

America's occupational health effort:

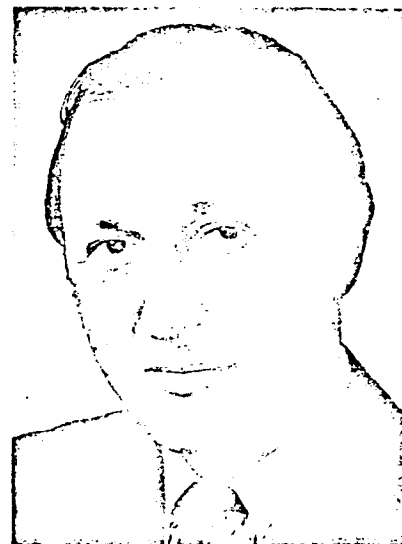
"YES!"—say these medical scientists



Dr. Thomas F. Mancuso
Graduate School of Public Health
University of Pittsburgh



Dr. Irving J. Selikoff
Environmental Sciences Lab.
Mt. Sinai School of Medicine



Dr. Samuel S. Epstein
School of Medicine
Case Western Reserve University

"THREE years after the implementation of the Occupational Safety and Health Act, many of us who were grateful for its passage, sadly and reluctantly must conclude that its promise is not being fulfilled and that its major goal—the control of occupational disease—is not being met."

With this statement delivered in oversight hearings on OSHA before the House Select Subcommittee on Labor, Dr. Irving J. Selikoff began his scathingly critical testimony of industry's and government's neglect of the occupational health of America's workers.

Prominent among those who joined Dr. Selikoff were Drs. Thomas F. Mancuso and Samuel S. Epstein. Together, their statements paint a harsh picture of past failures in occupational health con-

tinuing uncorrected despite the passage of the OSH Act. Their international eminence in medical science gave force to their testimony.

Dr. Selikoff is professor of medicine and community medicine and director of the Environmental Sciences Laboratory at Mt. Sinai School of Medicine. He received the Albert Lasker Award from the American Public Health Association for his research into tuberculosis. He has also won acclaim for his research on asbestos-related cancers.

Dr. Mancuso is research professor of occupational health at the Graduate School of Public Health, University of Pittsburgh. He was formerly head of Ohio's Division of Industrial Hygiene for 17 years. Mancuso has pioneered in techniques of epidemiological research dealing with the long-term effects of low-level ex-

posures to toxic chemicals. He has attained recognition for his research on occupational berylliosis and health hazards in the rubber and chromates industries.

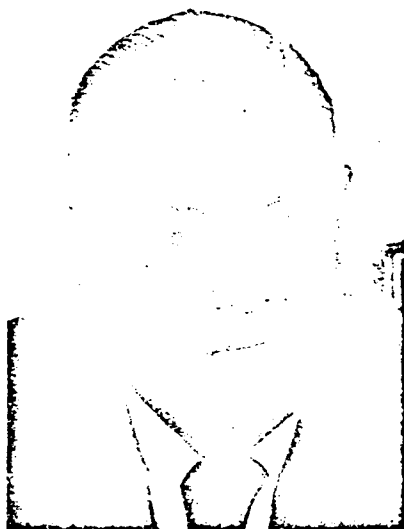
Dr. Epstein is professor of environmental health and human ecology at Case Western Reserve University School of Medicine. He holds six medical degrees and diplomas and his list of published books and articles, society memberships, appointments to government research and advisory committees, and consultantships to major associations and labor unions runs 23 single-spaced typewritten pages.

In their testimony before the House subcommittee, the three scientists criticized the National Institute for Occupational Safety and Health (NIOSH) for the paucity of its re-

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Commitment lacking, condition critical?

"YES"—say three industrial hygienists



Dr. Robert M. Clyne
Corporate Medical Director
American Cyanamid Co.



Dr. Ellington M. Beavers
Senior Vice President
Rohm and Haas Co.



Dr. Miles O. Colwell
Vice President, Health and
Environment, Alcoa

WHEN Drs. Irving J. Selikoff, Thomas F. Mancuso, and Samuel S. Epstein appeared before the House Select Subcommittee on Labor during recent OSHA oversight hearings, they charged that occupational health in America is critically ailing due to the neglect of OSHA, NIOSH, Congress, and industry.

Afterwards, OCCUPATIONAL HAZARDS sought out a panel of leading industrial hygienists and medical directors for their reaction to the testimony. Our respondents included: William E. McCormick, managing director of the American Industrial Hygiene Association (AIHA); Dr. Robert M. Clyne, corporate medical director of American Cyanamid Co.; Dr. Ellington M. Beavers, senior vice president of Rohm and Haas Co.; and Dr. Miles O. Colwell, vice pres. health/environment, Alcoa.

We asked our panelists to comment on Dr. Selikoff's observation that the promise of the law "is not being fulfilled and that its major goal—the control of occupational disease—is not being met."

Dr. Robert M. Clyne, of American Cyanamid Co., agrees with Selikoff. "Due to underfunding, OSHA is far from meeting its occupational health goals," Dr. Clyne told OH. "Its main problem is, simply, a lack of personnel.

