

NEWS



U. S. DEPARTMENT OF LABOR
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Occupational Safety &
Health Administration

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FOR RELEASE: 2:30 p.m. EDT
Tuesday, October 1, 1974

LABOR DEPARTMENT SETS FINAL JOB HEALTH RULE ON VINYL CHLORIDE

CHICAGO -- Assistant Secretary of Labor John H. Stender announced today final job health rules that will establish a three-phase program for reducing worker exposure to vinyl chloride, a cancer-causing chemical widely used in the manufacture of plastics.

Stender, head of the Department's Occupational Safety and Health Administration (OSHA), said the rule, effective Oct. 4, will ultimately lower exposure to the chemical "to levels that will protect worker health by cutting significantly the amount of vinyl chloride they are exposed to."

In its three-phase progression between Oct. 4, this year and Jan. 1, 1976, the new standard will reduce the 50 parts per million (ppm) in air exposure to vinyl chloride now permitted to as low as one ppm averaged over any eight-hour period and five ppm averaged over any period no longer than 15 minutes.

Vinyl chloride, a gaseous chemical, has been shown to induce cancer of the liver (angiosarcoma) in workers in the United States and other countries.

Its effects first became widely known last January when the B. F. Goodrich Company reported deaths of several of its employees exposed to the chemical. Exhaustive investigation and lengthy public hearings followed.

OSHA first held an emergency fact-finding hearing in February, then conducted a survey of vinyl chloride and polyvinyl chloride plants in the South. Meanwhile, more deaths and illnesses were reported.

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BOR 007051

An emergency temporary rule substantially lowering the exposure levels from 500 ppm in air to 50 ppm was issued April 5.

Under the Occupational Safety and Health Act of 1970, the emergency standard would have expired Oct. 5.

Stender told a news conference in Chicago, where he is attending the National Safety Congress, that the permanent standard will continue in effect at the 50 ppm level at the outset.

"We will continue at that level until Dec. 31," Stender said, "to give employers a reasonable time to accomplish changes in their plants that will permit them to reduce exposures or provide employee protective equipment."

He said that on Jan. 1, 1975, employers must reduce levels to one ppm averaged over any eight-hour period, and five ppm averaged over any period no longer than 15 minutes.

Reduction of exposures to at or below these levels will be made through feasible engineering and work practice controls. Where these measures will not reduce levels enough, the rules will permit reductions to the lowest practicable level with employee respiratory protection provided to meet the one ppm and five ppm exposure limits, Stender said.

Beginning Jan. 1, 1976 -- the third phase -- wearing of respirators will be mandatory for workers exposed to levels greater than the one ppm and five ppm allowable limits. Until that date, wearing of respirators is discretionary for exposures no greater than 25 ppm.

Plans for reducing exposure to the permissible levels must be available on request of OSHA.

Before giving details of the new rules, Stender praised the "splendid cooperation" of the medical and scientific community, labor and industry representatives, and officials of other government agencies who "provided the Labor Department with a comprehensive record on which to base its final ruling."

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Vinyl chloride, polyvinyl chloride (PVC) and PVC-product manufacturing processes often release vinyl chloride into workplace atmospheres. The new rules will protect workers' health against exposures to significant amounts of vinyl chloride during these processes, Stender said.

The new rules will apply to the manufacture, reaction, packaging, repackaging, transportation, storage, handling or use of vinyl chloride or polyvinyl chloride. They will not apply to the handling or use of products made of polyvinyl chloride.

OTHER KEY PROVISIONS OF THE FINAL VINYL CHLORIDE STANDARD:

-- Employers must set up "regulated areas" where concentrations of VCM exceed the "one and five ppm" limits, with access limited to "authorized" workers.

-- Plans for reducing exposure to the permissible "one and five ppm" levels must be available on request of OSHA.

-- Direct contact by employees with liquid VCM is prohibited.

-- Monitoring and measuring programs must be initiated to learn whether exposure levels exceed 0.5 ppm. Depending on levels found, repeat measurements are required at least monthly or quarterly. They may be discontinued only when two consecutive measurements, no fewer than five working days apart, show individual employee exposures to be less than 0.5 ppm.

