

Producers explore new ways to bottle up VCM

Last week the Society of the Plastics Industry filed a motion asking the U.S. Court of Appeals for the Second Circuit (New York) to stay its ruling that upheld the Occupational Safety and Health Administration's standard on exposure to vinyl chloride monomer (CW, Feb. 12, p. 12). SPI also says it will petition the U.S. Supreme Court to review the Circuit Court decision.

Meanwhile, technology is being developed and exploited to help producers meet the April 1 deadline for limiting worker exposure to the OSHA standard of 1 ppm. of gas (averaged over an eight-hour period).

Item: Monsanto and Dravo Corp. (Pittsburgh) are preparing to sign an agreement that will permit the engineering firm to offer Monsanto's polyvinyl chloride reactor-cleaning technology.

Item: Herzog-Hart (Boston) is proposing an enclosed polymerization operation and a vapor reaction system that will process the enclosure's atmosphere, recover vinyl chloride gas.

Item: Harry Rudberg (Stockholm) is offering a new electronic monitor that will detect vinyl chloride gas at levels as low as 1 ppm.

And these developments are only the tip of the iceberg. Virtually every instrument company, vinyl producer and PVC plant designer is at work on new ideas for locking up vinyl emissions so they will pose no threat to health.

Says Goodyear: "Our plans for continued PVC production have not been contingent on a favorable ruling by the court on the petitions for review of the OSHA standard. We intend to maintain production under the new standard at all our PVC plants with the proper use of respiratory equipment.

"The company has already made numerous improvements in equipment, processes, and work practices including the use of respirators as required. In addition, we are continuing our intensive research and development programs on new and improved technology. These programs already have provided promising results which are now undergoing further evaluation and in-plant testing.

"Our plants are operating with average exposure levels of 6 ppm. In compliance with the standard, we have in place alarm systems which signal any levels above 25 ppm. and are installing alarms for lower levels. For the first year, wearing of respirators is optional with employees [for

exposures] up to 25 ppm. We have most of the respiratory equipment required and we have ordered additional equipment for delivery within 60 days."

Firestone Plastics sums up the attitude of producers. "We're trying everything that's available," says the company. "but there's still no way to get down to 1 ppm. without respirators.

Solvent Cleaning: Monsanto's technology for solvent cleaning of reactors involves tetrahydrofuran. The company has been using the technique in the production of PVC at a 100-million-lbs./year plant since the mid-1960s.

Cleaning frequency in PVC plants ranges from every five batches to 50. And while the older, smaller reactors often were scraped manually, it seems likely that this method will give way to the solvent techniques, such as that developed by Monsanto.

Advantages over manual cleaning, according to Monsanto: In terms of product quality, less contamination from batch to batch; quicker turnaround time; potential of reduced worker exposure to VCM and other emuent organics. Also it offers the potential of closed-reactor operation, since the solvent can be pumped in and agitated automatically without opening the reactor.

Other cleaning methods include: high-

monomer. There would be a product of variable quality, which could possibly become marketable in the future. I picture the polymerization units as pods, remotely operated, totally enclosed, employing a solvent cleaning system limiting physical cleaning to every eight reactions. The slurry lines would be trenched or double piped for vapor recovery. The filter, centrifuge and slurry tanks would be equipped with vapor recovery systems with all escaping monomer being wasted through a vapor reaction system."

Of research now under way, Herzog says, "I'm sure we will develop processes which will include improved solvent systems, continuous self cleaning reactors, clean monomer from vapor recovery and possibly a secondary reaction process."

Gas Monitoring: No one is certain what types of instruments will be required to meet government standards. But a number of devices already are on the market.

The latest entry was developed by Harry Rudberg AB. The first unit will be installed at a PVC plant operated by KemaNord, Sweden's largest chemical company. A semiconductor activates an alarm when a pre-set limit of vinyl chloride gas is reached. A system with three detectors and central alarm is priced at

**Companies are 'trying everything that is available,'
but say there still is no way to reduce
worker exposure to 1 ppm. without using respirators**

pressure water and water-detergent systems; use of solvents such as m-pyrol (GAF) and methylene dichloride.

Vent Gas Problems: Another big source of headaches is recovering monomer from the process vent gases. Tenneco Chemicals for example, is trying to solve the problem by adsorbing the monomer from vent gas streams with activated carbon in a unit designed and fabricated by Chemical Design (Lockport, N.Y.).

Another idea is being proposed by designer Herzog-Hart. The firm envisions totally enclosing the polymerization process and continuously evacuating the contents of the enclosure. The vapor containing the monomer would be processed in a reaction initiated by ultraviolet light.

Says President Ernest A. Herzog: "The reactor would be small, the process continuous. The system initially would be established as a wasting process for vagrant

\$1,600 in Sweden. Rudberg claims the unit will detect 1 ppm. of gas.