"I think it's foolhardy for Congress to enact a law and then not give it enough money to achieve its objectives," Dr. Clyne said. "If labor, academia, and management are going to work together to improve the health of workers, we need the resources to do it. We need more and better inspections, on-site consultations, and a clear interpreta-

tion of OSHA's various requirements. My company recently had to hold up construction of laboratories for 4 months while we waited for a definitive interpretation of OSHA's carcinogen standard."

William E. McCormick, managing director of AIHA, said his biggest gripe with OSHA is that it has no qualified industrial hygienists in top level, decision-making positions. "Now that OSHA is developing new health standards, it's playing a new ballgame and needs qualified health personnel in its highest echelons.

"Instead, we find in OSHA a lack of appreciation for the health professional," he charged. "The industrial hygienists OSHA does have aren't being used to the best advantage. It seems the policy there is to stop training people after they're hired,

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"I and my fellow professionals in occupational health are dedicated to helping all working people. But if we follow all the recommendations of our critics, we will emasculate the industrial vitality of this country."

thereby stunting their professional growth. Compliance officers are a good example. They get little additional health training."

Dr. Ellington M. Beavers, of Rohm and Haas, disagrees. He says that OSHA has done a very creditable job. "It was created in a complete vacuum," he told us. "OSHA had to put together a staff at a time when the competition for safety and health professionals was keen. If I had created what OSHA has thus far, I'd be damn proud."

Alcoa's Dr. Miles O. Colwell echoes his colleague's opinion. "OSHA is a new organization that has come a long way," he said. "Granted, it hasn't completely controlled occupational disease, but neither has anyone else."

Lack of standards

Dr. Clyne cited what he believes to be OSHA's major failure in occupational health. "It's almost 4 years after the law was signed and more than 3 years after it was implemented, and we have only three health standards—on asbestos, vinyl chloride, and the carcinogens. Now OSHA and NIOSH plan to write 400 health standards over the next several months. This should have been done years ago. Industry wants to know what the game is and what the rules are."

Assessing the health standards OSHA has promulgated, Dr. Clyne said: "The asbestos standard is realistic and practical. However, the proposed vinyl chloride standard, which would limit exposure to 'no detectable level,' doesn't make much sense. To try to promulgate a standard that will wipe out an industry is foolhardy. Also, the documentation for the effects of low-level exposure to vinyl chloride just doesn't exist. OSHA is extrapolating from animal studies to humans."

Dr. Beavers believes OSHA should conduct more extensive research before setting low exposure limits. "A casual bystander or critic might say: 'Why not legislate a no-exposure level immediately?' That would please a few academicians, but it would also eliminate many jobs. Such decisions have to be based on facts, and to get the facts takes time," Dr. Beavers said.

Our respondents agreed unanimously that NIOSH is floundering. "NIOSH's failure thus far has been more a lack of funding than a lack of desire," said Dr. Colwell.

Dr. Beavers agreed, and added: "One of NIOSH's problems is a constant flow of people through the organization. Because of this high turnover, NIOSH loses the benefit of accumulated experience."

AIHA's McCormick took NIOSH to task for its criteria documents. "OSHA's slow pace in promulgating occupational health standards is due in part, I believe, to the way criteria documents are developed," he said. "NIOSH has prepared many of them like scholarly, academic tomes which have little practical value. The heat stress document is a good example. It's no wonder OSHA balks at them, thus creating friction between the two agencies."

Dr. Colwell told us that NIOSH has been "overly cautious in selecting data as bases for recommended health standards. It tends to pick out the most restrictive data as bases, whether those data have been validated or not."

Hidden hazards

B. F. Goodrich stirred up a storm when it announced it had discovered three cases of angiosarcoma, a rare form of liver cancer, among employees at its Louisville, Ky. vinyl chloride operations. In the aftermath, some occupational health ac-

tivists are blaming industry's health policymakers for having permitted use of the substance.

Dr. Beavers said that no one should be blamed. "In most occupational hazards that lead to a carcinoma, there is a subtle reaction period in which you don't know what can happen," he said. "The fact that you later discover a hazard doesn't necessitate blame."

"I think B. F. Goodrich handled the whole thing well," he added. "Remember, the company didn't sweep its discovery under the rug."

American Cyanamid's Dr. Clyne lashed out at the critics. "Everybody now has 20-20 hindsight about the vinyl chloride crisis," he said. "Drs. Mancuso, Epstein, and Selikoff, and other critics, all had the opportunity to bellow about this back in 1970. They had the same studies that we in industry had. Regrettably, though, they've chosen instead to take a hindsight position."

We asked Clyne if he agreed with the health professionals who are saying the 27 vinyl chloride-related deaths discovered thus far are only the tip of the iceberg.

"It's possible there may be more cases of angiosarcoma," he answered. "But I don't think it's quite the overwhelming problem it's been built up to be. There is little doubt that many years ago some workers were exposed to very high levels of vinyl chloride. Since then, however, industry has reduced exposure to vinyl chloride, in many instances to levels as low as 50 ppm. There may be more cases of angiosarcoma, but these will be people who were overexposed in the past. After we reach that peak, we will then notice a rapid decline in occupationally-induced angiosarcoma."