-- Any change in processes that may alter exposure levels will require new measurements for all affected employees.

-- Monitoring and measuring methods must meet accuracy requirements ranging from not less than plus or minus 50 percent in concentrations from 0.25 through 0.5 ppm, to plus or minus 25 percent for levels greater than one ppm.

-- Where the regular monitoring program shows excursion levels may exceed 25 ppm, a continuous monitoring and alarm system must be used to alert employees to potential danger if they are using air filtering respirators (gas masks). At that level, they must switch to respirators with a clean air supply.

-- Employees and their representatives must be given "reasonable opportunity" to observe monitoring and measuring.

-- Protective garments as well as respiratory protection must be provided for employees in hazardous situations, such as cleaning operations in PVC vessels.

-- Written plans must be prepared for emergency situations (accidental release of massive levels) in facilities making or using VCM.

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-- Employees in VCM or PVC operations must be trained fully on topics such as the nature of the hazards, protective measures, and the contents of the OSHA rules.

-- Medical programs must include complete initial examinations. Subsequent ones will be required every six months for employees who have worked in VCM or PVC operations for 10 or more years, and annually for all other exposed workers. Alternative medical examinations will be acceptable if the examining physician states his procedures and reasons for substitution. All medical checks are at no cost to employees.

-- Specified signs or labels are required at entrances to "regulated areas," in hazardous operations or emergency areas, on containers of PVC resin waste, PVC containers and VCM containers.

-- Records of required monitoring and measuring, medical records, and rosters of "authorized" workers must be kept for varying specified times, or be sent to the Director, National Institute for Occupational Safety and Health, if an employer ceases to do business before the expiration of retention periods.

-- Reports must be made to the nearest OSHA Area Director no later than one month after establishing a "regulated area, and within 24 hours of any "emergency" exposure. Also, reports to affected employees must be made within 10 days after monitoring and measuring shows exposure in excess of the "one and five ppm" limits, including the results of the measurements and steps being taken to reduce exposure to permissible levels.

VINYL CHLORIDE CHRONOLOGY OF EVENTS

January 22, 1974 -- OSHA was informed by the National Institute for Occupational Safety and Health (NIOSH) that the B. F. Goodrich Chemical Co. reported that deaths of several of its employees from a rare liver cancer (angiosarcoma) may have been occupationally related.

January 30, 1974 -- OSHA announced in the Federal Register a fact-finding hearing on possible hazards involved with the manufacture and use of VCM.

February 15, 1974 -- Public hearing held in Washington, D. C.

March 11-15, 1974 -- Staff members of the OSHA Office of Standards Development conducted an industrial hygiene fact-finding survey of five VCM and two PVC plants in the New Orleans and Baton Rouge area, to assist in developing information on which to base exposure standards.

March 16-17, 1974 -- Assistant Secretary of Labor John H. Stender, OSHA head, with key staff members, visited three chemical plants in Texas to observe personally the conditions under which vinyl chloride is manufactured and processed.

April 5, 1974 -- OSHA issued an emergency temporary standard lowering from 500 ppm to 50 ppm the maximum allowable amounts of VCM to which employees may be exposed.

April 15, 1974 -- OSHA, NIOSH, and Environmental Protection Agency (EPA) representatives received from Bio-Test Laboratories, Northbrook, Ill., preliminary data showing development of angiosarcomas of the liver in test mice exposed to VCM concentrations of 50 ppm.

May 10, 1974 -- OSHA proposed standards to replace the emergency temporary standard due to expire Oct. 5. The proposal would reduce to "no detectable level" the allowable exposure of workers to VCM.

May 24, 1974 -- OSHA published in the Federal Register a notice of public hearing on the proposed permanent rule to begin June 25.

June 12, 1974 -- OSHA published a draft environmental impact statement on the proposed final rules. The statement was announced by the Council on Environmental Quality (CEQ) as being available for 45 days for public comment.

June 25-28, 1974 -- Public hearings on proposed permanent rules.

July 8-11, 1974 -- Continuation of public hearings.