Others with instruments include: Beckman Instruments (Fullerton, Calif.), CVC Products (Rochester, N.Y.), Wilks Scientific (South Norwalk, Conn.) and Bendix Process Instruments (Ronceverte, W.Va.).

Beckman's entry is a process gas chromatograph (Model 6700) that is sensitive to 0.02-ppm. concentrations of vinyl chloride gas. Air measurements at fixed or variable sampling sites in the plant may be made as often as 30 times per hour.

Beckman supplies a spectrophotometer for measuring vinyl chloride in the air.

CVC Products supplies a gas chromatograph system that works in tandem with a mass spectrometer. Bendix also has a gas chromatograph system. And Wilks Scientific has an infrared unit that samples 12 different points sequentially to detect vinyl chloride concentrations.

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Chemical Markets

Lanolin Price Range Shows Consolidation

Fine Chemicals

A degree of "sanity" has returned to the lanolin market as prices have started to show some signs of stabilization sources said, and they are consolidating into a narrower range than has been seen in the recent past.

But, the producers emphasize that lanolin supplies are tight and wool grease, the primary raw material, is still priced at very high levels and is in short supply.

Overall prices are falling into a range of the mid \$1.30s to the low \$1.40s for cosmetic grade, although at least one producer is quoting prices ranging from \$1.55 up to \$1.64 for 10 quantities. During the closing weeks of 1974 prices were scattered all around, ranging from \$1.68 to about \$1.60 per pound. Pharmaceutical grade was quoted Wednesday from \$1.31 to \$1.35.

"I think that those who sell the grease realize that it is not worth \$1.10 per pound, and if the prices keep going up for wool grease and lanolin, the markets will be lost," said one producer.

Another source said, "this is the general theory."

Sources also noted that they have heard of spot sales for wool grease as high as \$1.30 or \$1.50 per pound.

Industry people have expressed fears that if the price of lanolin goes too high then users would look to substitutes. At one time some said \$1 per pound would be the cut-off point.

But now, with many industries reporting slow sales, it is difficult to tell who is cutting their use of lanolin because of the price and who is reducing its consumption because of reduced sales. Several sources said the demand for their product was still relatively high.

However, an executive with one producing company said that users might be reluctant to change existing formulations and product identity, but lanolin's growth could be stunted if new products are formulated without it.

Wool auctions are currently

West Coast Director Named by Cyanamid

JOURNAL OF COMMERCE SPECIAL
LOS ANGELES — Richard G. Koppler has been appointed to the newly-created post of regional director of chemicals on the West Coast for American Cyanamid Co., it was announced here by George W. Russell, senior vice president.

Mr. Koppler's offices will be at 2300 South Eastern Avenue here. Mr. Russell said creation of the new position is in line with Cyanamid's projected long-term growth potential in chemicals on the West Coast.

being conducted in Australia, and the Australian Daily News, published by the Consulate General's office, said that the Japanese and Eastern European bloc are the principal purchasers.

A lanolin producer asserted that the Australian Government has bought more than 40 per cent of the auction's offerings in order to support the price level.

"When what they have stockpiled hits the market, we'll have grease coming out of our ears. The question is when."

Industrial Chemicals

Current prices for alcohols posted by the Union Carbide Corp. are as follows:

Ethanol 190 proof, undenatured specialty grade, \$1 per gallon; ethanol 200 proof, undenatured specialty, \$1.10 per gallon; "Synaol" solvent, 190 proof GF-3, \$1.04 per gallon.

N-propanol, 23 cents per pound; isopropanol anhydrous, 70 cents per gallon; n-butanol and isobutanol both 22 cents per pound; n-pentanol, 2-methyl butanol and primary amyl alcohol are listed at 30 cents per pound.

Methyl amyl alcohol is 27.5 cents per pound, 2-ethylhexanol is 28 cents per pound, and disobutyl carbinol is 58 cents per pound, freight collect.

All prices are for Carbide's freight zone A.

Phthalic anhydride production declined by 103.57 million pounds in December compared to Nov.'s figures.

The U. S. International Trade Commission reported that December's production totaled 308.47 million pounds while November's stands at 444.04 million pounds. The cumulative total for 1974 is 5.998 billion pounds.

Paint Materials

Scattered small resales of casella at 73 to 74 cents for industrial and 88 cents for edible have been reported by the U. S. Department of Agriculture.

Exporters are reported increasing their inquiries about U. S. inventories because it's been almost a year since the last large volume purchases were made. However, industry sources have said that inventories are stretching out because of the overall slow pace of business.

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Plastics Corner

By WILLIAM H. LANDER
Journal of Commerce Staff

The vinyl industry has decided to continue its court fight against the OSHA regulations for the vinyl chloride industry promulgated by the secretary of labor on Oct. 4, 1974.