AIHA's McCormick said the implications of the vinyl chloride issue must be addressed practically. "Can

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"YES!"

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"These failures of NIOSH [to research and to train] are mirrored in the equally unhappy failure of OSHA to initiate surveillance of hazards known to be present among millions of workers," Dr. Selikoff told the subcommittee.

OSHA attacked

Dr. Selikoff pointed to the asbestos standard as an example. He explained that the asbestos standard required employers to make at least one dust count within the first 6 months after promulgation of the standard. After the first 6 months had elapsed, Selikoff surveyed asbestos workers in all 50 States and found that of the 6,000 respondents only 3 percent had seen a dust count.

"Despite the Act, despite the Secretary, despite the standard, despite rules and regulations, surveillance was absent," said Dr. Selikoff.

Dr. Mancuso called on OSHA to require employers to report surveillance of industry health hazards. "If reliance is based solely on the occasional inspection of the occasional plant by the government as a means to determine whether occupational monitoring has been done, then, in effect, national enforcement becomes an illusion," said Dr. Mancuso.

In his testimony, Dr. Epstein launched a frontal attack on OSHA health standards and standards setting procedures. He complained of "massive disparities" between stricter exposure levels set for the general public in environmental health standards and the more lenient exposure levels set in occupational health standards. In particular, he decried the fact that safety margins built into the environmental standards were missing from occupational health standards.

Dr. Epstein also called for the pre-testing of industry chemicals for their health effects before introduction into the workplace. "In the absence of pre-testing, the worker is

unwittingly used as an involuntary test subject. Human experimentation of this kind is unnecessary and amoral and our tacit participation in it a matter for shame," Dr. Epstein said.

Dr. Epstein also scolded OSHA for its slow response to NIOSH criteria documents. He said that as of the date of his testimony, NIOSH had forwarded 15 documents to OSHA, but OSHA had acted on only one of them.

"Such delays have been variously interpreted as deliberate attempts to inhibit the promulgation of new standards, due to direct or indirect industrial pressure and lobbying, or as reflections of budgetary, personnel, or grade limitations."

Dr. Epstein also complained that OSHA failed to support the standards advisory committees. He said that when he sat on the Advisory Committee on Carcinogens, OSHA did not help the committee subpoena necessary data from industry. He accused OSHA of ignoring the Advisory Committee recommended standard and promulgating an "emasculated standard" instead.

Industry failures

Dr. Epstein disapproves of the threshold limit values of the American Conference of Governmental Industrial Hygienists which form the bulk of OSHA's current health standards. He attacked them as written by "industry-indentured professionals" and as reflecting "narrowly focused trade origins." He said most TLV's are aimed at controlling acute and subacute exposures and "ignore or minimize delayed long-term toxic effects, such as cancer, hypertension, and cirrhosis.

"The bases for these standards range from poorly educated guesses to well documented studies," Epstein told the subcommittee.

Dr. Mancuso claimed that despite OSHA, most of industry was unaware of the scope and frequency of

occupational disease and, as a result, their medical programs were substandard.

"The basic question I am raising is whether industry is really aware of what is technically required in the standards adopted, in evaluating the work environment, in instituting the necessary control measures, and in provisions of industrial medical service. It is highly probable that compliance has been underestimated in every industry," Dr. Mancuso said.

Drs. Mancuso and Selikoff oppose proposals to exempt small businesses from OSHA coverage.

"In small plants, the levels of exposures to toxic chemicals, dusts, fumes, mists, and gases are greater, and the health risks to the workers higher because of the closeness of the work processes, the lack of adequate industrial ventilation or enclosure of hazardous operations, and lack of proper control measures," said Dr. Mancuso.

"I suggest that the health and safety of its workers not be the item sacrificed to ease its [the small company's] difficulties," said Dr. Selikoff. "It is the disease potential of the agent and hazard of the operation that will determine if a worker will lose his life—not the size of the business operation."

Receptive audience

When the three scientists finished their testimony it was clear that the House subcommittee had listened attentively.

"Congress should make it its business to see that the administration asks enough money to keep NIOSH and OSHA functioning as they should," said subcommittee chairman Dominic Daniels (D-N. J.).

"There is no question but that the testimony we've heard re-emphasizes the need for Congress not only to pass laws, but to maintain its oversight functions," said subcommittee minority leader Marvin Esch (R-Mich.). ■

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"NO!"

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industrial hygienists remove all the risks from all industrial operations? They obviously can't. To suggest it is like asking that auto accidents be eradicated by having everyone take up walking again.

"As long as this is an industrial society, there will be some risks," McCormick said. "Some critics hint that health professionals in industry close their eyes to those risks, don't do everything in their power to control the risks, simply because they acknowledge that risks exist and try to control them, rather than eliminate them. To suit their theory, those critics choose to ignore all the considerable achievements of health professionals in American industry."

