishi		
1975	Central Kagaku	Kawasaki		
	Toyo Soda	Yokkaichi		
1977	Unknown	Kashima		

(Review date 1 January 1988)

TABLE 13

SOUTH AND CENTRAL AMERICAN PVC PRODUCERS

START-UP YEAR	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st EXPOSURE
1953	Monsanto Mexica	Lecheria (Mexico)		
1954	Policyd	Mexico City (Mexico)		
1955	Geon Do Brazil	Sao Paulo (Brazil)		
1956	Elchlor/Solvay	Sao Caetano (Brazil)		
1960	Electrochlor	Capitan Bermudez (Argentina)		
	Viplastic	Mendoza (Argentina)		
1961	Indupa	Cinco Saltos (Argentina)		
1965	PET Columbiana	Cartagena (Colombia)		
1966	Carburo De Col	Medellin (Colombia)		
1967	Plasticos Omega	Mexico		
	SOC Paramonga	Paramonga (Peru)		
1968	Primex	Puebla (Mexico)		
1970	Policasa	Managua (Nicaragua)		
	Petro Dow	Conception (Chile)		
1971	Polimeros Mex	St Martin Puebla (Mexico)		
1975	Rico Chemicals	Guyanilla (Puerto Rico)		
1976	Petroplas	EL Tablazo (Venezuela)		
1977	Indust Resistoc	Tlaxcala (Mexico)		
1978	Huls Brasil	Cubato (Brazil)		
	Polychem	El Salvador		
	Policyd	Coatzacoalcos (Mexico)		
1979	PET Camacari	Camacari Bahia (Brazil)		

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(Review date 1 January 1988)

TABLE 14AUSTRALASIAN PVC PRODUCERSSTART-UP DATES

START-UP YEAR	COMPANY NAME	LOCATION	ASL CASE NUMBER	YEAR OF 1st EXPOSURE
Mid 1950s	ICI Australia	Botany, Sydney		
1960s	B F Goodrich	Melbourne		
Late 1970s	ICI Australia	Laverton Melbourne		

WPX/ASL2 - LANGIOCASES,31

CMA 009950

(Review date 1 January 1988)

TABLE 15MIDDLE EASTERN PVC PRODUCERSSTART-UP DATES

START-UP DATE	COUNTRY NAME	COMPANY NAME	LOCATION
Sept 1986	Saudi Arabia	National Plastic Company (Ibn Hayan)	Arabian Petrochemical Company Madiant Al-Jubail Al-Sinahyah

Country:

WPX/ASL - LANGLOCASES,32

LIVER Angiosarcoma Cases - (Review Date: 1 Jan 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	HISTO- LOGICAL CONFIRM- ATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS

CMA 009952

TACHECI Dr H	Hoechst AG, Frankfurt, Germany
TAMBURRO Prof GH	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
WALTEMATE 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

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

CMA 009954

LIVER ANGIOSARCOMA CASES (REVIEW DATE - 1 JANUARY 1988)

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BELGIUM

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
<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 6 to 9m ³ autoclave 1968-1972 exposed to 50-200 ppm 8 hrs per day in 25m ³ autoclave 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) 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
02	SR	29 09 40	Solvay	Jemeppe	20 08 62	00.10.79	39	17	9	23 10 81	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 3 yrs 9 mths	Fireman since 10 71. 9 mths.	1st sign July 79: Thoracic pain 07.79. Hepatic tests altered 10.79. Positive echography 11.79. Hepa- tectomy 02.80. Chemotherapy. Information given in letter 12 Nov 1984 from Dr De Slouet.

CMA 009956

CANADA
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
CANADA			SHAMINICAN												
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	23.01.62	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 yral 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 21 No 2 pp105-114 claims this case had both a hepatoma and ASL simultaneously.

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

CHN 009958

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

WPX/ASL - LANGLOCASES.9

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 Ind Hygiene and Occ 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 1-4-82 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.	

CHM 009959

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGTIOCASES,10

FRANCE
Sheet 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
FRANCE															
01	HM	15.04.24	RP	Roussillon	00.01.46	18.02.67	43	21	19	19.02.67	Yes	High	Autoclave worker and cleaner 19 yrs		[Ref. Navier et al Arch. Mal. [Prof. 1 30 n° 13 Nov 75 p 171-177
02	SHM	103.06.11	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- isation	Italian origin	[Ref. [C Bonneton et al "Nouvelle [presse [medicale" 15 Nov 1977 p 735
03	NAV	106.01.20	RP	St Fons	00.00.46	15.01.75	55	29	29	29.06.75	Yes	High	[Polyworker 110 yrs as autoclave cleaner [Compounding 13 yrs	[VCM production] 116 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	104.01.76	Yes	High	[Monomer production worker 18 yrs [PVC [filtration 118 yrs		
05	JB	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 [10 Septembre [1976 [found ASL [Previously had [bone [from ASL [angiosarcoma" [Also [hepatectomy	[Ref. P Couderc [et al "Semaine [des hopitaux [10 Septembre [1976 [Previously had [bone [angiosarcoma" [Also [Pilihowski et al "La Nouvelle [Presse Medicale [17th July 1979 [Page 2485

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ICI CHEMICALS & POLYMERS

MPK/ASL - LANGTUCASES, 11

FRANCE
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
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 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 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	Tavaux	23.05.57	03.12.75	42	19	19	30.01.77	Yes	Moderate	16 yrs packer 16 autoclave technician 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, storekeeper & general services	Operated 4.76 for removal of tumour from liver and died after second surgical operation for bilio bronchial tistula Paper by Dr Rety et al in Archives de Maladies Professionelles Vol 40 No 6 1979 pages 141-3.