August 26, 1974 -- OSHA announced in the Federal Register the availability for public comment by Sept. 6 the preliminary results of an economic and technological feasibility study on various exposure levels conducted by Foster D. Snell Corp., New York City.

September 5, 1974 -- OSHA published the final environmental impact statement which was announced by CEQ Sept. 6 as being available for public comment until Sept. 25.

September 13, 1974 -- OSHA announced the availability for public comment of the draft final Snell study for public comment until Sept. 25.

October 4, 1974 -- Final health standard on vinyl chloride published in the Federal Register.

BOR 007057

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

THE SOCIETY OF THE PLASTICS
INDUSTRY, INC.

Petitioner,

v.

No. _____

OCCUPATIONAL SAFETY & HEALTH
ADMINISTRATION, UNITED STATES
DEPARTMENT OF LABOR; PETER J.
BRENNAN, SECRETARY, DEPARTMENT
OF LABOR; and JOHN H. STENDER,
ASSISTANT SECRETARY FOR OCCUPA-
TIONAL SAFETY AND HEALTH,

Respondents.

PETITION FOR REVIEW

The Society of the Plastics Industry, Inc.,
hereby petitions the Court for review of the permanent standard
concerning occupational exposure to vinyl chloride, 29 C.F.R.
§1910.93g, which was promulgated by the Occupational Safety and
Health Administration, United States Department of Labor.

The Society of the Plastics Industry, Inc.,
resides and has its principal place of business in this Circuit.

SHEA GOULD CLIMENKO & KRAMER

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A Member of the Firm
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OF COUNSEL:

Attorneys for Petitioner

Jerome H. Heckman
Joseph E. Hadley, Esq.
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1150 17th Street, N.W.
Washington, D. C. 20036

October 1st, 1974

BOR 007058

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

THE SOCIETY OF THE PLASTICS
INDUSTRY, INC.

Petitioner,

v.

OCCUPATIONAL SAFETY & HEALTH
ADMINISTRATION, UNITED STATES
DEPARTMENT OF LABOR; PETER J.
BRENNAN, SECRETARY, DEPARTMENT
OF LABOR; and JOHN H. STENDER,
ASSISTANT SECRETARY FOR OCCUPA-
TIONAL SAFETY AND HEALTH,

Respondents.

No. _____

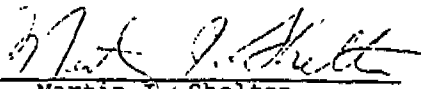
AFFIDAVIT OF SERVICE

STATE OF NEW YORK)
) SS:
COUNTY OF NEW YORK)

MARTIN I. SHELTON, being duly sworn, deposes
and says:

1. I am a member of the firm of Shea Gould
Climenko & Kramer, attorneys for petitioner in the above-referenc-
ed matter.

2. On October 1, 1974 there was mailed under
my supervision a copy of the petition for review herein to persons
appearing on the annexed list at the addresses appearing thereon
who are, upon information and belief, the parties who were ad-
mitted to participate in the proceedings before the Occupational
Safety and Health Administration.


Martin I. Shelton

Sworn to before me this

1st day of October, 1974 .



NOTARY PUBLIC
New York

BOR 007059

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

HOOKEE CHEMICALS & PLASTICS
CORP.

Petitioner,

v.

No. _____

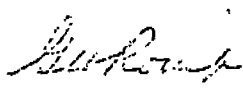
OCCUPATIONAL SAFETY AND HEALTH
ADMINISTRATION, UNITED STATES
DEPARTMENT OF LABOR: PETER J.
BRENNAN, SECRETARY, DEPARTMENT
OF LABOR: AND JOHN H. STENDER,
ASSISTANT SECRETARY FOR OCCU-
PATIONAL SAFETY AND HEALTH,

Respondents.

PETITION FOR REVIEW

Hooker Chemicals & Plastics Corp. hereby
petitions the Court for review of the permanent standard
concerning occupational exposure to vinyl chloride,
29 C.F.R. ¶ 1910.93q, which was promulgated by the
Occupational Safety and Health Administration, United
States Department of Labor.

