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Vinyl Plants Found Clear Of Pollution

By Morton Mintz

Preliminary monitoring around industrial plants that produce toxic vinyl chloride gas, or that convert the gas to a common plastic, found no scientific evidence of emissions in the atmosphere which pose "an imminent hazard" to people living in the vicinity, the Environmental Protection Agency said yesterday.

However, prudence dictates that reasonable steps should be promptly taken to reduce vinyl chloride emissions to the lowest practical level, EPA Administrator Russell E. Train said.

He met with senior executives of the 23 companies that manufacture the gas and the plastic, polyvinyl chloride, to urge a step-up in efforts to minimize discharge of the gas into the environment. He said afterward that they had assured their cooperation.

Train called the meeting after reviewing a summary of the preliminary monitoring results in the neighborhoods of 12 plants grouped in seven chemical complexes.

More than 50 per cent of the samples collected within a radius of a half-mile of the plants' property lines contained vinyl chloride at a level of less than 1 part per million, the agency reported. In one case, 3.4 ppm was recorded three miles away although several readings averaged only 0.5 ppm.

At four of the complexes—at Louisville, Ky.; Long Beach, Calif.; Painesville, Ohio; and Plaquemine, La.—a number of samples showed more than 1 ppm. At the B.F. Goodrich plant at Louisville, where the average ranged between 0.5 and 1 ppm, an apparent one-time high of 33 ppm was recorded. The other sites monitored were at Delaware City, Del.; Flemington, N.J.; and Leominster, Mass.



RUSSELL TRAIN
... called meeting

Because vinyl chloride has been strongly implicated as the cause of a rare but fatal form of cancer, angiosarcoma of the liver, the Occupational Health and Safety Administration has set an emergency temporary standard for workplaces of 50 ppm, but has proposed to lower the standard for job-sites to whatever level at which the gas can be detected.

Worldwide, 19 cases of angiosarcoma of the liver have been confirmed at facilities producing polyvinyl chloride for phonograph records, floor tiles, electrical insulation and many other uses.

In each case, the victim had been repeatedly exposed over many years to high concentrations of the gas. The possibility that the gas figured in the death from liver cancer of several non-workers is being investigated.

Train, at his meeting with the executives, emphasized the preliminary nature of the findings, saying that only a limited number of samples was taken at each facility, and that meteorological and temperature conditions during the monitoring varied.

He said that the levels of vinyl chloride in the air fluctuate sharply with such events as the periodic opening of reactor kettles, accidental plant discharges and changes in production processes.

EPA monitoring teams checked water discharges and sludge from the plants in the survey, but found no basis at this time for considering that the vinyl chloride levels "if handled properly are hazardous to human health or aquatic life," Train said.

Train has cited the difficulties incurred in getting hard data on vinyl chloride as an urgent argument for giving the EPA enlarged powers as proposed under toxic substances legislation which has been languishing in a House-Senate conference committee.

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Environmental News

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EPA URGES PROMPT STEPS BY CHEMICAL INDUSTRY TO REDUCE VINYL CHLORIDE AIR EMISSIONS

Russell E. Train, EPA Administrator, met today with senior executives of the 29 companies which manufacture vinyl chloride and polyvinyl chloride resin to urge accelerated efforts to minimize the discharge of vinyl chloride gas into the environment.

Train recommended prompt tightening and improvement of operating procedures in the manufacturing plants and suggested early consideration of longer-term process modifications.

Train requested that each company begin or continue monitoring emissions from its plants in order to provide more extensive information on the quantities of vinyl chloride entering the environment. EPA will support additional monitoring in cooperation with State and local governments.

Train indicated that a number of the companies represented reported substantial efforts over a period of time to reduce vinyl chloride emissions, as well as monitoring activities, and he stated that the companies in general assured EPA of their desire to provide full and continuing cooperation in finding effective solutions to the problem.

Train called today's meeting after reviewing a summary of EPA's preliminary monitoring results at seven chemical complexes, including two vinyl chloride and ten polyvinyl chloride plants.

