

To make an early determination of the distribution and extent of primary liver cancer, and more specifically, angiosarcoma of the liver among workers exposed to vinyl chloride, the National Institute for Occupational Safety and Health (NIOSH), Center for Disease Control, has requested members of the medical community in the United States and abroad to report information on known or suspected cases.

As shown in the table, 26 cases have been reported to date from six countries. Sixteen of these are from the United States. Although cases have been observed from four distinct work areas, the majority (81%) were formerly employed as reactor cleaners at plants where vinyl chloride was transformed into polyvinyl chloride. Fourteen confirmed cases of angiosarcoma of the liver have been reported from four polymerization plants in the United States. While an exact estimate of the risk for polymerization workers must await completion of follow-up, it is already apparent that the disease rate for this group is extremely high. The total work force currently employed at U.S. polymerization plants is about 5,000. No adequate data on prior vinyl chloride exposure levels of polymerization workers is available, but it is thought that past exposures may have frequently exceeded the TLV of 500 ppm.

For the polymerization workers the median age at diagnosis of angiosarcoma of the liver is 45 years with a range from 36 to 71 years, and the median interval from first exposure to diagnosis is 20 years with a range from 11 to 30 years. Too few cases have been reported from the other work areas to provide stable estimates of age and latency.

Persons interested in obtaining further information should contact J. William Lloyd, Sc.D., Director, Office of Occupational Health Surveillance and Biometrics, NIOSH, 5600 Fishers Lane, Room 3-32, Park Building, Rockville, MD 20852.

Angiosarcoma of the Liver in Vinyl Chloride/Polyvinyl Chloride Workers

Table 1. — Reported Cases of Liver Angiosarcoma in Workers Exposed to Vinyl Chloride or Polyvinyl Chloride.

Country	Case No.	Birth Date	1st VC or PVC Exposure	DX Angio-Sarcoma	Age at DX	Yrs 1st Exp. to DX	Tot. Yrs Exp.	Date of Death
VC Monomer Production Workers								
Sweden	02*	11-27-11	00-00-45	05-15-72	61	27	23	08-16-72
Polymerization Workers								
Czechoslovakia	01	AWAITING DETAILS						
Czechoslovakia	02	AWAITING DETAILS						
Great Britain	01*	00-00-01	00-00-46	12-00-72	71	26	20	12-00-72
Norway	01*	12-23-15	03-00-50	12-20-71	55	22	21	01-04-72
Sweden	01*	06-23-27	02-14-51	02-00-70	43	19	18	10-20-70
United States	01*	10-17-23	12-06-48	03-03-73	49	22	16	03-03-73
United States	02*	08-19-33	11-15-55	05-00-70	36	14	13	05-28-71
United States	03*	05-25-15	11-28-45	12-19-73	58	23	28	12-19-73
United States	04*	01-15-24	07-05-52	08-19-67	43	15	15	01-07-68
United States	05*	01-25-12	06-19-44	04-09-64	52	20	18	04-09-64
United States	06*	00-00-29	01-17-62	02-00-74	45	12	12	ALIVE
United States	07*	05-03-22	02-00-44	00-00-68	45	24	18	03-23-69
United States	08*	03-06-20	10-01-46	03-00-61	41	15	15	08-25-61
United States	09*	00-00-31	05-28-45	03-01-74	43	29	17	ALIVE
United States	10*	08-16-13	05-12-51	05-00-68	55	17	17	05-10-60
United States	11*	05-27-09	10-14-46	03-00-70	61	23	23	03-16-70
United States	12*	11-17-18	09-13-49	05-02-69	50	20	15	05-02-69
United States	13*	12-01-21	08-19-44	05-00-74	53	30	30	07-04-74
United States	16*	11-04-27	05-05-50	00-00-69	41	17	4	03-27-69
W. Germany	01	07-26-31	10-14-57	00-00-71	40	14	14	12-14-71
W. Germany	02	06-04-30	10-01-57	00-00-69	39	11	11	01-25-69
Compounders, Fabricators, Etc.								
Great Britain	02*	09-08-14	00-00-46	02-00-70	55	24	11	12-00-70 Note 1
United States	14	00-00-13	08-18-38	06-00-73	60	35	00	07-03-73 Note 2 & 5
United States	15*	00-00-25	00-00-00	07-00-72	47	00	00	02-15-73 Note 3
Other VC Exposure								
W. Germany	03	00-00-00	00-00-00	03-00-00	43	14	00	00-00-00 Note 4

Note 1 Pouring PVC oil mixture onto fabric bases

Note 2 Machine operator covering electrical wire with PVC plastic insulation

Note 3 Accountant at several fabrication plants (work history under review)

Note 4 Loading pesticide cans with VC propellant

Note 5 Diagnosis: Sarcoma (possibly "angiosarcoma"), liver. Possibility of generalized neoplasm of the reticuloendothelial cell system cannot be ruled out.

* Indicates microscopically confirmed angiosarcoma of the liver.

"00" Indicates unknown data