Hooker Chemicals & Plastics Corp. resides
and has its principal place of business in this Circuit:


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October / , 1974

BOR 007060

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

HOOVER CHEMICALS & PLASTICS
CORP.,

Petitioner,

v.

OCCUPATIONAL SAFETY AND HEALTH
ADMINISTRATION, UNITED STATES
DEPARTMENT OF LABOR; PETER J.
BRENNAN, SECRETARY, DEPARTMENT
OF LABOR; AND JOHN H. STENDER,
ASSISTANT SECRETARY FOR OCCU-
PATIONAL SAFETY AND HEALTH,

Respondents.

No. _____

State of New York)

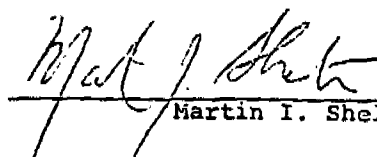
: ss.:

County of New York)

MARTIN I. SHELTON, being duly sworn, deposes and says:

1. I am an attorney admitted to practice in this
Court.

2. On October 1, 1974 there was mailed under my
supervision a copy of the petition for review herein to persons
appearing on the annexed list at the addresses appearing thereon
who are, upon information and belief, the parties who are admitted
to participate in the proceedings before the Occupational Safety
and Health Administration.



Martin I. Shelton

Sworn to before me this
1st day of October, 1974.

Notary Public for New York

BOR 007061

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 E. 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 Parks' 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 recent public attention at the time, but today the significance of Mr. Parks' illness is unquestionable and shattering in its implications. For Earl Parks came to be one more statistic in turning a hypothesis into a reality: Vinyl chloride can cause cancer.

Deadly Statistics

The link between angiosarcoma and vinyl chloride is further buttressed by other deadly statistics. Seven of Mr. Parks' 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 22.) 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 such groups as the National Institute for Occupational Safety and Health, and the American Chemical Society. This no-detectable limit would have constant, not average, adherence to one-part-per-million levels. Therefore, it seems certain that the argument won't abate.

As the controversy continues, it is revealing to examine how the link between vinyl chloride and cancer was established. If nothing else, such an examination points out the grave weaknesses of the present system—or lack thereof—of protecting workers and others from industrial hazards.

The judgment is made in hindsight, but the history of vinyl chloride shows that evidence of its toxicity was often ignored. What's more, the chemical companies knew, but kept secret for at least six months, the fact that Italian researchers had shown that rats develop tumors, including angiosarcoma, when exposed to low levels of vinyl chloride monomer. European companies, which paid for the animal research, knew of these research findings for more than a year before the first human cases were reported but didn't reduce the exposure of their workers to vinyl chloride.

But Dr. Irving J. Selikoff, an expert on environmental carcinogens, or cancer-causing agents, claims that blame shouldn't be placed at industry's door alone. "We're all a bit responsible," he says. "None of us did our homework." Culpability, he says, should be shared by scientists, government agencies and labor unions.

The case of Earl Parks is illustrative. Mr. Parks first came to the attention of Goodrich medical people in 1964, when the company, concerned about the known liver toxicity of ethylene dichloride (a chemical from which vinyl chloride is made) tested the liver function of workers in the Louisville plant.

Mr. Parks' readings were abnormal. Nevertheless, he continued to work at the same job. In October 1964, however, he was hospitalized with what was initially diagnosed as a bleeding ulcer. Doctors treated the "ulcer" without surgery, and Mr. Parks was released.

He was readmitted to the hospital the following May, and the decision was made to operate. But when the operation was begun, surgeons, instead of finding an ulcer, found instead that Mr. Parks' problem resulted from severe liver damage, which had caused blood to back up in the portal vein leading into the liver. The surgeons corrected the vein problem with a shunt and took a sample of liver tissue for analysis. The analysis showed that the liver had been damaged by exposure to "chemicals." Cancer wasn't mentioned.

(According to testimony at OSHA's hearings on vinyl chloride, held last June and July, Mr. Parks received a total of almost \$8,000 in workman's compensation from Goodrich before he died, but only after Goodrich protested that his illness couldn't have resulted from exposure to the chemical.)