Pretesting controversy

In his testimony during the recent House oversight hearings on the OSH Act, Dr. Samuel Epstein charged industry doesn't pretest chemicals sufficiently for health effects before introducing them in the workplace. "Human experimentation of this kind is unnecessary and amoral," Dr. Epstein stated, "and our tacit participation in it a matter for shame."

In response, Dr. Clyne asserted that it's impossible to pretest all substances. "Consider the number of substances being used," he said. "NIOSH lists 25,000 toxic substances, including table salt. Many of these have been used for years without adverse effects. We can assume many of them are safe."

"To require experimentation with all substances would cripple progress in this country," Dr. Clyne continued. "Complicated and prolonged testing of substances would mean sacrificing comforts and luxuries we've long taken for granted. I think society is going to have to make a choice between prolonged testing or continued progress."

Alcoa's Dr. Colwell added: "There must be some sound basis for the decision to pretest or not."

It's definitely unnecessary and impractical to test every chemical used in the workplace."

AIHA's McCormick cited the unpredictability of many chemicals. "When any new chemical comes out, we do perform some testing on animals," he said. "If we discover the risk is unacceptable, we abandon the material."

"But, as we found in vinyl chloride, there might be some undiscovered hazard that won't show up for years. I don't know how you'd avoid it. Even with better testing, we'd never be 100-percent sure."

We asked McCormick if the American Industrial Hygiene Association supports the Toxic Substances Control Act, now in Congressional conference committee, which would require pretesting of all hazardous and new chemicals used in industry.

"AIHA has taken no position on the Toxic Substances Control Act," he answered. "I am familiar with product testing from my days at B. F. Goodrich. I know testing is very valuable, but I think it's a bit too much for the government to require testing for every single substance. Even if the government were to require it, some hazards would slip through. After all, when B. F. Goodrich introduced polyvinyl chloride in 1940 or 1941, the Food and Drug Administration was satisfied that it was safe for contact with food. The FDA granted an approval still unrescinded."

Rohm and Haas' Dr. Beavers thinks Federal regulation isn't necessary. "We in industry have become even more aware of the hidden, potential hazards in chemicals," he told us. "We are developing better in-house toxicological laboratories, and more and better tests to be conducted long before the chemicals reach use in manufacturing."

"My own company is very conscientious and careful about the chemicals we use in the manufacturing process," Dr. Beavers continued, "and I don't think we are an exception in that regard."

"I hope the law isn't passed. But one area in which government regulation might be required is for small companies, which can't afford a toxicological laboratory. We have to provide them some help, and perhaps the government can do it best," he said.

Industry-indentured?

We asked Dr. Beavers how he would answer Dr. Epstein's charge that the threshold limit values (TLV's) adopted by OSHA were developed by "industry-indentured" professionals in the American Conference of Governmental Industrial Hygienists (ACGIH).

"I would laugh," Dr. Beavers said, and did so briefly. "Dr. Epstein is a genius with flamboyant language. I think he's intentionally overstating his case in order to achieve some end."

"His charge is without foundation. The chairman of ACGIH is upright and reputable," he said.

AIHA's McCormick agreed, and added: "Dr. Epstein is either unfamiliar with ACGIH TLV's or unfamiliar with the way they're established. There are no industry people in ACGIH—it's composed of government professionals. Industry people may be called upon to make comments, but the group that makes the decisions on TLV's are exclusively government employees."

"What's more," McCormick said, "the ACGIH TLV's are highly regarded internationally and are used in many industrial countries."

"True professionals"

Our respondents said they are familiar with the assumption held in some quarters that any health professional who works for industry is therefore industry-indentured. Dr. Colwell thinks it's a bum rap. "I have respect for professionals, no matter where they come from. True professionals use their best judgment and won't let their work origin influence them."

Said Dr. Clyne, "It's a fallacy to say that a TLV or anything else that comes from industry is, therefore, a management tool. What amazes me is how Dr. Epstein and other critics constantly shoot at industry, but don't admit that much of the progress in occupational health has been discovered, researched, and put into use by industry."

"I and my fellow professionals in occupational health are dedicated to helping all working people," Dr. Clyne said. "But if we follow all the recommendations of our critics, we are going to emasculate the industrial vitality of the United States." ■

23627005

The VC standard: The arguments are in, OSHA's decision is imminent

by Carl P. Musacchio

Is there a safe exposure limit for vinyl chloride? On that question could hang the fate of an entire industry, thousands of jobs, and billions of dollars in sales and profits.

OSHA's proposed standard for exposure to vinyl chloride (VC) holds that there is no safe limit. It calls for no measurable concentration of VC in the workplace—in other words a threshold limit value of zero. Spokesman from industry prophesy that adoption of this standard would end production of VC and, in so doing, have devastating effects on the plastics industry.

The drama began last January when B. F. Goodrich Chemical Co. announced that several deaths from angiosarcoma of the liver, an extremely rare cancer, had occurred among workers in vinyl chloride operations at the company's Louisville plant.

