

Medical detection program probes chemicals' hazards

By John Nussbaum

A medical detection program is under way to determine the effect of vinyl and polyvinyl chlorides, used in the plastics industry, on workers' health and possible cancer-causing properties of the chemicals.

The crash research program is being conducted by federal agencies, the National Institute of Occupational Safety and Health and its parent, Center for Disease Control, assisted by university scientists and with help from industry and labor.

The institute detailed program plans here yesterday for labor and management representatives at Sheraton Motor Inn, Cleveland Hopkins International Airport.

About 75 representatives of various chemical manufacturers, several schools of public health, the AFL-CIO Industrial Union, United Rubber Workers, Oil, Chemical and Atomic Workers, International Union of Chemical Workers and United Steelworkers unions attended.

The present concern resulted from a report to the institute Jan. 22 by B. F. Goodrich Co. of four deaths between 1963 and 1973 from a rare cancer of the inner lining of blood vessels of the liver among employees of its chemical plant in Louisville, Ky.

The liver cancer, hepatic hemangio-endothelioma, was first described in 1910, and only 44 cases have

been chronicled in medical literature. Normally, an estimated 20 cases a year occur in the entire United States.

Dr. Marcus M. Key, institute director, called the suspected cancer-causing role of the chlorides a crisis in occupational health. He said he hoped the situation could be confined to the four deaths and a handful of other liver disorders also reported recently.

But Dr. Irving Selikoff of Mount Sinai Hospital Medical School, New York, a leading industrial epidemiologist, said the chemicals could cause other diseases.

The vinyl industry in this country is only about 25 years old. Chemically induced cancer in humans often takes as long as 20 years to show up so there may be many other unrecognized cases.

The Chemical Workers Union estimates 50,000 U.S. workers are exposed to the vinyl and polyvinyl chlorides.

Dr. Henry Falk, a center pathologist, reported none of the victims had a history of liver disease. But in two of the patients the diagnosis was nonalcoholic cirrhosis of the liver and the cancer was confirmed only at autopsies.

In the study, medical investigators will pick chemical plants similar to the Louisville plant. They will examine workers, hunt up

former employees and study the records of deceased workers.

A tentative list of 27 companies, from which a handful will be chosen for study, include four in northeast Ohio.

They are General Tire & Rubber Co.'s Chemical-Plastics division, Ashtabula; the B. F. Goodrich plant in Avon Lake, and the Uniroyal Inc. chemical division and Robintech Inc., both in Painesville.

Scientists, labor and industry representatives hammered out emergency safety standards for chloride handling which the institute will recommend to the U.S. Department of Labor.

The standards include protective clothing, respirators, mandatory showers, ventilation, and a stiffer federal standards on chloride fumes.

Dr. Samuel S. Epstein, professor of environmental health at Case Western Reserve University, said more preventive research was needed in order to avert the need of responding to crises. He said many hazards may be overlooked by not investigating substances and industrial processes until a hazard is detected.

"The only thing that brought us here today is the unusual occurrence of a rare tumor. Had VC merely produced an increased incidence of lung cancer we would not be here," he said.

The Chemical World This Week

EVIDENCE MOUNTS LINKING VINYL CHLORIDE AND CANCER

The growing suspicion that exposure to vinyl chloride has led to the deaths of polyvinyl chloride workers from a most rare form of liver cancer has apparently been reinforced. A research study in which rats exposed to high levels (apparently 30,000 p.p.m.) of vinyl chloride vapor also develop angiosarcoma of the liver was slated to be disclosed publicly in the U.S. by Prof. Cesare Maltoni of the University of Bologna, Italy, just after press time. The study has been supported by a consortium of European firms, including Imperial Chemical Industries (C&EN, Feb. 11, page 8).

What's more, the view that the deaths are an isolated event limited to just one of B. F. Goodrich's U.S. plants and not proved to be occupationally linked is fast disappearing. Four angiosarcoma deaths now have been confirmed at the BFG plant instead of the three revealed earlier (C&EN, Jan. 28, page 6). Another diagnosed case of angiosarcoma occurred in an ICI employee who worked in a U.K. vinyl chloride operation for 20 years, sources in the U.K. and U.S. say.