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and vinyl chloride. Dr. John L. Creech, who for years has treated workers sent to him by Goodrich on a fee per-patient basis, had followed Earl Parks's case for some time, even though he wasn't treating Mr. Parks. Dr. Creech says he had been concerned about an abnormally high number of Goodrich workers who had liver disease. When he heard that Mr. Parks had died, he recalls, he asked to see the autopsy report.

It was in August 1973 that Dr. Creech learned that Mr. Parks had died—the previous March of angiosarcoma of the liver. The doctor says he then realized that something was seriously wrong, since another Goodrich PVC worker, a private patient of Dr. Creech, had succumbed to the same type of cancer in 1971. Dr. Creech says he knew that liver angiosarcoma is exceedingly rare and that two cases among such a small plant population was abnormal. (In fact, medical men estimate that fewer than 30 cases occur each year in the U.S., striking only one in 900,000 persons.)

Dr. Creech met with Goodrich's occupational health director, Dr. Maurice N. Johnson, who subsequently decided to ask Tabershaw-Cooper Associates Inc., a Berkeley, Calif., epidemiological-studies concern, to do a survey of Goodrich death records. But the study was hardly needed; on Dec. 19, a third PVC worker at the Louisville plant died at the age of 58; he had been at the plant for 28 years.

On Jan. 22 of this year, Goodrich officials met in Washington with officials of the National Institute for Occupational Safety and Health and informed them of the three angiosarcoma deaths. The following day, Kentucky occupational-health officials also were informed and Goodrich made its first public announcement.

Almost since its first commercial introduction, there have been reports that vinyl chloride is toxic above certain levels. Indeed, during World War II, vinyl chloride was rejected as a surgical anesthetic because animals developed heart irritation when exposed to it. In 1949, Russian scientists reported "hepatitis-like changes" in the livers of 25% of the workers in a small PVC plant.

Then, in the late 1950s, research toxicologists at Dow Chemical Co. showed that animals exposed to as few as 100 parts per million of vinyl chloride (or 100 molecules of vinyl chloride in every one million molecules of air) developed slight liver damage. Based on its research, Dow began a program in the 1960s to reduce the level of vinyl chloride monomer in the air of its plants to below 50 parts per million.

Dow published its results in 1961. But the rest of the industry chose to rely on a Yale University study that recommended 500 parts per million as a safe level. This same level had been recommended by the Manufacturing Chemists Association since 1954, was affirmed in 1962 by the American Conference of Governmental Industrial Hygienists and was given the force of law by OSHA in 1971. However, evidence at the OSHA hearings indicates that this level was regularly exceeded until this year in many plants. (The hygienists' group didn't recommend lowering the level to 200 parts per million until 1972, four years after Dow concluded from further tests that repeated exposure by workers to vinyl-chloride monomer at an average of 300 parts per million or above for a working lifetime could cause changes in the liver.)

During the 1960s, there were reports of a disease called acroosteolysis among vinyl-

chloride workers. The disease consists of skin lesions and changes in the blood vessels, leading to degeneration of the bones at the tips of the fingers and toes in those exposed to high levels of the monomer. (Emissions of vinyl chloride are generally lower at plants where the monomer, or gas, is made, since the process is less complex, and there is less chance for leaks than at the polymerization plants; none of the reported angiosarcoma cases in this country has occurred among workers making vinyl-chloride monomer, and only one of the 10 deaths in Europe was in a monomer plant.)

In early 1967, the Manufacturing Chemists Association arranged with the University of Michigan to study acroosteolysis among vinyl-chloride workers, particularly those who cleaned the reactor vessels and others who were exposed to large concentrations of vinyl chloride in the air. The Michigan scientists reported in 1970 that although they couldn't pinpoint vinyl chloride as the cause of the disease, worker exposure to the monomer should be cut to 50 parts per million or below.