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ICI CHEMICALS & POLYMERS

WPX/ASL - LANGI OCASES, 12

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

FRANCE
Sheet 3

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, topolymers 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	IMJ	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 maintenance and Intermitt- ently 16 maintenance 1975-1979 In VCM Poly Process	1975-1979 All types of maintenance work	

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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															
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)		Left Hepatectomy (1983) 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	Polymerizat- 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) Factory 1971- 1978	Other sectors of St Fons Factory 1971- 1978	Retired 01.01.79 J C Contassot Letter of 15 10 1983
18	K	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

CMA 009963

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	BP	SEP Montlucon	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 (2.12.87)

CHA 009964

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
GERMANY															
01		100.00.30	4	4	01.10.56	19.09.68	38	12	12	25.01.69	Yes (NIOSH)		Polyworker		
02		100.00.31	4	4	14.10.57	25.09.70	39	13	11	14.12.71	Yes (NIOSH)		Polyworker		
03		100.00.30	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- 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	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 Gokel et al Virchows Arch A Path 1976 372 p 195-203

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WPX/ASL - LANGIOCASES, 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 (NIOASH gives as Case 06)		00.00.36	11	11	02.04.60	10.12.73	38	13	05	16.12.74	Yes (NIOASH)		BG Chemie says "chemistry laboratorian" in the Techno- logical Research Department" (NIOASH says assistant factory chemist which may be wrong translation)		Confirmed Reported under non-polymer- isation workers in NIOASH list of 11.3.77 and 11.78. I don't think this is a correct classification by NIOASH. The man may have been involved in VCM polymerisation in pilot plant or in main plant.
06 (NIOASH gives as 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 (NIOASH 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	08.04.75	58	20	20	25.12.75	Yes		Polymworker		

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GERMANY
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
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 1172 auto- clave cleaning Control room 1 yr		110/78 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	2	2	01.01.61	00.01.77	40	16	10	07.03.77	Yes	High peaks	10 yrs poly- [worker incl 1172 auto- clave cleaning		Average exposure first 19 yrs 150 ppm, 1000 ppm. Last yr av 175 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		

CMA 009967

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		00.00.14	7	7	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 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			[F W Best letter of 30th June 1980 enclosing data from [H P Friedel of [BG Chemie [withdrawing [this case	
15 (NIOSH gives this as Case 13)		00.00.29	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 [09/79. Some [detail of this [& also cases [19, 13, 15, 16 [& 17 given in [NRW Report for [1978
16		00.00.23	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 [Marsteller [1981) p21.

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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 as 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 147-177 gives full details. Vinyl chloride disease diagnosed 02-02-73. Oesophageal varices. Radiologically confirmed aco 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 Beeche 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 Beeche 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 working in drying shop		Dr Beeche 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 Beeche letter of 13-04-82 to Dr W G F Adams

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GERMANY
Sheet 6

LIVER Angiosarcoma Cases (Rev 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	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 (111) 1972		Leibach. Friedel letter 19.04.85
28		21.11.23	7	7	01.10.60	11.08.85	61	25	25	25.08.85	Yes	High	Process worker 1947- 84 (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		100.00.23	8	8	1953	30.06.85	61	32	20	Alive		?	Autoclave Cleaner		Haemangiosarcoma. Friedel letter 23.12.86.
32		100.00.30	8	8	1955	00.04.85	55	30	21	Alive		?	Polyworker Autoclave Cleaner		Haemangiosarcoma. Friedel letter 23.12.86.

CMA 009970

ITALY
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
ITALY															
01 (On NIOSH supple- mentary list)	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	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 Operator 5 yrs - Medium 4 yrs - Low	1 yr - Monomer operator 20 yrs - Autoclave operator & other duties in suspens- ion 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	Non-smoker. Consumed little alcohol. No AOL.
05	G 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 Paglia- longa telex of 2 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 15 - 49.

CMA 009971

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
ITALY															
06	GZ	21.06.36	Montedison	Porto Marghera, Venice	01.10.60	06.12.85	49	25	25	13.02.86	Yes	High 1960-71 Medium 1971-74 Low 1975-85	PVC manufacture 11 years as Autoclave cleaner 1960-71. 14 years in Control Room 1971-85		Letters from Dr Chiozzini, Venice, 22.09.87 and 11.01.88

JAPAN

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
JAPAN															
01	Tomoji Mori	01.08.22	Mitsui Toatsu	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 1000 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 letters of 31.03.78 & 30.11.87
02	SC	02.08.39	Kanegafuchi Chemical	Osaka	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 letters of 31.03.78 & 30.11.87
03	YS	01.09.30	Mitsui Toatsu	Nagoya	00.07.65	26.06.85	54	20	5	14.09.85	Yes	High	15 years Autoclave cleaner		Letter from Dr Nakamura, Japanese PVC Association 30.11.87

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

Date of diagnosis - 21-08-74
 Age of diagnosis - 52
 Years of exposure - 22

CMA 009973

NORWAY

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
NORWAY															
01	AH	23.12.15	Norsk Hydro	Herøya	00.03.50	21.12.71	56	22	21	04.01.72	Yes	High	Foreman & Autoclave supervisor		Confirmed by Dr Thies- Evensen of NH. At APME Mtg of 19 June 1978 Mr P Rangnes stated that AH had been a member of a start-up team. VCM & PVC were made in same building. The VCM was made from acetylene