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Train stated, "There is no scientific evidence to indicate that these emissions pose an imminent hazard to people living near these plants. However, prudence dictates that reasonable steps should be promptly taken to reduce vinyl chloride emissions to the lowest practical level."

At today's meeting, Train briefly summarized the results of the EPA's recent monitoring efforts. He stressed the preliminary nature of the findings. "Only a limited number of samples were taken at each facility under varying meteorological and temperature conditions," Train said. "While we are reasonably confident that our monitoring methods were sound, it is difficult to generalize about ambient conditions from our samples which were limited in time and distribution. Also there were many opportunities for error in the individual measurements made in this pioneering effort. It is clear that considerable additional work is required before we have an accurate picture of the vinyl chloride levels in the ambient air."

On May 31, EPA requested the manufacturers to provide detailed technical and economic information concerning steps that have been and could be taken to reduce vinyl chloride emissions. The information, due June 14, is being sought under Section 114 of the Clean Air Act for possible use by EPA in setting an air pollution control standard for vinyl chloride.

The preliminary monitoring results, which should be further verified by additional monitoring, indicate that the levels of vinyl chloride in the ambient air near the plants fluctuate sharply, apparently due to the periodic opening of polyvinyl chloride reactor kettles, accidental plant discharges, variations in the production process, and meteorological conditions. While almost all of the samples collected contained detectable levels of vinyl chloride, more than 95 percent of the samples showed amounts less than 1 part per million (ppm).

At several of the chemical complexes tested, a number of individual air samples showed more than 1 ppm vinyl chloride. A one-time high of 33 ppm was obtained at one site although repeated sampling at this site indicated that this level was unusual. The average at this site was in the range of 0.5 to 1 ppm.

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Most of the air sampling was done within one-half mile of the property lines of the plants. In one case a level of 3.4 ppm was recorded at a distance of three miles from the plant. The average of several readings at this site was approximately 0.5 ppm.

EPA also monitored water effluents, and levels varied considerably depending on the in-plant handling of wastes and treatment of wastewater. The highest level for wastewater leaving the plant site was 20 ppm. More typically, levels of 2 to 3 ppm were found. There is no currently available evidence to indicate that vinyl chloride is present in detectable levels in drinking water. Not unexpectedly, the levels of vinyl chloride entrapped in sludge and other solid wastes from the reactor kettles ranged from 100 to in one case 3,000 ppm.

"At the present time," Train said, "there is no basis for considering that the levels of vinyl chloride detected in water discharges or in sludge if handled properly are hazardous to human health or to aquatic life."

As a precaution, EPA has initiated programs to gather further information concerning vinyl chloride levels in effluent water, drinking water, and sludges; the persistence of vinyl chloride in water; and the effects, if any, of vinyl chloride on aquatic organisms.

Vinyl chloride has been strongly implicated as a cause of a rare but fatal form of cancer, angiosarcoma of the liver. To date, 19 cases of angiosarcoma have been confirmed worldwide in workers at polyvinyl chloride facilities. In all of these cases, the workers had been repeatedly exposed to high levels of the gas over a substantial number of years. It has also been suggested that vinyl chloride may be implicated in several non-worker deaths from this liver cancer. Whether vinyl chloride is the cause of these deaths is still being investigated.

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Results from animal studies, many of which are still in progress, have shown that prolonged exposures to levels of 50 ppm cause this same liver cancer in rats and mice. Train also noted today that the industry recently expanded its support of these studies on the health implications of vinyl chloride at lower doses and urged continued efforts in this regard.

EPA is planning to support epidemiological studies in some neighborhoods near vinyl chloride and polyvinyl chloride plants to further assess the implications of vinyl chloride emissions for the general public.

The Occupational Safety and Health Administration (OSHA) of the Department of Labor, responsible for worker safety, has determined that levels exceeding 50 ppm in the work place present a hazard and has set an emergency temporary standard at that level. To initiate the process for setting a permanent standard, on May 10, OSHA proposed lowering the standard to the level of detection. Public hearings to gather information for a permanent standard and to assist OSHA in making a final judgment as to the adverse effects of vinyl chloride and the appropriate levels of exposure to workers, have been scheduled by OSHA for June 25-28.

