

## INTER OFFICE MEMO



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DATE December 26, 1973

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AT New Haven

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SUBJECT Polyvinyl Chloride - Current Awareness  
Project 8300-026  
NHTIS 73-11, Supplement VIII - Business News

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TELETYPE UNIT, NEW HAVEN

Attached is our most recent collection of articles on news and business aspects of polyvinyl chloride, except in the areas of plastic pipes and fittings. (See NHTIS 73-168). Articles and patents of a more technical nature will be included in Supplement IX to be issued shortly.

As in the past, we will obtain copies of abstracted articles or full copies of those in which only the first page has been included, as you request them.

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Attachments

Sources:

European Chemical News, July 13 - October 12, 1973.  
Europlastics Monthly, July - August 1973.  
Modern Plastics, June - September 1973.  
Plastics & Rubber Weekly, September 7, 1973 - October 26, 1973.  
Plastics Technology, September - October 1973.  
Trends in End Use Markets for Plastics, August - November 1973.

OLI 7549

## New heat on PVC?

A warning on polyvinyl chloride packaging was given in the Nov. 5 issue of the *Journal of the American Medical Assn.* Three women who wrap meat, an article stated, developed severe respiratory problems following exposure to fumes produced by cutting PVC film with a hot wire.

"We are reporting these cases because we suspect the phenomenon is not uncommon," contended the three California physicians who authored the article.

The workers, all middle-aged and all smokers, developed symptoms such as shortness of breath, coughing and wheezing, which resembled an asthma attack, according to the doctors. The discomfort cleared up when the women left the packaging room, but they had respiratory problems when wrapping meat with some other materials, the doctors said.

The difficulty could stem from the plasticizer or stabilizer used in making the PVC film, Union Carbide speculates. The heat might have volatilized some of the materials in the film, the company theorizes. Carbide says it is a large producer

of PVC resins but that its major outlets for them do not include food packaging.

This is not the first time that questions have been raised about PVC packaging. A few months ago the Food and Drug Administration temporarily banned molded PVC bottles for liquor because of concern about monomer migration into the liquor.

Moreover, had FDA not acted on PVC liquor bottles, the Environmental Protection Agency was reported ready to submit "new evidence" that a substantial increase in the use of PVC in packaging would be harmful to the environment.

Nov. 26, 1973 C&EN

## New syndrome laid to PVC meat-wrap film

Polyvinyl chloride film is the suspected cause of an apparent new syndrome, meat wrapper's asthma, turned up by William N. Sokol, Yossef Aelony, and Gildon N. Beall of Harbor General Hospital, Torrance, Calif. (Beall works also at the school of medicine, University of California, Los Angeles.) The three physicians tell all in the Nov. 5 issue of the *Journal of the American Medical Association*. Their evidence comes from three female patients, ages 40, 45, and 54, employed as meat wrappers. The three suffered severe respiratory problems following exposure to the fumes produced by cutting the PVC film with a hot wire.

The patients' symptoms—shortness of breath, coughing, and wheezing—appeared soon after the supermarkets where they wrapped meat switched to PVC film. In their six to 10 years of wrapping experience, the ladies had not previously been thus afflicted—notwithstanding the facts that the wrapperies were crowded, not specially ventilated for fume removal, and chilled to about 52° F. Two of the patients show symptoms only when exposed to the PVC fumes; the third was that way at first, but now has chronic shortness of breath (dyspnea) "and produces sputum."

What with one thing and another, the three Torrance doctors are highly suspicious of the PVC film. They don't know how widely the syndrome occurs, but suspect it is not rare. In fact, the manufacturer of the film—the same product was used by all

three patients—had had reports from several cities of respiratory problems associated with PVC film in meat wrapping operations. Thus alerted, the company had already completed a study of the matter. Management had PVC film pyrolyzed, determined the composition of the resulting gases, and concluded that they offered no hazard to meat wrappers. (The thought process that led to this conclusion must have been reasonably sophisticated, but the *JAMA* article gives no details.)

The three doctors were lulled by the fact that hydrochloric acid occurs naturally in the stomach. They note that it occurs also in the combustion products of PVC, is a bronchial irritant, and "could conceivably cause the patients' symptoms." Despite the uncertainty over causes, however, they are in no doubt about the syndrome. "... it seems advisable," they write, "to call this matter to general attention to gain some idea of its prevalence...."