CMA 009974

ICI CHEMICALS & POLYMERS

WPX/ASL - LANGTICASES, 25

SWEDEN

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>SWEDEN</u>															
01	NU	23.06.27	Kemanord	Sundevall	14.08.51	20.10.70*	43	19	18	20.10.70	Yes		Polyworker		
02	BL	27.11.11	Kemanord	Sundevall	00.01.45	00.08.72*	61	27	27	16.08.72	Yes	High	VCM production		Mr Sjoelin'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	NE	10.06.10	Kemanord	Sundevall	00.05.47	18.03.76	65	29	21	19.03.76	Yes	High	Polyworker		
04	AL	16.11.14	Kemanord	Sundevall	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 Byren letter 18.8.77 to CEFIC
05		12.03.19	Kemanord	Sundevall	11.05.64	22.11.80	61	16	16	22.11.80	Yes	High - 6 Years Low - 10 Years	1964-1970 centrifuge operator 1970-1980 drier operator		Letter of 2nd Nov 1981 from Dr David Byren

* In his letter of 1st April 1982, Dr Montesano 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.

CMA 009975

ICI CHEMICALS & POLYMERS

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WPX/ASL - LANGUOCASES, 26

UK

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

Sheet 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
UK 01	MJ	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	BJW	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	JSR	23.06.20	ICI	Hillhouse	26.04.54	00.06.79	59	25	18	12.10.79	Yes	Medium- high	54-55 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	

CMA 009976

UK

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
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 Chargehand 1964-70 Charging operator 1970-72 Drier operator		
06	GEP	1931	BP	Barry	1962	09.01.80	48/9	18	12	09.01.80			17 yrs Poly Floor Operator 15 yrs Greaser on Poly Floor		
07	RGB	26.04.20	BP	Barry	1963	00.00.80	60	17	8.2	13.06.80			Polycleaner 1963-5 Recovery 1965-1971		
08	MTM	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 Chargeman autoclave building 1957-1974 Shift supervisor autoclave building - Never cleaned autoclaves but supervisor's job entailed entering autoclaves to inspect them	1938-1948 Motor Mechanic 1948-1950 operator on Acetylene Production Plant	

CHA 009977

UK
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
UK 09	EICP	07.05.25	BP	Barry	15.02.50	02.03.83	58	33	29	24.02.83	Yes	Medium	Polyworker	2 years on Acrylonitrile Resin Plant. Also prior to 1950. 4 years RAF maintenance. 13 years motor car paintshop. 12 years in Graving Dock.	
10	GJT	04.04.47	BP	Barry	27.04.66	01.05.84	37	18	4.2	16.05.84	Yes	High - 11 months (500 ppm). Low - 18 months (50 ppm). Medium - 21 months (200 ppm)	Polycleaner 1966-67. Spray-drier bagger 1967- 68. Blow-down stripper operator 1968-70.	Heavy goods vehicle driver until final illness.	Information given in letter 18.06.84 from Dr D M J Williams
11	GLP	08.05.28	BP	Barry	19.12.65	02.06.85	57	19	16	02.06.85	Yes	High 1965-69 Med 69-79 Low 79-82	Polycleaner 1965-68. Service operator 1968-69. Poly Operator 1969-79. Leading Hand 1979-82.		Letter of 04.06.85 Dr Paul Smith and letter of 04.06.85 Dr D M J Evans oesophageal haemorrhage due to oesophageal varices due to Angiosarcoma of liver
12	JT	24.01.37	ICI	Hillhouse	16.09.57	03.06.85	48	28	28	06.12.85	Yes	Low 1957-59 High 59-74 Low 74-85	Spare man, bagging floor 1957-59. Autoclave operator 1959-85		Letter 26.06.85 Dr F I Lee

CHA 009978

ICI CHEMICALS & POLYMERS

WPX/ASLZ - LANGTUCASES, 8

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UK
Sheet 4

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	HISTO- LOGICAL CONFIRM- ATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
UK 13	IMJ	02.03.48	BP	Barry	1968	Jan 86	37	18	3	02.06.86	Yes	High Low High	Polycleaner 1968-69 Central Depot 1969-70 Polyfloor 1970-1971	Moved to Acrylonitrile Plant until left BP 1983. Manager of IC & SS Ltd at Cardiff Airport 1983-86	Remained well, working actively, until Jan 1986
14	IGS	15.06.42	BP	Barry	07.07.66	27.08.87	45	21	11	Alive	Yes	10 months High 10 years constant Medium but on inter- mittent jobs	Polycleaner 1966-67 Polyfloor (worker at times) between 1968-1982		Letters from Dr DMD Evans, Pathologist, Penarth, Wales and Dr DMJ Williams, BP, Barry

CHA 009979

USA
Sheet 1

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

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 Parke	17.10.23	BPG	Louis- ville	09.12.48	03.03.73	49	24	24	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 Cottine of OSHA	Rolling Stone Art Ref 1 NY Acad of Sc Symp 1974 Also Block Jama 1.7.74 p 53
02		19.08.33	BPG	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	BPG	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	BPG	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	BPG	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	BPG	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

CMA 009980

USA
Sheet 2

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

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															
09	Raymond Gottle- Finger?	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 for 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) Bagger separate crew cleaned autoclaves)	Utility & Service op. 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 Seawell of MCA
13	Richard Edward Clendenin	01.12.21	UCC	S Charle- ston	11.12.42	00.05.74	52	32	26	07.04.74	Yes	2000 ppm			Charleston Daily Mail 121.7.75
14															Never diag- nosed as ang- iosarcoma of liver. Inform- ation given in letter 22 May 1984 from J A Saig.
15															Accountant, ASL - No evi- dence of VCM exposure.

