vinyl chloride

Of Mice and Men: Alarm over Plastics

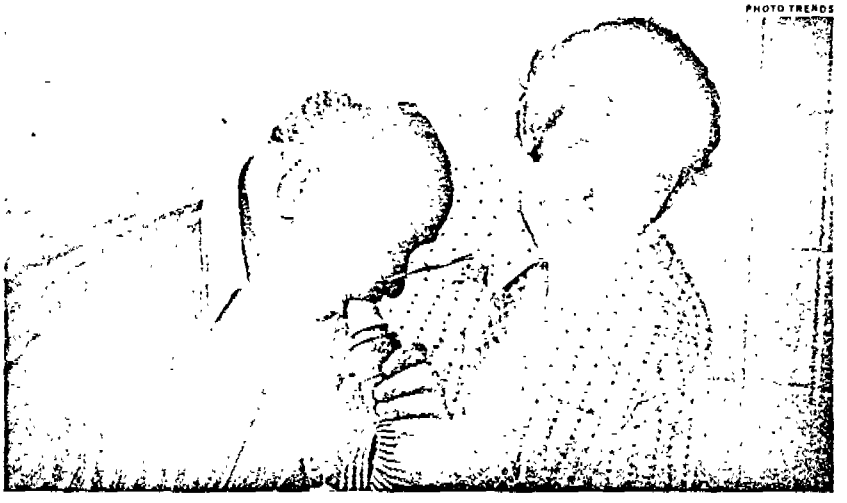
The consumer-oriented federal agencies that have been born in the past four years have quickly learned how to show their muscle. Instead of allowing scientists employed by industry to continue setting their own safety standards, federal scientists are rechecking those standards—and frequently disagreeing with them. Last week two different agencies acted on different fronts to limit threats to human health. In each case the reason was the same: man-made chemicals in wide usage were implicated in causing cancer. If the new rulings stand up to court tests, they promise to have important consequences for the national economy.

The Environmental Protection Agency forbade the use of the pesticides aldrin and dieldrin on corn and citrus crops. Because such spraying accounts for 90% of the chemicals' usage, EPA's action is a virtual ban. Shell Chemical Co., the sole U.S. producer, is appealing the decision in federal court. The pesticides now protect the crops from cutworms and other insects. But they are so long-lasting that they get into animal feed, water supplies, and thus into human food as well. What the pesticides do to people is still unknown. But they have been found to trigger cancers in laboratory mice.

Was that sufficient evidence to ban the agricultural chemicals? No, argued Shell: cancer in the mouse alone cannot predict the likelihood of cancer in man. But Administrative Law Judge Herbert L. Perlman, who reviewed all testimony and scientific evidence gathered during EPA's hearings, had a different view. "Dieldrin has probably accumulated in the body tissue of every individual" in the U.S., he said. It would therefore be "irresponsible in the extreme" to wait until a wave of human cancers provides proof of the chemicals' suspected danger. The EPA agreed, noting that slightly more expensive substitutes are available to control the pests.

Trouble with VC. Although the EPA's decision sets a precedent for protecting human health from potentially toxic substances, it hardly compares in impact to the action by the Labor Department's Occupational Safety and Health Administration (OSHA). The agency established final limits for workers' exposure to vinyl chloride (VC), a colorless gas derived from chlorine and petrochemicals. It is the major ingredient in polyvinyl chloride (PVC)—the material from which seat covers, phonograph records, credit cards, detergent containers, floor tiles, shower curtains, and a vast number of other familiar plastic products are made. In total, a recent Arthur D. Little study reveals, about 2.2 million jobs in industries selling up to $90 billion worth of goods annually depend on PVC.

PHOTO TRENDS



VINYL-CHLORIDE WORKER BEING GIVEN HEALTH TEST AT A GOODYEAR PLANT
In a rare disease, 16 deaths are surely conclusive evidence.

This gigantic segment of the U.S. economy rests, like an inverted pyramid, on the production of VC, and OSHA's new standards threaten that production. The agency ruled that starting Jan. 1, workers cannot be exposed to more than one part of VC per million parts of air (*v.* the present 50 p.p.m.), averaged over an eight-hour day, or to more than 5 p.p.m. for any period longer than 15 minutes. The new rule applies only to the some 6,000 workers who handle VC directly in 50 U.S. plants.

There is no doubt that some ruling was necessary. Ever since VC was invented in 1937 by the B.F. Goodrich Co., it has been linked to disease. First it was shown to be dangerous to laboratory rats and mice. Later it was implicated in a variety of human ills: hepatitis, a crippling bone disease, and cancer. This year B.F. Goodrich reported that three workers had developed angiosarcoma of the liver, an extremely rare and invariably fatal form of cancer (TIME, May 13). Since 1961, 16 deaths of angiosarcoma among VC workers have been uncovered in the U.S., and another ten in Europe —conclusive evidence of the danger.

OSHA's problem was what to do about it. The agency's charter calls for it to prevent any occupational disease —and it had theoretical evidence to show that even slight exposure to VC might cause cancer. On the other hand, if OSHA set a zero level of exposure, it would force the closing of major segments of an immense industry.

Its final ruling was a compromise. Nonetheless, Dow Chemical Co. was quick to describe the new limit as "unnecessarily stringent." Having dealt with VC for nearly 25 years and cut exposure levels to 50 p.p.m. back in 1961, the company reported no cases of angiosarcoma; its evidence thus indicated that amount as a safe level of exposure. Moreover, the industry says that it simply does not have the technology to comply with the new restriction, and the Society of the Plastics Industry has sued to overturn OSHA's ruling.

Inevitable Exposure. Dr. Irving J. Selikoff, director of the environmental-sciences laboratory of Mt. Sinai School of Medicine in New York, favors no exposure at all but believes that OSHA's ruling is feasible. "Industrial-hygiene engineers cannot guarantee that there will not be leaks," he says. "The 1-p.p.m. standard recognizes the inevitability of some exposure. It is logical, realistic and scientific."

The Environmental Protection Agency also got into the act, announcing that it will set air-pollution standards for vinyl chloride. A special EPA task force has found that more than 200 million lbs. of VC and 50 million lbs. of PVC are being discharged into the environment during the conversion process. In other words, people who live downwind of factories that make PVC might also unknowingly be getting a whiff of the gas. Two cases of angiosarcoma have in fact been reported in people whose houses were near a PVC plant in Bridgeport, Conn.

How far afield the hunt for the dangerous gas will go is hard to predict. Some scientists fear that burning plastic products in dumps or incinerators releases VC into the air. Others even worry that VC might be emitted from auto seat covers in cars that have been parked all day in the sun. Beyond that loom potential dangers from scores of other contaminants in man's everyday products. As more is learned about them, more bans and controls are likely.