After two days of consultations involving executives of The Society of the Plastics Industry, senior executives of manufacturing firms, and a battery of lawyers, in Washington, the question was what to do about the 3 to 6 adverse decision handed down by the U. S. Court of Appeals for the Second Circuit in New York on Jan. 31, 1975. It is understood that a variety of opinions were expressed, but at the end it was decided not to accept the Circuit Court's decision.

An appeal to the highest court in the land — the U. S. Supreme Court in Washington — however, does not automatically mean that the court will hear the case. In normal practice, when an appeal reaches the court, it is submitted to the justices, and unless at least four want to hear the case, it is not put on the calendar.

It is not easy to get four votes out of nine, as many appellants have found out in the past. And as things now stand, the vinyl manufacturers will need four votes out of seven, as Justice William O. Douglas and Justice Thurgood Marshall are absent, being at Bethesda Naval Hospital.

The decision of the SPI and the manufacturers to go to the Supreme Court means that it was felt that it was not good strategy to go back to the Second Circuit and ask the full bench to hear an appeal against what its three-man panel had decided by unanimous vote. It will be recalled that Justice Tom Clark, a former member of the Supreme Court, said that the court found that the contentions of the appellants were "meritless." In the final paragraph of the long opinion, he said:

"It is our conclusion that the challenged aspects of the secretary's vinyl chloride standard are supported by substantial evidence in the record and that the petitions for re-

view must be denied. Taking into account the delay occasioned by these petitions, we think that a reasonable 'lead time' is appropriate and therefore order that the secretary's regulations, rather than being effective Jan. 1, 1975, shall become effective 60 days after the date of this order and that the time requirement as to respiratory protection... is rescheduled accordingly."

As a starter the Society of the Plastics Industry filed a motion with the court of appeals in New York, asking for a stay of its ruling of Jan. 31, pending application to the Supreme Court for a writ of certiorari. The SPI also asked for a continuance of the temporary standard of 50 parts per million pending final disposition of the case.

It was announced that the petition for a writ will be filed within 20 days, and that every effort will be made to get the proceedings before the Supreme Court on the ground that the court of appeals erred in its interpretation of the "substantial evidence" rule when it on Jan. 31 upheld the OSHA one part per million standard.

The SPI further argued that, contrary to the enabling legislation which created OSHA, the one ppm standard subjects the industry to a technologically and economically infeasible regulatory code.

The SPI further contends that even OSHA has conceded the infeasibility of the standard based on one ppm; the SPI also said that OSHA made a "policy judgment" in the case rather than basing it on factual data.

Ralph L. Harding, president of the SPI, said that the VCM-PVC industry is making every effort to reduce worker exposure levels, and added that this work will continue regardless of the fact that it has petitioned the Supreme Court for a review. He said that the decision to ask for a writ of certiorari was based on the fact that the appellate court ruling would have required the VCM-PVC industry to develop infeasible engineering controls and work practices in an attempt to achieve unknowable exposure levels. The petitioners believe that the Supreme

Vinyl Industry Decides To Make Another Attempt Against OSHA Regulation

Carbide Promises Full Disclosure

F. Perry Wilson, chairman of the board of Union Carbide Corp., has promised full disclosure of the cause of the accident at the Antwerp low-density polyethylene plant as soon as it has been determined.

"It is our intention to share everything we learn with the rest of the industry so that future tragedies of this type can be avoided," Mr. Wilson said. He expressed regret for the tragic loss of life and the injuries resulting from the Feb. 10 explosion. It took six lives.

A team of technical experts is continuing the investigation. As previously reported, it caused substantial damage to the facility and operations will be out indefinitely. Customers have been assured that their needs will be supplied from other Union Carbide affiliated companies in Europe and from producing locations in other parts of the world until production is resumed at Antwerp. Union Carbide and its affiliates produce low-density polyethylene in Sweden, Scotland, Japan, Australia, India, Brazil, and Canada, in addition to the United States.

The plant, situated on the right bank of the Scheldt River in Antwerp, is operated by Union Carbide Belgium, a wholly-owned subsidiary of Union Carbide Corp. It had a capacity of 300 million pounds a year.

National Patent

National Patent Corp. reported net income for the fourth quarter of 1974 was \$195,113 on sales and other revenue of \$6,934,877, compared to a net loss of \$2,144,785 on sales of \$3,691,325, a year earlier. Net income for 1974 was \$1,732,821 on sales and other revenue of \$27,769,184 compared to net loss of \$5,531,483 on revenues of \$18,094,321.

Meitinger Named

Sylvester Meitinger has been appointed marketing manager-automotive rubber for the SWS Silicones Corp., Adrian, Mich.

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