CMA 009981

ICI CHEMICALS & POLYMERS

WPX/ASL_2 - LANGUOCASES,2

USA
Sheet 3

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

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															
16	James Howard	04.11.27	BFG	Louis- ville	08.05.50	00.00.69	41	19	04	27.03.69	Yes		1951-4 VCM polymer- isation	From 1954 onwards in Army and other service. 146-50 Army	Table 4 in Wagoner Testimony to US Senate Confirmed in M N Johnson ltr 07.08.78
17	Peerenboom	06.05.31	BFG	Louis- ville	23.06.55	11.10.74	43	19	19	16.10.80	Yes on 11.10.74 but no post-mortem 16.10.80				Dr M N Johnson letter of 24.2.81 con- firmed death 16 years after diagnosis
18	Charlie Arthur	22.04.28	BFG	Avon Lake	15.09.54	00.00.75	46	21	13	02.11.75	Yes	13 yrs autocleaner 18 yrs on ketol plasticiser 14 Carboset operation	Navy Tyre Store		Confirmed in M N Johnson ltr 07.08.78 Also Rolling Stone mag. 15.01.76
19	Virgil Christian	00.00.15	UCC	S Charle- ston	00.00.43	19.06.75	60	32	32	06.04.76	Yes	2000 ppm			Williamport Sun Gazette 21 June 1975 Charleston Daily Mail 21.7.75
20		31.08.17	Goodyear	Niagara	00.00.55	30.01.76	58	21	18	30.01.76	Yes				NIOSH letter of 25.10.79
21	Chester Hinkle	02.09.09	UCC	S Charle- ston	00.12.46	Early 77	67	30	22	02.01.77	Yes				28 yrs with UCC at SC Retired News release 21.2.77

CMA 009982

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	BPG	Louisville	11.07.47	00.01.76	52	29	28	04.12.76	Yes				Louisville Times 26.1.76 said he was the 10th AS victim at Bella Lane of whom 8 had died by 26.1.76. In his letter of 16.09.81 Dr M N Johnson confirms this is the case described by Dannaher Tamburro & Yam in Feb 1980 Am J Medicine Vol 70 p280
23		00.00.23	Great American Chemical Company	Pitchburg Mass.	08.09.58	06.04.73	50	15	14	06.04.73	Yes				
24	Charles Edward Moore	17.05.17	UCC	S Charleston	1939	27.05.77	60	38	247 (NIOSH keys 26)	27.05.77	Cholangio-sarcoma (R Kaminski 26/2/79)	Medium to high for vinyl resins 24 yrs	1941-65 non-solvent vinyl resin dispersion vinyl resins unit first reactor 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	N H Wheeler letter of 18.8.77 to J Stafford gives details Rose Kaminski letter of 26/2/79 R Kaminski (5 Nov 1980) suggests that NIOSH will retain on register since employment was terminated may be associated with ASL.
(25)															R N Wheeler letter of 20/2/79 and Rose Kaminski letters of 26/2/79 and 5/11/80
Removal from register confirmed in R Kaminski letter of 5 November 1980															

USA
Sheet 5

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

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															
26	John Berry	07.07.23	BPC	Louisville	03.10.47	00.00.77 (up to 2 years after death)	52 (death)	28 (death)	18	11.02.75	Yes	Exposed in [some degree] [to 22 [chemicals [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. [11 August [1965. [Terminated [employment [Jan 1966		[R Kaminski [letter of [26/2/79 and [Prof. Tamburro [letter of [19/1/79
27	J L Forrest	11.05.16	UCC	S Charleston	01.07.41	30.11.78	62	37	20 (NIOSH says 27 and C (Daily Mail [25)	25.11.78	Yes	High	Operator to [10.10.76 [bulk and [dispersion PVC [manufacture		[R N Wheeler [letter of 4 Jan [1979 and [Charleston [Daily Mail [30.11.78 and [R Kaminski [26/2/79
28		11.04.17	UCC	S Charleston	00.08.44	03.11.78	61	34	33	03.11.78	Yes				[R Kaminski [letter of [6/4/79
29		12.10.07	UCC	S Charleston	00.05.42	00.03.80	72	38	16	01.03.80	Yes				[R Kaminski [letters of [19th June 1980 [16 5th Nov 1980
30	WVN	22.07.22	Tenneco Chemicals	Flemington	11.06.64	30.12.80	58	17	15	30.12.80	Yes	6 - Unknown [9 - Minimal	Maintenance [Mechanic [16 yrs [Elsewhere [11 yrs [Boiler house [Operator [19 yrs		
31		08.11.23	UCC	S Charleston	12.05.46	01.08.81	57	35	13	02.04.82	Yes	[High (But [not as high [as reactor [cleaner [would [experience] [Worked as [labourer [from [June 1941 [to May 1946] [and may [have [cleaned	[Chemical [operator in [charge [reactor [Foreman [Aliphatic [Chemical [Operation	[From 1959 to [1976 Aliphatic [Chemicals [operator and [from July 1976 [to date [Foreman [Aliphatic [Chemical [Operation	[Dr Dacey [letter [16.10.81 and [R N Wheeler [letter of [19.11.81. [Also Dr Dacey [letter of [07.03.81 re [date of death.