Other than Dow, which had already instituted reductions in air levels of the monomer, the rest of the industry in the U.S. ignored the recommendation. Nor was there any significant reaction to findings by European industry that animals developed adverse effects from vinyl chloride. This was at least partly because the Europeans downgraded the importance of some of their findings. For example, Prof. Pier Luigi Viola, a medical director employed in Italy by Solvay & Cie., the Belgian chemicals company, found bone changes in rats exposed to air levels of 30,000 parts per million of vinyl chloride; even more important, he found that vinyl chloride at that level caused malignant tumors in the ear canals, lungs and bones of rats.

Prof. Viola reported his findings before an international cancer congress in Houston in 1970. It was the first reported link between cancer and vinyl chloride. But the professor expressed doubt about the purity of the vinyl-chloride gas he had used and stated that the rat cancer findings, because they occurred at such high levels of the monomer, had no human implications.

(Prof. Viola subsequently found tumors in rats exposed to 500 parts per million; but this fact wasn't revealed until well after the first human angiosarcoma cases were revealed.)

Based on Prof. Viola's early cancer findings in rats, Montedison S.p.A., the huge Italian chemicals company, in 1970 asked Cesare Maltoni, a respected researcher at the Institute of Oncology in Bologna, Italy, to do more extensive animal studies. By October 1972, Prof. Maltoni says, he had found that 250 parts per million of vinyl chloride produced tumors in rats in three parts of the body: the ear canals, kidneys and the liver. The liver tumors included angiosar-

coma. The professor immediately informed his sponsors.

The Europeans offered their information to the Manufacturing Chemists Association in the U.S., but only if the Americans guaranteed confidentiality. With great reluctance, the association says, it finally agreed to the secrecy condition "because of the vital importance of learning of any indications from the European research . . . without the delays which could have resulted from duplication of effort."

On Jan. 30, 1973, a year before the first human angiosarcoma cases were reported by E. F. Goodrich, the MCA finally got the Maltoni data. For five months, the secrecy restrictions were such that government agencies, PVC workers exposed to vinyl chloride and even company doctors were kept in the dark. Then, in the late spring, the Europeans agreed that the chemists' association could pass the information on to the U.S. National Institute for Occupational Safety and Health, the Labor Department agency that monitors worker safety. On July 17, 1973, representatives of the association and the agency met.

There is some dispute as to what transpired at the meeting. The Labor Department agency claims it wasn't given the full story; the chemists' association claims that the agency misunderstood the findings. But one thing is certain: The agency, and OSHA, made no move to change the standard of 500 parts per million and didn't do so until after the human angiosarcoma cases were announced. In Europe, by contrast, Great Britain had lowered the maximum level to 200 parts per million following the cases of acroosteolysis in the '60s; and West Germany had set a level of 100 parts per million in 1970, based on Dow's 1961 results with animals. According to New Scientist, the British science journal, "No other section of the U.S. or European industry followed Dow's lead. The reasons for this international confusion are obscure."

This all changed quickly, of course, once the first human cases of angiosarcoma were reported by Goodrich. Indeed, the swiftness with which new research has been carried out since Jan. 23 is perhaps without precedent in the world of medicine and science.

Much of this recent research is concerned with studies of the incidence of disease of all types among vinyl-chloride workers. Thus far, some studies show that workers exposed to high levels of vinyl chloride show greater than expected incidences not only of angiosarcoma but certain other cancers as well. The ramifications of these findings for the future of the industry and its workers remain to be seen. However, for the veteran PVC workers, whatever changes the findings produce will be useless in counteracting the insidious effects of working day after day, year after year, in what now is generally viewed as a contaminated atmosphere.

Sharp Drop in Vinyl Chloride Exposure Is Ordered by Labor Agency for Workers

By a WALL STREET JOURNAL Staff Reporter

WASHINGTON—The Labor Department ordered a sharp reduction in workers' exposure to vinyl chloride, a widely used industrial gas that has been linked to liver cancer.

The ruling, which comes after nine months of controversy, brought a lawsuit from the plastics industry, which contends the standard can't be met, and criticism from organized labor, which contends the rule contains loopholes. Vinyl chloride is a basic ingredient in making many everyday plastic products.

