

CHEMICAL HAZARDS

- 186/75 Vinyl-Chloride-Induced Liver Disease. L.B. Thomas, et al. *New Engl. J. Med.* **292**: 17-22, January 2, 1975. 32 refs.

Histologic examination of liver tissue (eight autopsy and 18 biopsy specimens) and five spleens from 20 workers with vinyl chloride polymerization showed hepatic angiosarcomas in 15. In addition, a peculiar pattern of progressive portal-tract, inconspicuous intralobular and conspicuous capsular fibrosis was observed in the five workers without angiosarcoma, in all the seven patients with angiosarcoma from whom tumor-free portions of the liver were available, and in two tumor-free biopsies from patients subsequently found to have angiosarcomas. The fibrosis was accompanied by splenomegaly. Hypertrophy and hyperplasia of both hepatocytes and hepatic and splenic mesenchymal cells were also seen. The histologic similarity to chronic inorganic arsenical poisoning, in which angiosarcomas also occur, and to idiopathic portal hypertension (Banti's syndrome) suggests that the latter syndrome at times results from unknown toxic, possibly environmental, chemicals.

--Author's abst.

- 187/75 Angiosarcoma of the Liver in Vinyl Chloride/Polyvinyl Chloride Workers. Anon. *J. Occup. Med.* **16**: 809, December 1974.

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. Twenty-six 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. 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. --Cond. from text

- 188/75 More Facts on Vinyl Chloride and Cancer. Anon. *British Med. J.* **4**: 486-487, November 30, 1974. 13 refs.

In an earlier leading article it was reported that vinyl chloride, which is used to make the valuable plastic polyvinylchloride, had apparently led to three cases of angiosarcoma of the liver among workmen in one U.S. plant. Only about 25 instances of this tumour are found annually in the entire population of the U.S.A. Thirteen cases of angiosarcoma of the liver have now been reported among American vinyl chloride workers, and two of them had coexisting angiosarcomas of other tissues. Instances of liver angiosarcoma in vinyl chloride workers have also been found in West Germany, Sweden, the United Kingdom, and Norway. Most, but not all, of the affected men had worked on the polymerization process in which there are intermittent high atmospheric levels of exposure to vinyl chloride. B.F. Goodrich and Co., the firm from which the original reports emerged, have now identified seven cases of angiosarcoma of the liver and four of non-malignant hepatic disease in their workforce. This firm has described its programme for the detection of liver disease and angiosarcoma in vinyl chloride workers. Most instances of angiosarcoma have been in polymerization workers, who when the polymerization vessels were opened were formerly subjected to atmospheric concentrations of vinyl chloride possibly of up to 10,000 ppm in the worst conditions. The importance of polyvinylchloride plastics in modern society makes it unlikely that their use can be abandoned easily, so it is necessary to consider whether the exposure of the general population justifies concern. The American plants are estimated to discharge 80 million kg vinyl chloride each year into the atmosphere, and this leads to concentrations of 1-2 ppm in the air near these factories. Polyvinylchloride as manufactured may contain 200-400 ppm vinyl chloride, and this may present a hazard to secondary industrial users. --Cond. from text

- 189/75 Carcinogenic Action of Vinyl Chloride. B.I.F. Goelzer. *Revista Brasileira de Saude Ocupacional* **2**: 12-16, July/September 1974. 15 refs. (Portuguese)

After reviewing the rapid changes in the toxicologic importance of vinyl chloride, due to its relationship with liver angiosarcoma, the author comments on the product's acute and chronic toxic effects. Its physical and chemical characteristics and numerous uses are shown. Background information on vinyl chloride, from early in this century, when it was considered unacceptable as an anesthetic, due to the cardio-circulatory effects at useful dosages, up to the present tolerance thresholds of 200 ppm in the environment, is presented. Other papers on the subject and scientific evidence of the product's carcinogenic capacity are discussed. Finally, efforts now under way in the U.S.A. for solving the problem without undue economic and social strain and consequences on public health are discussed.

--Author's Summary in English