CMA 009984

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
US 32	C W Giroux	22-02-08	Monsanto	Springfield Mass	15-10-51	00-07-79	71	28	14 (in PVC autoclave area)	11-05-80	An autopsy was done and immediate cause of death given as "Angiosarcoma"	The death certificate gave (Mr Giroux' usual occupation as "kettle operator" (in and "chemicals autoclaves industry".	1940-1951 Various jobs in polymer manufacture (BUTVAR (LUSTREX (1951-1964 Various jobs (in and around PVC autoclaves (1964-1973 Various clerical jobs in PVC polymerisation facility/ Retired (01-03-73).		Information given in letter of 24 (February 1982 (from Dr (Walter C (Barnes of (Monsanto (Springfield to (Dr A Munn of (Monsanto (Europe.
US 33	S Ferguson Jnr	08-10-27	BFG	Louisville	09-09-54	11-05-82	54	28	28	Alive	Yes		Multiple jobs (including (Poly (Operator + (Polycleaner.		(Prof Tamburro (letter of (12 Aug 1982 + (Dr M N Johnson (letter of (28 Feb 1983).
US 34	Mr Byrum	29-01-34	BFG	Louisville	1955	03-11-82	48	27	10	04.08.83	Yes		(Poly (Operator + (Autoclave (Cleaner (1955-65.	1965 left BFG to become a (Clergyman.	(Dr M N Johnson (letter of (13 Nov 1982, (28 Feb 1983 (and 9 Aug (1984.
US 35		09-03-12	UCC	S Charlie- aton	23-07-44	18-07-83	71	39	14	18-07-83	Yes	High from (1944 to (1955. (Medium from (1955-1958			(Dr Dacey (letter of (15 Sept 1983).
US 36		27-08-32	The General Tire and Rubber Co	Ashtab Ohio	11-06-56	21-08-83	50	27	27	Alive	Yes	Moderate	1956-56 (labourer (1956-57 (prod helper (1957-70 (operator (1970-75 (electrician (1975-present (operator		(R W Laundry (letter of (12 Sept 1981: (spotted at (medical (May 1981). (Testing (commenced (May 1981

[illegible]

CMA 009986

USA
Sheet 8

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

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	HISTO- LOGICAL CONFIRM- ATION	ESTIMATED EXPOSURE LEVEL	OCCUPATION	OTHER CAREER HIGHLIGHTS	OTHER COMMENTS
USA 40	P P Gillmer	26.10.14	BFG	Louis- ville	22.05.42	1987	72	45	34	03.01.87	Yes	High 1942-1974 Low 1975-1976	Chemical Worker 1942-45 Foreman 1945-76		Letter from Dr Dietz, BFG, 10.3.87
41	R Buckley ?	1915	Goodyear	Niagara	? late 1940's	1987	72	? 40+	? 30 approx	Alive	? Yes				Letter from Prof Tamburro University of Louisville

CMA 009987

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

CMA 009988

(Review Date - 1 Jan 1988)

Incidence of ASL Cases Per Annum

	<u>By date of death</u>
1955	1
6	0
7	1
8	0
9	0
1960	0
1	1
2	1
3	0
4	2
5	0
6	0
7	1
8	5
9	3
1970	2
1	3
2	5
3	8
4	5
5	11
6	11
7	9
8	10
9	5
1980	10
1	5
2	3
3	10
4	7
5	6
6	3
7	1
Total	<u>129</u>

N.B. 1 Does not include Italian 01 but does include German '03.

2 The 1977 total includes US case 24 which is a Cholangiosarcoma.

3 Does not include the following who are still alive, so far as known: Can11, Fr15 & 22, G31 & 32, UK14, US33, 36 & 41.

CMA 009989

Distribution of ASL Cases by Country

USA	38 ***
W Germany	31 ** ***
France	22 ***
UK	13 ***
Canada	12 ***
Sweden	5 *****
Italy	5 *
Yugoslavia	4 *****
Japan	3
Czechoslovakia	2
Belgium	2
Norway	1
Total	138

* Omit It01 - atypical case of PVC bag extruder.

** Includes G03 aerosol can filler.

*** Includes case US 24 which was diagnosed as Cholangiosarcoma; & Can11, Fr15 & 22, G31 & 32, UK14, US33, 36 & 41, who are still alive, so far as known.

**** Includes one monomer worker.

***** Includes two monomer workers.

i.e Western Europe	79
North America	50
Rest of World	9

Total 138

CMA 009990

TABLE 3Pattern of ASL Cases by Factory(a) W Europe

Of the 79 cases in W Europe, 68 have occurred in clusters at 12 factories. Of the 31 German cases, 28 have occurred in clusters at 4 factories.

	<u>ASL Cases</u>
Dynamit, Troisdorf, Germany	12
BP, Barry, UK	10
Wacker, Burghausen, Germany	9
Atochem (formerly Chloé Chimie, formerly RP), St Fons, France	8
PCUK, Brignoud, France	7
Kemanord, Sundsvall, Sweden	5
CWH, Marl, Germany	4
ICI, Hillhouse, UK	3
Solvay, Tavaux, France	3
Lonza, Waldshut, Germany	3
Solvay, Jemeppe, Belgium	2
Atochem, St Auban, France	2
	<u>68</u>

NB: There are 32 pre 1962 PVC plants in W Europe; 18 of these have had ASL cases (Ref Table 8)

(b) N America

Of the 50 cases in N America, 42 have occurred at four factories out of a total of 55 factories. In N America 43 plants have not had ASL cases.