Goodrich Chemical called in Kentucky public health officials and the National Institute for Occupational Safety and Health. After an initial investigation Dr. Marcus Key, director of NIOSH, made a momentous announcement: "On the basis of the medical, epidemiologic, and toxicologic findings thus far, it would appear that a new occupational cancer has been discovered: angiosarcoma of the liver. It is associated with the polymerization of vinyl chloride in the manufacture of polyvinyl chloride. Vinyl chloride is the chief suspect among the more than 50 chemicals used in the plant."

That announcement hit the industry like an iceberg scraping the hull of a luxury liner. Without question an emergency was at hand, but as long as the watertight compartments held, there was no cause for panic. The deaths were, after all, in one plant, and they involved only the polymerization process which converts vinyl chloride monomer, a gas, into solid granules of polyvinyl chloride resin. Synthesis of VC monomer and the polymerization process involved only a small segment of the industry. Fabrication of PVC resins into myriad products, ranging from auto seat covers to insulated electrical wire, involved far more workers and was the economic mainspring of the industry.

As the Manufacturing Chemists Association pointed out: "It is estimated that about 1,500 workers are employed in monomer synthesis, and an additional 5,000 in polymerization operations. It is difficult to estimate the number of workers engaged in converting, molding, and fabricating these polymers, but they are numbered in the tens of thousands, working in thousands of plants. It has been estimated the wholesale value of the annual output of fabricated products is over \$3 billion."

Cancer spreads

Within weeks of the first announcement it became clear that the cancer was not confined to one

operation in one plant. Cases of angiosarcoma were discovered among workers in synthesis and polymerization plants in several States and in Europe.

In early May, the vast vinyl fabricating industry was implicated. A group of German scientists reported to a conference on vinyl chloride hazards sponsored by the New York Academy of Sciences, the American Cancer Society, and NIOSH that six cases of serious liver disease had been discovered in a German plant manufacturing vinyl floor tiles. None of the afflicted employees had cancer, but the scientists believed the symptoms might have been those of incipient cancer. Again, VC monomer was suspect. The investigators guessed some VC monomer had eluded the polymerization process, and had become trapped in the PVC resins. Over the years then, the workers had been exposed to VC monomer escaping from the resins.

A month later, the Connecticut Department of Health reported two deaths from angiosarcoma. Both victims had worked in plants making finished products from PVC. One had worked at coating electrical wire with vinyl. The second was an accountant for a firm that fabricated products of PVC. An investigation was launched to learn if he had ever worked in the plant.

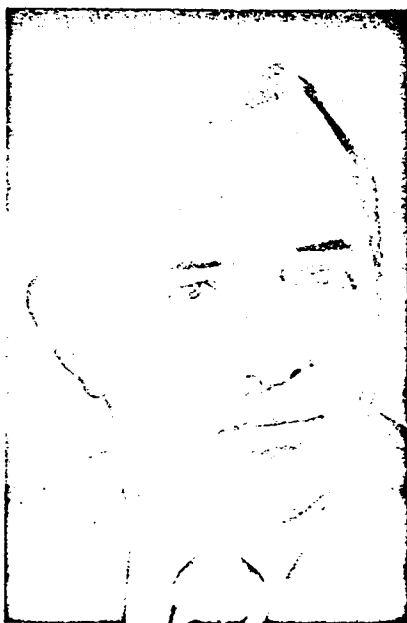
Most ominous of all was a report from Connecticut that two cases of angiosarcoma might have resulted from environmental, not occupation-

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"There isn't any likelihood . . . that we are going to put the industry out of business."

Dr. Daniel P. Boyd
Director,
OSHA Office of
Standards Development



"The effect [of the proposed standard] on the nation's economy would be catastrophic."

Ralph L. Harding
President,
Society for the
Plastics Industry

al exposure. One victim was a man who lived about a mile from a PVC product fabricating plant. The other, a housewife, lived even farther from a similar facility.

Now every phase of the industry had been involved, and some were calling to abandon ship. In April, Peter Bommarito, president of the United Rubber Workers, had warned: "I feel this is a figurative and literal life-and-death struggle for the polyvinyl chloride resin industry in the world." In June, after the dimensions of the outbreak had become clearer, Bommarito added: "If PVC cannot be made and used safely, then the proposed OSHA standard must be replaced by an orderly procedure to phase out VC production and find substitutes for its products, or to phase out the products themselves."

Out of business?

Little wonder that some spokesmen for the plastics industry believe that phaseout of VC and PVC is a real, though unjustified, possibility. They see the proposed OSHA standard for worker exposure to VC as the specific threat. Through their major trade associations, especially the Society for the Plastics Industry (SPI) and Manufacturing Chemists Association (MCA), manufacturers and users hammered across their message in 9 days of OSHA hearings on the proposed standard.

Apparently with some effect. No final standard was announced by presstime, but OSHA's top standards officials were talking of a compromise the industry could live with.

The issue in the VC standard is one that's been fought over before: Should the TLV for a carcinogen, proved or suspect, be set at zero, or is there an acceptable maximum dose, a threshold limit value, below which no adverse reactions can be expected?

