

Health Hazards

Vinyl-Chloride Risks Were Known by Many Before First Deaths

Hindsight Shows Weakness
In Firms' Systems Aimed
At Protecting Workers

The Tip of a Large Iceberg

By BARRY KRAMER

Staff Reporter of THE WALL STREET JOURNAL

A few weeks before Christmas in 1948, Earl Parks, then 26 years old, signed on as a helper-trainee at the large B. F. Goodrich Co. plastics factory in Louisville, Ky. The plant had been making polyvinyl-chloride plastic from vinyl-chloride gas since before the war, using a process developed by Goodrich in 1937.

It was a growing industry that Mr. Parks joined. Polyvinyl chloride—dubbed PVC for short—had found special, but limited, applications in the war years, especially as a fireproof coating for electric wiring in fighter planes and ships. But in the late 1940s, so-called vinyl consumer products, made from PVC, began coming into vogue; and by the time the 1950s were under way polyvinyl-chloride products such as containers, phonograph records and curtains were staples in American households.

The basic Goodrich process, still in use today, pipes vinyl-chloride gas into large re-

This is the first of two stories concerning implications of the discovery that vinyl chloride can cause cancer.

actor vessels; there, the gas is agitated together with a liquid and catalysts. The process causes polymerization, a linking together of the molecules of the gas (a monomer) into the long chains that give PVC (a polymer) its strength and other desired characteristics.

The First Years

In his first years with Goodrich, it was Earl Park's job to crawl inside the reactors after each batch of PVC was drained off and to chip away that portion of the polymer that had congealed. During the hour-long task, repeated several times in the course of an eight-hour shift, Mr. Parks and other workers who performed the same function would unavoidably inhale the heavy, sweet-smelling fumes of vinyl-chloride gas that had escaped polymerization.

As the 1950s went by and the 1960s began, Earl Parks was working his way up to the job of foreman, a post that he had attained by the time that ill health forced his early retirement in the late 1960s. In the years that he had worked with Goodrich, the PVC industry flourished as thousands of new uses were discovered for the polymer.

On March 3, 1973, at the age of 50, Earl Parks died of angiosarcoma of the liver, a type of cancer that is invariably fatal. His death attracted scant public attention at the time, but today the significance of Mr. Parks' illness is unquestionable and shattering in its implications.

Deadly Statistics

The link between angiosarcoma and vinyl chloride is further buttressed by other deadly statistics. Seven of Mr. Park's fellow workers at the Goodrich plant also contracted the disease, and five have died. In all, there have been 16 documented angiosarcoma cases in the U.S. in recent years, all of them linked to vinyl chloride. In addition, 10 other cases have been reported in Europe.

While the total number of cases is small, the industry has been shaken to its roots. The disease now is known to work insidiously, slowly, during decades of exposure, the implications being that the cases thus far are quite likely only the tip of an iceberg. Nine companies, with 14 plants and 940 employees, currently produce vinyl chloride monomer from ethylene, a petrochemical. The monomer, in turn, is used by 21 companies operating 36 major plants and employing 5,000 workers, to make more than five billion pounds of PVC annually. (World-wide production is some 18 billion pounds annually.)

Even the five billion pounds of PVC annually produced in this country isn't enough to meet the domestic demand for the plastic into which PVC is formed. From 3,000 to 4,000 processors, employing an estimated 700,000 workers, fabricate the plastic into a wide variety of products ranging from vinyl floor tiles to shower curtains. According to a study done for the Society of the Plastics Industry by Arthur D. Little Inc., as many as 2.2 million jobs depend on polyvinyl-chloride plastic. If PVC were banned, the study says, the annual loss to industry in sales and production would be some \$65 billion to \$90 billion. (The Manufacturing Chemists Association estimates the wholesale annual value of all PVC products is \$3 billion.)

Emergency Decree

At the moment, no one believes the industry will suddenly come to a screeching halt. However, after the first human cases of vinyl chloride-induced angiosarcoma were disclosed, the Labor Department's Occupational Safety and Health Administration imposed a temporary emergency standard for PVC factories; thenceforth, OSHA decreed, the permissible level of vinyl chloride in the air of such factories would be 50 parts per million. That level was far below the industry standard, in effect for years, of 500 parts per million.

OSHA's emergency decree was made last May. Since then, animal research found that tumors develop at 50 parts per million. Yesterday, OSHA issued a new permanent standard requiring employers after Jan. 1, 1975, to reduce exposure to one part per million in factory air, averaged over eight hours, and five parts per million averaged over any period no longer than 15 minutes. (See story on page 14.) While considerably more stringent than the emergency decree, the new permanent standard—particularly with its five-parts-per-million provision and its allowance of averaging—nevertheless falls short of the "no detectable" limit advocated by unions, many medical experts and

Please Turn to Page 14, Column 1

UCC 093856