	<u>ASL Cases</u>
BFG, Louisville, US	15
BFG, Shawinigan, Canada	12
UCC, S Charleston, US	10
Goodyear, Niagara Falls, US	5
	<u>42</u>

NB: There are 29 pre 1962 PVC plants in N America; 12 of these have had ASL cases (Ref Tables 9 & 10)

(c) Rest of World

The 9 ASL cases are believed to be in one cluster of 4 and two clusters of 2 cases.

TABLE 4A

Latency Periods (Years from first Exposure to Diagnosis)

	<u>Country</u>	<u>No of Cases</u>	<u>Total Years</u>	<u>Average</u>	
<u>W Europe</u>	Belgium	2	35	17.5	
	France	22	574	26.09 *	
	Germany	31	632	20.38 *	
	Italy	5	99	19.8	
	Norway	1	22	22	
	Sweden	5	122	24.5	
	UK	<u>13</u>	<u>293</u>	22.53 *	
		<u>79</u>	<u>1777</u>	<u>22.49</u>	W Europe Average
<u>N America</u>	US	37	955	25.81 *	
	Canada	<u>10</u>	<u>205</u>	20.5 *	
		<u>47</u>	<u>1160</u>	<u>24.68</u>	N America Average
<u>Rest of World</u>	Czechoslovakia	2	30	15.0	
	Japan	3	59	19.66	
	Yugoslavia	<u>4</u>	<u>85</u>	21.2	
		<u>9</u>	<u>174</u>	<u>19.33</u>	Rest of World Average
<u>Summary</u>	W Europe	79	1777	22.49	
	N America	47	1160	24.68	
	Rest of World	<u>9</u>	<u>174</u>	19.33	
		<u>135</u>	<u>3111</u>	<u>23.04</u> *	World Average

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

NB: Do s not include Can11 or 12, or US41: details not known.

(Review Date - 1 Jan 1988)

DISTRIBUTION OF LATENCY PERIODS TABLE 4B

	0-9 yrs	10-14 yrs	15-19 yrs	20-24 yrs	25-29 yrs	30-34 yrs	35+ yrs	Total	Average Latency Period (Table 4A)
Belgium			2					2	17.5
Canada **		3		5	2			10	20.5
Czechoslovakia		1	1					2	15.0
France		1	4	3	8	3	3	22	26.09
Germany		5	9	10*	5	2		31	20.38
Italy			2	2	1			5	19.8
Japan			1	2				3	19.66
Norway				1				1	22
Sweden			2		2	1		5	24.5
UK	1		5	1	4	2		13	22.53
USA **		2	7	9	8	5	6	37	25.81
Yugoslavia				4				4	21.2
TOTAL **	1	12	33	37	30	13	9	135	23.04

* Includes G 03 aerosol can filler

** Does not include Can11 or 12, or US41: details not known

TABLE 4C
LATENCY PERIOD OF ASL CASES TABULATED BY YEAR OF FIRST EXPOSURE

MAX POSSIBLE LATENCY PERIOD	YEAR OF FIRST EXPOSURE	LATENCY PERIOD (NO OF YEARS)	ARITHMETIC MEAN OF LATENCY PERIODS	
48	1939	38*		
47	1940		$\frac{289}{8} = 36.12$	
46	1	37,21,37,41		
45	2	32,38,45		
44	3	38,14,32		
	4	28,11,24,20,24,34,39	$\frac{718}{27} = 26.59$	
	5	27,22,28,29		
	6	21,29,31,26,28,15,23,		
		30,35		
40	7	29,24,29,28		
39	8	28,24,34		
	9	30,26,20	$\frac{521}{21} = 24.80$	
	1950	26,22,31,19,23,14,33		
	1	19,28,17,28,34,29		
35	2	21**,15		
34	3	25,22,23,22,20,31,22,		
		32***		
	4	21,21,25,25,21,28***,	$\frac{787}{35} = 22.48$	
		22		
	5	22,23,24,14,19,21,27		
		27*** 24,28,30***		
	6	21,12,27***		
30	7	19,17,15,13,16,28		
29	8	18,18,15,17,20,29***		
	9	16,21,25,27	$\frac{544}{29} = 18.75$	
	1960	13,18,21,25,24,25		
	1	15,16,16,16,19,19,12		
25	2	13,18,17,12,18,21		
24	3	16,17,20,21		
	4	16,17	$\frac{221}{13} = 17.0$	
	5	11,19,20		
	6	9,18,21***		
20	7	16		
19	8	18		
	9	13	$\frac{31}{2} = 15.5$	
	1970			
	1			
15	2			
14	3			
	4			
	TOTAL	135 CASES	$\frac{3111}{135} = 23.04$	