Before the cancer scare, the TLV for VC was set at 500 parts per million (ppm), though as early as 1970 European researchers were reporting some disquieting data about the effects of that concentration on laboratory animals. Dr. P. L. Viola, of the Regina Elena Institute for Cancer Research, Rome, reported rats exposed to vinyl chloride at 30,000 ppm developed cancers of

the skin, lungs, and bones. Later, tests by Dr. Cesare Maltoni, of the Institute of Oncology (the study of tumors), Bologna, Italy, had produced tumors of the kidney and liver at concentrations of 500 and 250 ppm.

The MCA knew of the work of Drs. Viola and Maltoni. MCA's Chemical Safety Data Sheet on VC referred to the Italian carcinogenicity studies in its 1972 edition. Meanwhile, MCA had arranged for 17 U.S. companies to sponsor research and animal studies based on the findings of Maltoni and Viola.

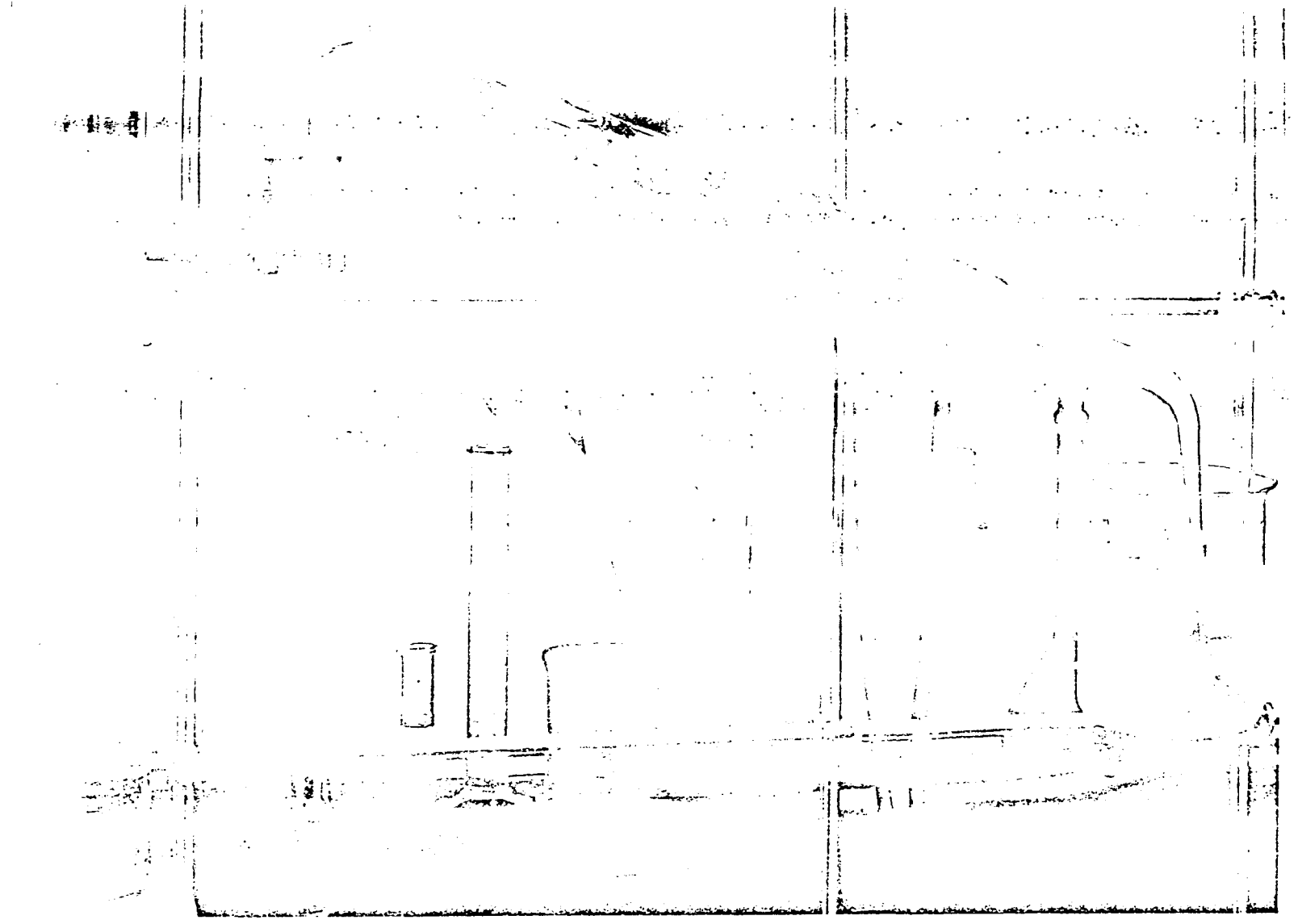
Zero exposure

In the furor that followed the VC disclosures, OSHA felt pressure, notably from the United Rubber Workers, Oil Chemical and Atomic Workers Union, and the AFL/CIO to issue a temporary emergency standard on VC.

On April 5, OSHA issued an emergency standard that limited exposure to VC to 50 ppm and that established monitoring and record-keeping requirements. The OSH Act limits the life of temporary emergency standards to 6 months. This one, then expires on October 5.