The clustering of the four BFG cases "cannot be explained by chance alone," Dr. Marcus M. Key, director of the National Institute for Occupational Safety and Health, told those at a Cleveland briefing on the cancer hazard earlier last week.

What action the U.S. takes, if any, beyond interim procedures NIOSH has recommended hinges upon the outcome of a fact-finding hearing at the Labor Department on Feb. 15. Prof. Maltoni, BFG, Dow Chemical, organized labor, and others were scheduled to testify.

AFL-CIO was to present a unified, organized labor position urging the department to promulgate an emergency temporary standard, a procedure used earlier for 14 other carcinogens. Dr. V. K. Rowe, Dow's top toxicologist, was expected to oppose this procedure, asking instead for regular rule-making for a permanent standard. He suggests the deaths result from gross exposure 10 to 30 years in the past.

All four BFG deaths, as well as

another four liver disease cases at the plant under investigation, involved persons who cleaned polymerization reactors after this step in the suspension process for PVC. BFG has used a less hazardous cleaning process for the past five years, however.

Significantly, the latency period for most cancers to develop nearly



Key: not explained by chance

matches the great growth in the U.S. PVC industry that has taken place over the past two decades or so. NIOSH estimates there are 5000 workers at risk in U.S. PVC plants and 1500 at vinyl chloride plants.

NIOSH will contract out an epidemiology study that will be independent of the study on workers already under way at member firms of the Manufacturing Chemists Association. MCA's results will not be ready for "at least two to three months," a spokesman says. Earlier, MCA halted circulation of its 1972 safety data sheet on vinyl chloride, which stated that human carcinogenicity had not been observed.

Plastic prices get big boosts

As U.S. chemical makers sort out the fine points of the recent Cost of Living Council action relaxing Phase IV price controls on petrochemicals, plastics resins, and synthetic fibers (C&EN, Feb. 4, page 4), price hikes are being announced with resin makers leading the way.

So far three major resin producers—Dow Chemical, Monsanto, and Union Carbide—have spelled out large and wide-ranging price increases for resins following the CLC action. These boosts come after a year in which listed chemical prices have moved up relatively modestly. According to Labor Department data, the price index for plastics resins and materials moved up 4.1% between December 1972 and December 1973. For chemicals and allied products the gain was 4.9%. Of course, the "gray market" price for resins and many other chemical products has been spiraling upward for some months.

Among the recent price moves Monsanto has posted increases of 5 cents a pound on bulk shipments of polystyrene resins, and increases of 4 cents a pound on bulk acrylonitrile-butadiene-styrene (ABS) and styrene-acrylonitrile (SAN) resins. New price for general-purpose polystyrene is 19 cents a pound. Truckload quantities of ABS resins now range from 32 to 45 cents a pound, and SAN in truckload bags is 27 cents a pound. Monsanto says that "these increases are consistent with the Cost of Living Council action of Jan. 30" and reflect increased cost of raw materials, energy, and distribution, among other factors.

Dow, citing reasons much the same as Monsanto's, has raised the price of its general-purpose polystyrene from 17 to 26 cents a pound. ABS and SAN now go for 32 cents a pound, up from 23.5 and 24 cents a pound. Price of high-density injection- and blow-molding polyethylene was increased from 14.5 to 18.5 cents a pound. Dow's low-density film-grade polyethylene is now 17 cents a pound, up from 13 cents. The company says that these new prices still do not match those of the world market but should help it compete on the world market for petrochemical feedstocks.

Carbide's new prices for high-density injection- and blow-molding polyethylene are the same as Dow's, but its low-density film grade is a bit higher at 18.5 cents a pound. SAN is now 28 cents a pound, up from 22 cents, while high-impact polystyrene increased from 16.5 cents a pound to 21.5 cents a pound. Carbide raised the tab on its polyvinyl chloride resin suspensions by 5 cents bringing the