* Cholangiosarcoma

** Aerosol can filler

*** The following are still alive, so far as known Fr15 and 22, G31 and 32,
UK14, US33 and 36

NB: Does not include Can11 or 12, US41: details not known

WPX/ASL2 - LANGIOCASES,14

CMA 009994

TABLE 4D

LATENCY PERIODS OF ASL CASES TABULATED BY YEAR OF FIRST EXPOSURE AND GEOGRAPHICAL LOCATION

MAX POSSIBLE LATENCY PERIOD	YEAR OF FIRST EXPOSURE	LATENCY PERIODS IN		
		WESTERN EUROPE	NORTH AMERICA	ROW
48	1939		38*	
47	1940			
46	1	37,41	21,37	
45	2		32,38,45	
44	3	38	14,32	
	4	28	11,24,20,24,34,39	
	5	27	22,28,29	
	6	21,29,31,33	26,28,15,23,30,35	
40	7	29	24,29,28	
39	8	28,34	24	
	9	30,26	20	
	1950	26,22,31	19	23,14
	1	19,28,34,29,	17,28	
35	2	21**	15	
34	3	25,22,22,32***	23,31	22,20
	4	21,21,25,25	21,28***	22
	5	22,23,24,27***24,28	14,19,21,27	
		30***		
	6	21,12	27***	
30	7	19,17,15,13,28		16
29	8	18,18,29***	15	17,20
	9	16,21,25,27,		
	1960	13,18,21,25,25	24	
	1	15,16,16,16,19,19	12	
25	2	13,18,17,18,21	12	
24	3	16,17,21	20	
	4	16	17	
	5	11,19		20
	6	9,18,21***		
20	7	16		
19	8	18		
	9	13		
	VIOLA 1970			
	1			
	2			
	MALTONI 3			
	TOTAL CASES	79	47	9

* Cholangiosarcoma

** Aerosol can filler

*** The following are still alive, so far as known Fr15 and 22, G31 and 32, UK14, US33 and 36

NB: Does not include Can11 or 12, or US41: details not known

(Review date 1 January 1988)

TABLE 4E

PLANT	START UP DATE	LATENCY PERIODS OF ASL CASES IN SPECIFIC PLANTS (10 OR MORE CASES)	NO OF CASES	AVERAGE LATENCY PERIOD
LOUISVILLE USA	1940?	12,14,15,19,19,20,24,27,28,28,28,29,29 31,45	15	24.53 years
TROISDORF W GERMANY	1954	12,13,16,16,18,19,19,21,23,25,28,29	12	19.91
SHAWINIGAN CANADA	1943 (1941?)	11,12,14,21,22,23,24,24,26,28	10	20.5
S CHARLESTON USA	1939?	24,30,32,32,34,35,37,38,38,39,	10	33.99
BARRY UK	1948	9,17,18,28,31,33,18,19,18,21	10	21.20

NB: Does not include cases Can11 and 12 at Shawinigan: details not known

(Review date 1 January 1988)

TABLE 4F

LATENCY PERIOD OF ASL CASES TABULATED BY YEAR OF FIRST EXPOSURE
AND SPECIFIC PLANT (10 OR MORE CASES)

YEAR OF FIRST EXPOSURE	LOUISVILLE USA	TROISDORF W GERMANY	SHAWINIGAN CANADA	S CHARLESTON USA	BARRY UK
1939				38	
1940					
1			21	37	
2				32,38	
3			14	32	
4	20		11,24	24,34,39	
5	28,29,27		22		
6			26,28	30,35	
7	29,28		24		
8	24				
9					
1950	19				31,33
1		29			28
2	15				
3	31		23		
4	28	21,25			
5	14,19	23,28			
6		12			
7		13			
8					
9					
1960					
1		16,16,19,19,	12		
2	12	18			18
3					17
4					
5					19
6					9,18,21
7					
8					18
9					
1970					
1					
2					

NB: Does not include cases Can11 and 12 at Shawinigan: details not known

(Review date 1 January 1988)

TABLE 4G

PLANT	START-UP DATE	LATENCY PERIOD OF ASL CASES IN SPECIFIC PLANTS(4-9 CASES)	NO OF CASES	AVERAGE PERIOD
BURGHAUSEN W GERMANY	1933	17,21,22,25,24,13,21,32,30	9	22.77 years
ST FONS FRANCE	1939	21,28,29,37,38,27,41,34	8	31.88
BRIGNOUD FRANCE	1950	11,16,18,26,30,25,34	7	22.85
SUNDSVALL SWEDEN	1945	16,19,27,29,31	5	24.4
NIAGARA USA	1947	15,17,21,23	4	19
SPLIT YUGOSLAVIA	1950	20,20,22,23	4	21.25
MARL W GERMANY	1948	15,16,22,21	4	18.5

NB: Does not include US41 (Niagara): details not known

WPX/ASL2 - LANGIOCASES,18

CMA 009998

(Review date 1 January 1988)

TABLE 4H

LATENCY PERIOD OF ASL CASES TABULATED BY YEAR OF FIRST EXPOSURE AND SPECIFIC PLANT
(4-9 CASES)

YEAR OF FIRST EXPOSURE	BURGHAUSEN W GERMANY	ST FONS FRANCE	BRIGNOUD FRANCE	SUNDSVALL SWEDEN	NIAGARA USA	SPLIT YUGO- SLAVIA	MARL W GERMANY
1939							
1940							
1		37,41					
2							
3		38					
4							
5				27*			
6		29		31	15,23		
7				29			
8		28,34					
9			26,30				
1950						23*	
1			34	19	17		
2							
3	25,32					20	22
4	21					22*	
5	22,24,30	27			21		
6		21					
7	17						
8			18			20	
9			16,25				
1960	21						
1							15,16
2							21
3							
4				16			
5			11				
6							
7							
8							
9	13						
1970							
1							
2							

*Monomer worker

NB: Does not include US41 (Niagara): details not known

WPX/ASL2 - LANGIOCASES,19

CMA 009999

TABLE 5

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

	Western Europe	North America	Rest of World	Annual Total	Cumulative Total	Key Events
1955		1		1	1	
7		1		1	2	
1961		1		1	3	
2		1		1	4	
4		1	1	2	6	
7	1			1	7	
8		5		5	12	
9	1	2		3	15	
1970	1	1		2	17	Viola
1	1	2		3	20	
2	4	1		5	25	
3	1	4	3	8	33	Maltoni
4	3	2	-	5	38	Goodrich
5	6	4	1	11	49	
6	6	3	2	11	60	
7	6	3		9	69	
8	7	2	1	10	79	
9	5	-	-	5	84	
1980	6	4	-	10	94	
1	5	0	-	5	99	
2	1	2		3	102	
1983	7	3		10	112	
1984	5	2		7	119	
1985	5		1	6	125	
1986	3			3	128	
1987		1		1	129	
TOTAL	74* **	46**	9	129		