When the emergency standard was promulgated, the only generally known experiments on the carcinogenicity of VC were those of Dr. Maltoni and Dr. Viola. Neither had observed cancers in laboratory animals exposed to 50 ppm. But shortly after announcement of the 50-ppm emergency standard, preliminary test results became available from one of the research projects MCA had sponsored as a result of the Italian studies. Industrial Bio-Test Laboratories of Northbrook, Ill., the MCA contractor on the project, revealed that mice exposed to 50 ppm for 7 hours a day, 5 days a week, for 7 months, had developed angiosarcomas.

The industry knew then, that OSHA's proposed permanent standard, unlike the temporary emergency standard, would come in below 50 ppm, but most PVC manufacturers and users were stunned when the proposed permanent standard was issued. It called for limiting occupational exposure to vinyl chloride to "no detectable level," as determined by sampling and analytical methods



capable of detecting VC in concentrations of 1 ppm, with an accuracy of 1 ppm plus-or-minus 50 percent.

The proposal applies to any area or operation in which vinyl chloride is manufactured, reacted, released, repackaged, stored, or used. Thus, the standard would cover PVC fabricating operations if the PVC resin being used is releasing detectable amounts of VC monomer. The standard specifies monitoring to assure that any exposure for any employee can be determined. It orders feasible engineering controls to hold concentrations below the detectable level. Self-contained respirators are to be used where concentrations can't be kept down.

Challenge and response

In their response to the proposed standard, industry representatives

lined up to testify that:

- There is no scientific evidence establishing the need for a zero TLV.
- Enforcement of the standard would destroy the industry.
- Current control technology cannot achieve the concentration levels ordered by the standard.

Questioning the need for the no-detectable-level standard, Dr. Carl U. Dernehl, associate medical director for Union Carbide, offered results of a survey of employees in 36 VC producing plants.

"The tests have failed to show the existence of abnormal liver function in greater proportion than would be found in a control population," he said. The test involved 1,402 men, all of whom had been exposed to concentrations of 50 ppm or higher, and all of whom had been exposed long enough to develop the disease. "Yet, there was not a

single case of angiosarcoma," Dernehl said.

Enforcement of the standard could mean a loss of production and sales of between \$65 and \$90 billion according to a study by A. D. Little, Inc. contracted by SPI. Not only the plastics industry, but autos, construction, communications, toys, shoes, luggage, and many others would be hit hard, the study's authors concluded.

SPI president Ralph L. Harding said, "The effect [of the proposed permanent standard] on the nation's economy and on the social order in terms of human hardship it would cause would be catastrophic. We expect the final results from A. D. Little will show a potential loss in excess of 2 million jobs. This is all the more regrettable in light of the fact that the industry is taking every possible step to reduce worker exposure to VC monomer."

Rather than the controversial proposed standard which lumps together both producers and users, Anton Vittone, president of B. F. Goodrich Chemical, speaking for SPI, asked for separate standards for PVC resin producers and VC synthesizers. The standard for resin producers should require:

- Effective October 5, 1974, a ceiling of 40 ppm with a maximum daily time-weighted average (exposure averaged out for an 8-hour workday) of 25 ppm. Levels above 40 ppm would require use of practical and effective respiratory protection.

- Effective October 5, 1975, a ceiling of 25 ppm with no time-weighted average. Levels above 25 ppm would require use of practical and effective respiratory protection.

For plants that synthesize vinyl chloride monomer, Vittone's suggested standard would require:

- Effective October 5, 1974, a ceiling of 25 ppm and a maximum time-weighted average of 10 ppm. Levels above 25 ppm would require the use of practical and effective respiratory protection.

- Effective October 5, 1975, a ceiling of 10 ppm and a maximum time-weighted average of 5 ppm. Levels above 10 ppm would require the use of practical and effective respiratory protection.

Vittone noted, "It is the position of industry that it will commit itself to lowering exposure of its workers by a combination of lower levels of vinyl chloride in the work atmosphere and work practices. [This] proposal makes projections for improvement which are not in hand but depend on new developments and additions to facilities."

The SPI proposal, according to Vittone, would require substantial outlays and could take more time than estimated. The standard should, Vittone maintains, permit companies to apply for variances.

Vittone also maintains that the no-detectable-level standard being considered by OSHA would require full-time use of self-contained breathing apparatus during the workday for many employees. "This would impose a severe and unnecessary physical burden on workers and create potential health and safe-



"This is a . . . life-and-death struggle for the [PVC] industry in the world . . ."

Peter Bommarito
President,
United Rubber Workers



"It is the position of industry that it will commit itself to lowering exposure . . ."

Anton Vittone
President,
B.F. Goodrich Chemical

ty problems as well," he said.

William Miller, manager of corporate safety and workmen's compensation, Goodyear Tire and Rubber Co., recommended not two but three standards, one each for the producers of VC monomer, the producers of PVC resin, and the fabricators and processors of PVC resins.

"Goodyear fails to see how OSHA can scientifically conclude that exposure to VC at concentrations of 50 ppm can constitute a serious health hazard to humans," Miller told OSHA.

What's possible?