The new standard, issued by the Labor Department's Occupational Safety and Health Administration, requires that, starting Jan. 1, vinyl chloride levels in the air that workers breathe be held to one part per million over eight hours, averaged over an eight-hour period. Actual levels may exceed one part per million for short periods, but they must average out to no more than five parts per million for any 15-minute period within the eight-hour time span.

The standard also calls for regular monitoring of plant air, regular medical exams for workers and establishment of "regulated areas" where vinyl chloride exposure is high. It prohibits direct worker contact with liquefied vinyl chloride and requires posting of signs warning the chemical is a "cancer-suspect agent."

Since last April, companies handling vinyl chloride have been under an emergency restriction of 50 parts per million, without any time period.

The emergency standard was issued after the discovery, beginning last January, of cases of a rare and fatal liver cancer, angiosarcoma, among workers exposed to vinyl chloride. Nineteen deaths among such workers in the U.S. and other countries have been attributed to liver cancer caused by long exposure to the chemical.

Vinyl chloride is a gas that is processed to form a powdery substance known as polyvinyl chloride. Polyvinyl chloride, in resin or pellet form, is then fabricated into a wide variety of finished plastic products.

Though only about 6,500 workers are employed in plants that make vinyl chloride and polyvinyl chloride, about 350,000 others, who work in facilities that create finished products from the polyvinyl chloride, will also be covered by the new ruling. Workers who handle only finished products, and don't have any chance of contact with "raw" vinyl chloride or polyvinyl chloride, are the only ones exempted.

The Labor Department initially proposed that exposure be limited to "no detectable level," without any averaging over time. This proposal pleased organized labor and some key researchers in the field of occupational health. But the Society of the Plastics Industry, a trade group, and many companies using the chemicals, denounced it as technologically impossible and warned it would drive the industry out of business.

In selecting as its final standard one part per million over eight hours and five parts per million over 15 minutes, the department apparently was trying to reach a compromise between its original idea and the toughest proposal offered by the industry, which would have left exposures as high as 10 parts per million in some plants and 25 parts per million in others.

The department sought to smooth further the adjustment for industry by delaying until next January the drop from the present 50 parts per million. Also, it gave its enforcement staff discretion to determine how the companies must meet the standard.

While the goal is to reach the new levels through "engineering and work practice controls," such controls must be deemed "feasible," and companies can deal with any exposures produced by inadequate controls by giving workers respirators.

A date wasn't set in the ruling for improving plant engineering and practices to the point where respirators won't be needed. What's more, until January 1976 workers may refuse to wear the respirators when exposures don't exceed 25 parts per million, even if they exceed the one part per million per eight hours specified in the regulation.

Despite this attempt at compromise, however, the Society of the Plastics Industry and some producers sued the Labor Department to overturn the ruling only moments after it was issued yesterday. And Firestone Plastic Co., a unit of Firestone Tire & Rubber Co., said it will ask a court to stay enforcement of the standard while the suits are being tried.

Ralph Harding, president of the industry group, said the standard is "unrealistic, probably will be impossible for most, if not all, of the industry to meet and appears to have been developed on some basis inconsistent with recorded facts." The job-safety agency "may believe that it has adopted a compromise position," but the result is unacceptable to the industry, he added.

Industry sources also indicated displeasure at the inclusion of plants making fabricated products from polyvinyl chloride. The industry had proposed excluding these plants, contending they didn't present any hazard.

But the department said it decided to include them because polyvinyl chloride resin and pellets can give off vinyl chloride gas in small amounts during processing. It said, however, if the plants weren't exposing workers to more than half a part per million of vinyl chloride gas, they needn't undertake any control measures.

In Midland, Mich., Dow Chemical Co. said the standards were "unnecessarily stringent" and unsupported by the data on Dow workers that was presented at public hearings.

Organized labor expressed some immediate reservations of its own.

In Akron, Ohio, Peter Bommarito, president of the United Rubber Workers union, which represents many vinyl chloride workers, said "It would appear this thing has a number of loopholes in it." Mr. Bommarito reserved final judgment until he has seen a full text of the regulations, but he was quick to take issue with the decision to let workers decline the use of a respirator until 1976. "We can't make a guy put on a respirator, and while he's not wearing one, he may be endangering himself." What is more, he added, "The respirator situation is going to be even worse in nonunion plants."