Detailed reports on EPA sampling activities at Leominster, Louisville, Plaquemine and Long Beach are available today. Detailed reports concerning the other three complexes are in the final stages of compilation and will be available within several weeks.

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VINYL CHLORIDE AND POLYVINYL CHLORIDE MANUFACTURING
COMPLEXES MONITORED BY EPA REGIONAL OFFICES
DURING MAY 1974

Louisville, Ky.	PVC Plant	The B. F. Goodrich Company B. F. Goodrich Chemical Company
Leominster, Mass.	PVC Plant	Borden, Inc. Borden Chemical Division
Plaquemine, La.	PVC Plant	The Goodyear Tire & Rubber Company Chemical Division
	VC Plant	Dow Chemical Company
Long Beach, Calif.	PVC Plant	The B. F. Goodrich Company B. F. Goodrich Chemical Company
	PVC Plant	American Chemical Corporation
	VC Plant	American Chemical Corporation
Painesville, Ohio	PVC Plant	Uniroyal, Inc. Uniroyal Chemical Division
	PVC Plant	Robintech, Inc.
Delaware, City Delaware	PVC Plant	Stauffer Chemical Company Plastics Division
	PVC Plant	Diamond Shamrock Corporation Diamond Shamrock Chemical Co.
Flemington, N.J.	PVC Plant	Tenneco, Inc. Tenneco Chemicals, Inc.

NOTES:

Water effluent samples were also collected at the PVC plant of Union Carbide Corporation, Chemical and Plastics Division, in S. Charleston, W. Va.

Sampling was attempted but was infeasible due to limited time and equipment difficulties at the PVC plants of the Firestone Tire and Rubber Company, Firestone Plastics Company, in Perryville, Md. and Pottstown, Pa.

Very limited air sampling was conducted in the Houston area in the vicinity of the plants listed below. However, in view of the inadequacy of this activity, the sampling effort in this area is being continued.

Deer Park, Tex., PVC Plant - Diamond Shamrock Corp., Diamond Shamrock Chem.
Deer Park, Tex., VC Plant - Shell Chemical Co., Industrial Chemicals Div.
Houston, Texas, VC Plant - Tenneco, Inc., Tenneco Chemicals, Inc.
Pasadena, Texas, VC Plant - Ethyl Corporation

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VINYL CHLORIDE AND POLYVINYL CHLORIDE MANUFACTURERS
CONTACTED BY EPA

AIR PRODUCTS AND CHEMICALS, INC.
AMERICAN CHEMICAL CORPORATION
BORDEN CHEMICAL, INC.
CONTINENTAL OIL COMPANY
DIAMOND SHAMROCK CHEMICAL COMPANY
ETHYL CORPORATION
FIRESTONE PLASTICS COMPANY
GENERAL TIRE AND RUBBER COMPANY
B. F. GOODRICH CHEMICAL COMPANY
GOODYEAR TIRE AND RUBBER COMPANY
GREAT AMERICAN CHEMICAL COMPANY
HOOKER CHEMICAL
KEYSOR-CENTURY CORPORATION
MONSANTO COMPANY
NATIONAL STARCH AND CHEMICAL CORPORATION
OLIN CORPORATION
THE PANTASOTE CO. OF NEW YORK, INC.
ROBINTech, INC.
STAUFFER CHEMICAL COMPANY
TENNECO CHEMICALS, INC.
UNION CARBIDE CORPORATION
UNIROYAL INCORPORATION
UNIROYAL INCORPORATED
ALLIED CHEMICAL CORPORATION
DOW CHEMICAL COMPANY
MONOCHEM, INC.
PPG INDUSTRIES, INC.
SHELL CHEMICAL COMPANY
GEORGIA PACIFIC CORPORATION
CERTAIN-TEED PRODUCTS
(PVC plant under construction)

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