John L. Nelson, vice president of manufacturing for B. F. Goodrich Chemical Co., offered evidence on the level of contamination his firm has been able to meet. "Hundreds of readings per day taken at several plants show considerable progress in reducing levels of exposure," he said. "The average reading was reduced from about 35 to 40 ppm early this year, to about 12 to 14 ppm at present. Readings range

from 1 to 2 ppm as a general level with occasional excursions over 50 ppm. A summary of time-weighted average exposures by job classification showed considerable variation in time-weighted measurements, ranging from below 5 ppm to 31 ppm on polymerizer charging operations." Nelson also noted that reduction of leaks had done the most for reducing general levels of VC in Goodrich Chemical plants.

Firestone Plastics Co., about the only major producer to disagree with the SPI proposal of a step-by-step reduction in the TLV, called for a standard that would limit exposure to 40 ppm with a time-weighted average of 25 ppm.

T. C. Walker, president of Firestone Plastics, said, "Clearly, the human deaths caused by admittedly high levels of VCM exposure not now permitted in Firestone's plants or industry generally, suggest nothing with respect to the effects on humans of the low levels of VCM presently permitted in Firestone's plants and industry generally." If compelled to comply with

a standard of no-detectable concentration, Walker concluded that Firestone would have to cease VCM operations. Studies made by engineering consultants indicate, Firestone would have to spend from \$50 to \$55 million to meet the proposed OSHA standard. Even a 50 ppm level would require about \$10 million in engineering controls alone.

Dow Chemical Co.'s testimony at hearings on the proposed standard caused a stir that may have undercut other industry testimony. Dow announced it has achieved a no-detectable level of VC monomer on some operations. On the average, the company has held levels down to 10 ppm on an 8-hour time-weighted average. This level has been achieved for most operations, though occasional malfunctions or emergencies cause briefly higher concentrations.

Dow's medical records show workers exposed to VC had a malignancy rate no different from what would be expected in a comparable group which had never been exposed. Records show no deaths due to angiosarcoma or any other type of liver cancer.

Common ground?

"There isn't any likelihood in my mind that we're going to put the industry out of business," remarked Daniel P. Boyd, director of OSHA's Office of Standards Development after hearing testimony on the proposed standard. Boyd doesn't expect the final standard to require industry to achieve a no-detectable level of VC monomer in the workplace. "Evidence at the hearings indicates a standard of 25 parts per million can be met across the industry. The final standard will probably be somewhere between zero and 25 ppm," he said.

In any event, the final standard won't be issued until OSHA has completed a study of the technological and economic feasibility of various levels of exposure. "Now that we have the drift of the hearings of VC, we are able to focus on the cost-benefit elements which must be part of our decision making process," Boyd said.

One argument the Department of Labor has apparently not bought is that compliance with the proposed standard would shut down the in-

"Goodyear fails to see how OSHA can scientifically conclude that exposure to VC at concentrations of 50 ppm can constitute a serious health hazard to humans."

dustry. The Department of Labor's draft environmental impact statement on the standard acknowledges that some marginal firms might be hurt, but adds that demand for PVC is so strong, it would probably remain relatively unresponsive to price increases made necessary by the cost of compliance with the standard.

In any case the standard is being reconsidered, and, as far as the Department of Labor is concerned, the zero concentration requirement seems to be out of the running. Most insiders think a limit of 10 ppm, however, is a distinct possibility for the permanent standard.

Labor views

"It will be a tragedy if OSHA adopts a common denominator standard that everybody can meet so that those plants that can go further are under no incentive to do anything more. For those plants which cannot meet a no-detectable-level standard, the variance procedures of the OSH Act should be utilized," said Anthony Mazzocchi, citizenship and legislative director of the Oil, Chemical, and Atomic Workers Union.

Mazzocchi, like many other union officials in the petrochemical and plastics industries, believes industry's claims that the proposed standard will bankrupt them requires much closer scrutiny than it is getting. He pointed to the Dow Chemical Co. testimony that some plants had achieved the zero TLV in monomer

operations. "It is our hope that the proposed permanent standard would force the industry into a proper preventive maintenance program which will reduce exposure to VC to the nondetectable level," he said.

Peter Bommarito, president of the United Rubber Workers, maintained the industry threats were nothing but blackmail. "This country survived for nearly 200 years without polyvinyl chloride and we can survive in the future without it," Bommarito told the press.

With labor leaders playing the role of immovable object, it's clear that any proposal to back away from the no-detectable-level standard will be in for trouble. And the trouble will come not only from the leadership, but from the rank-and-file membership as well.

Angelo Cefalo, special assistant to the president of the International Association of Machinists and Aerospace Workers, pointed to growing fears of his union's members who work with PVC. Cefalo said one member told him that he was beginning to feel that breathing in VC had caused something to grow in his body that eventually would make him die of cancer.

Whoever sets the final standard, then, is going to have to reckon not only with technological and economic feasibility, but with a very normal ailment that many people, including much of the industrial workforce, suffers. It's called carcinophobia and it means a fear of cancer. ■

"It will be a tragedy if OSHA adopts a common denominator standard because those plants that can go further will have no incentive to do so."

BFGoodrich

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