The department defended its reliance on the use of respirators, saying definite dates couldn't be set for dealing with the problem solely through engineering and work rules because "we are presently unable to determine when it will be feasible." It added, "We would agree that respirators have many drawbacks" but said, in the absence of complete engineering control, they are needed.

The official explanation of the regulations also said that although a deadline wasn't set for completing engineering and work-rule changes, a continuing plan, available for government inspection, must be pursued by each company at a pace agreed on by safety inspectors, until respirators are needed only occasionally.

New Rules Set to Reduce Vinyl Chloride Risk

From News Dispatches

The Labor Department yesterday announced new rules to drastically cut the amount of cancer-causing vinyl chloride gas to which factory workers may be exposed. One plastics company said the action threatens to throw 2 million workers out of their jobs.

The new rules from the Occupational Safety and Health

Administration (OSHA) came after several months of growing evidence that workers exposed to the widely used plastics industry gas were developing a rare but fatal form of liver cancer. Deaths around the world traced to workplace exposure now number more than 20.

The Society of the Plastics Industry, Inc., filed a suit in Second U.S. Circuit Court of Appeals in New York asking for the judicial review of the OSHA standard.

It said the standard announced yesterday is unrealistic and it will be impossible for most if not all of the industry to meet it.

Last April 5, OSHA announced that workers could be exposed to no more than 50 parts per million of vinyl chloride gas in the air and proposed eventually reducing the exposure level to zero.

During lengthy hearings on the matter the industry claimed it would be impossible to meet a detectable level of the gas inside the factories.

Under the new regulations, effective Friday, the present 50-part-per-million exposure level will be allowed until Dec. 31. After next Jan. 1 workers may be exposed to no more than 1 part per million average over eight hours of exposure and no concentration higher than 5 parts per million over any 15-minute period.

After Jan. 1 of 1976, the same exposure levels will be required except that workers exposed to anything stronger will have to wear respirators.

Firestone Plastics Co. said the new rules put the industry "on a collision course with economic disaster." An official of the firm said the restrictions would "throw 2 million jobs down the drain."

Wednesday, October 2, 1974

Vinyl Chloride Rules Seek To Guard Workers' Health

Special to The New York Times

WASHINGTON, Oct. 1—The Department of Labor announced today final industrial health rules designed to reduce worker exposure to vinyl chloride, a cancer-causing chemical widely used as a basic material in the manufacture of plastics.

John H. Stender, head of the department's Occupational Safety and Health Administration, said the rules would protect workers by significantly reducing the amount of vinyl chloride to which they were exposed.

The chemical has been shown to induce incurable cancers of the liver in some workers exposed to it over substantial periods of time.

The dangerous effects of the chemical became a public issue last January when the B. F. Goodrich Company, reported that several of its employees had died of relatively rare cancers of the liver called angiosarcomas. The employees had been exposed to the chemical over long periods of time during their work.

Because of these and other deaths reported later, the Labor Department safety and health unit issued an emergency rule on April 5 lowering the permissible exposure levels from 500 parts per million to 50 parts per million. The emergency standard would have expired this Saturday.

The final rules, to become effective Friday, will continue the 50 parts per million level through Dec. 31 and require a reduction, thereafter, to only one part per million averaged over any eight-hour period and five parts per million averaged over any 15-minute period.

These limits on the permissible concentrations of the chemical in the air of industrial work places would be tightened further on Jan. 1, 1976. In that third phase of the new rules, workers would be required to wear respirators if they were exposed to air containing more vinyl chloride than the one part per million and five parts per million limits.

During 1975, respirator use would be discretionary at air levels below 25 parts per million.

The industry objected immediately after the new rules were announced here and at a National Safety Congress Mr. Stender is attending in Chicago.

Firestone Plastics Company said it was planning a legal challenge and declared that the new ruling "puts the vinyl plastics industry on a collision course with economic disaster."

The Society of the Plastics Industry, Inc., said the occupational health standard was unrealistic and that it would probably be impossible for most of the industry to meet it.