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

** Does not include the following who are still alive, so far as known: Can11, Fr15 and 22, G31 & 32, UK14, US33, 36 & 41

CMA 010000

(Review date 1 January 1988)

TABLE 6

ASL CASE NUMBERS BY YEAR OF DEATH AND GEOGRAPHICAL LOCATIONS (EXCLUDING It.01)

KEY EVENTS		WESTERN EUROPE	NORTH AMERICA	REST OF WORLD
	1955		C1	
	6			
	7		C2	
	8			
	9			
	1960			
	1		US8	
	2		C3	
	3			
	4		US5	Cz2
	5			
	6			
	7	F1		
	8		C4,C5,US4,US7,US10	
	9	G1	US12,US16	
Viola	1970	Sw1	US11	
	1	G2	C6,US2	
	2	N1,Sw2,UK1,It2	C7	
Maltoni	3	G3**	C8,US1,US3,US23	Y1,Y2,Cz1
Goodrich	4	G4,G5,UK3	C9,US13	
	5	F2,F3,G6,G7,G8,It3	US6,US9,US18,US26	Jap1
	6	B1,F4,F5,F6,F7,Sw3	US19,US20,US22,	Jap2,Y3
	7	F8,F9,G10,G11,G12,Sw4	C10,US21,US24*	
	8	F10,F11,G9,G13,G15	US27,US28	Y4
		G16,G17		
	9	F12,F13,UK4,UK5,G18		
	1980	UK6, UK7,G19,Sw5,G20,G21US	US17, US29, US30,US32	
	1	It4,F14,UK8,G22,G23		
	2	G26	US31,C12	
	3	UK09,It5,F17,B2,G24,G25,G30	US35, US34, US38	
	4	UK10, F16, F18, G27,G29	US37,US39	
	5	UK11, UK12,F19,F20,G28		Jap3
	6	F21,UK13,It6		
	7		US40	
	Total	74***	46***	9

* Cholangiosarcoma

** Aerosol can filler

*** Does not include the following who are still alive, so far as known: Can11, Fr15 & 22, G31 & 32, UK14, US33, 36 & 41

(Review date 1 January 1988)

TABLE 7

ASL CASE NUMBERS BY YEAR OF FIRST EXPOSURE AND GEOGRAPHICAL LOCATION
(EXCLUDING It.01)

KEY EVENTS		WESTERN EUROPE	NORTH AMERICA	REST OF WORLD
	1939		US24*	
	40			
	1	Fr11,Fr16	C3,US27	
	2		US13, US29,US40	
	3	Fr14	C2,US19	
	4	UK1	C1,C5,US5,US7,US28,US35	
	5	Sw2	C4,US3,US9	
	6	Fr1,Fr3,Sw4	C7,C9,US8,US11,US21,US31	
	7	Sw3	C6,US22,US26	
	8	Fr9, Fr17	US1	
	9	Fr12,Fr4	US12	
	50	Fr7,N1,UK8,UK9	US16	Y2, Cz2
	1	Sw1,UK5,Fr20,G30	US10, US32	
	2	G3**	US4	
	3	G15,It3,G26,G31***	C10, US37	Jap1,Y1
	4	G7,G8,UK4,G19	US18,US33***	Y3
	5	G11,G16,G18, Fr15***	US2,US17,US20,US34	
		G23,G28,G32***		
	6	FR10,G1	US36***	
	7	Fr8,G4,It2,G2,UK12		Cz1
	8	Fr6,B1,Fr22***	US23	Jap2,Y4
	9	Fr2,It4,Fr19,Fr21		
	60	G5,G13,G25,G28,It6	US39	
	1	G9,G10,G12,G17,G20,G22	C8	
	2	G6,UK6,G21,B2,G29	US6	
	3	Fr13, UK7,Fr18	US38	
	4	Sw5	US30	
	5	Fr5,UK11		Jap3
	6	UK3, UK10,UK14***		
	7	It5		
	8	UK13		
	9	G24		
Viola	70			
	1			
	2			
Maltoni	3			
-	Total	79	47****	9

* Cholangiosarcoma (US24)

** Aerosol can filler (G3)

*** Fr15 & 22, G31 & 32, UK14, US33 & 36 are still alive, so far as known

**** Does not include Can11 or 12, or US41: details not known

WPX/ASL2 - LANGIOCASES,22

CMA 010002

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
BELLEC Dr	Rhone Poulenc, Aubervilliers, France
BENECH Dr M	Naphtachimie, Lavera, 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

KALPERT 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
MATTRE Prof Lo	Medil-Anic-S, Milan, Italy
MATTIUSI Dr R	Montedison, Milan, Italy
MIDDLETON D	Norsk Hydro, Newton Aycliffe, UK
MOKKA Mr	Neste Oy, Espoo, Finland
MONTESANO Dr R	IARC, Lyon, France
MOTTI Dr A A	Duperial SAIC, Buenos Aires, Argentina
MUNOZ MOUTON Dr M	Rio Rodano, Madrid, Spain
MacSWEN 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
PAGLIAIUNGA 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
RAMBAUD 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	CMA, 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

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