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Did Industry Cry Wolf?

Polyvinyl Chloride Health Rules Can Be Met

By STEVEN RATTNER

Late in 1974, a trade association representing nearly all of the chemical manufacturers using vinyl chloride gas, a proven cause of cancer, marched into Federal court in an attempt to overturn strict Labor Department Health standards about to go into effect.

"The standard," the companies said in their court papers, "is simply beyond the compliance capabilities of the industry." They offered dire warnings of plant closings, job losses, price increases and massive economic dislocation. After all, polyvinyl chloride, vinyl chloride's principal derivative, is a $1 billion industry turning out goods ranging from plastic water pipe to bologna packaging.

The legal appeals proved futile; industry was forced to comply. But one year later, not one of the doomsday predictions has proved accurate.

All the producers are operating within the strict Occupational Safety and Health Administration standards. The price of polyvinyl chloride has been running about 10 percent below 1974 highs and supplies are plentiful. And although one small plant is closing its doors, four new ones are coming on stream.

The success of the companies in meeting Government standards denounced only a short time earlier as unworkable has led to renewed questioning, particularly in Government circles, of industry's credibility.

"It's hard to say whether they were crying wolf," says R. M. Kossoff, a plastics consultant. "The acid test is that in a short period of time, they have proved that they can lick the problem."

Industry executives say now that they opposed the health standards because they thought they were unnecessarily strict and they weren't certain they could meet them. "We were frankly surprised by some of the results" of the cleanup effort, acknowledged R. N. Wheeler, Jr., a vinyl technical superintendent of Union Carbide Corporation.

Vinyl chloride first became an issue in January, 1974, when the B. F. Goodrich Chemical Company, a subsidiary of the big tire maker and the largest of the polyvinyl chloride producers, announced that it had discovered that the 1968 death of an employee was due to angiosarcoma, a very rare cancer of the liver.

Similar discoveries followed, with 17 deaths in all of the industry, and health enforcement officials moved in.

OSHA initially settled on a vinyl chloride concentration limit of 50 parts per million in plant atmospheres which the industry considered fair. In fact, because of earlier indications that vinyl chloride could cause less serious ailments, nearly

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How Polyvinyl Chloride Met Health Rules

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all of the companies, led by the Dow Chemical Company, were operating at that level when the OSHA announcement came on March 22, 1974.

Concentrations sometimes had run to 40,000 or 50,000 parts per million previously and the risk was believed eliminated. But then two rats exposed to 50 parts per million died. Although the rats died of other causes, autopsies showed the presence of angiosarcoma and in April, OSHA moved to a standard of "no detectable" concentration as measured in the air.

The chemical companies argued that the "no detectable" standard would close the industry and bring on national economic disaster. They even offered a study warning that a shutdown would put 2.2 million people out of work and cost the economy $65 to $90 billion.

By October, they had convinced OSHA to change to a 1 part per million average with brief exposures to higher levels permitted. Emissions could go to 25 parts per million if workers wore respirators, but the respirator requirement was delayed by one year to April 1, 1976.

OSHA officials now say that the effects of those changes were minimal and claims by the industry that they made all the difference were "a little face-saving semantics."

But by spring, 1974, most companies had realized the final standard would be tough and that the time had come to try to comply.

They discovered that in converting the gas to polyvinyl chloride resin, large vinyl chloride gas leaks into the atmosphere were developed. And for the more than 1,000 companies that shape the resin into its final form, the unconverted gas in the resin was being liberated during the reshaping.

Reducing emissions in the plants turning vinyl chloride gas into PVC, a powder, was the major problem. Some techniques were easy: telling workers not to use the supercooled gas to refrigerate soft drinks and not to wade ankle-deep in the powder inside the 1,100-gallon reactors. But getting down to 1 part per million means that a single pinhole becomes a sieve, the companies say.

"It's just plugging leaks," said Mr Wheeler of Union Carbide. "There's no magical way you can get there."

Goodrich, though, developed a new process to reduce the necessity of cleaning reactors — thought to have been a major exposure point. It then moved ahead and developed a new "stripping" process which reduces the residual vinyl chloride left in the resin to the "no detectable" level. This allows the fabricators to avoid regulating emission levels in their own plants.





Respirators for workers i ... olyvinyl chloride plants will become m ... tory April 1.

Althougl ... ost of the attention ha ... cused on the existing 5(... C plants, Robintech In(... nd Goodrich have desi ... new plants with techr ... y expected to completely ... liminate the emission problem.

OSHA acknowledges that the progress has been remarkable. "I couldn't be more pleased with the apparent success and progress," said Grover C. Wrenn, acting director of standard developments. "I think very few people in industry had any estimates of what could be done."

Most of the PVC producers have reduced emissions to about 2 parts per million. If they can reach 0.5 part per million, OSHA allows them to relax the monitoring requirements "but that last mile is pretty difficult," said John L. Nelson, manufacturing vice president of Goodrich.

Curbing the emissions, however, wasn't cheap. Goodrich says the effort was the largest research and development program in its history, involving 130 scientists and engineers 425,000 manhours of work and $34 million in capital costs. The Society of the Plastics Industry estimates the industry costs could run up to $300 million. And industry spokesmen say the regulations l ... er productivity and will ... 10 to 15 percent to the ... of manufacturing PVC.

Goodrich, however, nc ... it can lease its new clea ... technology to others, ... that the new equipment c ... labor costs.

And the cost increase c ... plaints aren't as impress ... when compared to the nat ... al price swings. PVC is do ... to about 21 cents a pou ... today (although there ... signs that prices are about ... rise) from 24 cents in 1! ... because of the recessio ... sales are down about 1 ... lion pounds from the rec ... 4.7 billion of 1974. And ... cleanup price pales bes ... the doubling of PVC r ... material costs over the p ... two years.

Right now PVC makers ... *lieve their biggest probl* ... may be public relations. T ... Federal Drug Administratior ... is preparing to ban some ... types of PVC food packaging ... on the grounds that residual ... vinyl chloride migrates into ... the food.

"People might begin ,t ... think: 'If it's not good ... enough for food, it must not ... be good to have a toy ... wrapped in it," said Thomas ... B. Nantz, executive vice ... president of the parent Goodrich company, who predicts ... a PVC growth rate of about ... 8 percent a year. Thus, the ... chemical makers have been ... running advertising minimizing the health dangers.

Certainly one sign of the ... prospects for the chemical ... was the recent announcement by the Diamond Shamrock Corporation that it would build a new $100 million vinyl chloride plant near Houston, the first to be announced since the cancer scare started.