OLI 7550

## Plastiscope 1

Society for Testing & Materials, as well as 26 suppliers.

The SPI's first official reaction was one of "shock." President Ralph Harding pointed out that SPI has an extensive and broadening commitment to improved flammability standards and test methods, including a program of close cooperation with the National Commission on Fire Prevention and Control—which has just concluded a two-year

study on fire safety. And he notes the irony of the timing of FTC's class-action proposal. It was issued barely a month after SPI revealed plans for a sweeping new research/analysis endeavor (in cooperation with the federal government and private agencies) that is intended to yield basic new information for developing standards and tests relevant to actual fire situations (June MP, p. 104).

## PVC's 'Perils of Pauline': environmental goblin is replaced by toxicity dragon

With sales of polyvinyl chloride all but going through the roof, resin producers and compounders aren't very much alarmed by a federal action that threatens to squash a five-year-long experiment in the use of molded PVC bottles for liquor. The action—a ban on such containers imposed by the Food & Drug Administration, pending determination of the potential effects of monomer migration into alcohol—was taken at almost the same moment that the PVC liquor bottle was about to receive unqualified approval from the Treasury Dept.'s Bureau of Alcohol, Tobacco and Firearms, based largely on a report that shows PVC to have a lesser environmental impact than glass (see p. 52).

The prevailing, but not unanimous, industry attitude is that if the liquor market is lost, it will relieve a little pressure from a supply situation that is already at the allocation stage. But this may be a dangerously short-sighted view. The kicker is that FDA requires proof of safety before permitting any "incidental additive" to show up in foods or beverages. Incredible as it seems, considering the interest by suppliers and distillers alike, no such data exist on monomer migration into alcohol, which is, of course, an active solvent. The FDA says it was not alerted to the potential problem until February of this year, when data were supplied by a distiller and other sources.

**What next?** The question that is now raised by many people (including a consultant with a long background in chemicals and plastics) is whether similar discoveries will be made that could damage PVC growth prospects for food and nonfood markets. The consultant points out, for example, that prior sanctions for PVC in food packaging are based on extractability data compiled from tests with four solvents: water, acetic acid, heptane, and ethanol. Thus, he says, there are a number of fatty or oil-based products now packaged in PVC whose status could be put in jeopardy on the same grounds as those that could wipe PVC out of the liquor market. So it may be that suppliers and users shouldn't be unduly lulled by FDA's statement, published in the *Federal Register* at the time of the liquor-in-PVC hold, that "there is no indication at this time that PVC resins in contact with nonalcoholic foods will result in migration of monomers."

The fact is that vinyl chloride—and other monomers, raw materials, and chemicals—are under intense scrutiny by the federal government. The aim is to establish, once and for all, solid and documented test data on which to base safe tolerance levels, whatever the exposure, and regardless of any economic impacts (see June MP, p. 55).

For perspective, it must be noted that while vinyl chloride is a deleterious substance, FDA concurs that there is no indication that the amount migrating into liquor is anything more than a harmless trace quantity. And several

resin suppliers report that tests conducted after the FDA's temporary ban are highly encouraging. Still, the fact that PVC has once again been put into question is bound to awaken second thoughts among some potential user companies. And consider this: An official of the federal Environmental Protection Agency confides to MODERN PLASTICS that if FDA had not issued its stop order on PVC liquor bottles, EPA was prepared to submit "new evidence" that substantial increase in the material for packaging applications would be harmful to the environment. So, regardless of what the industry does to prove the safety of PVC for liquor packaging, the issue still is a long way from being settled.

## RP poles market comes alive

Even though the national master plan calls for burial of electrical transmission lines, the demand for above-ground utility and lighting poles is growing at an estimated 25%/year. Coupled with continued adversity in the economics of timber products (recent attempts to cut wood prices notwithstanding), this factor establishes a new growth platform for reinforced plastic poles. The potential market is pegged—conservatively, say suppliers interested in it—at 91,000 metric tons (200 million lb.) annually.

The idea is not new, but it appears to be one whose time has come. The two leading U.S. manufacturers of RP poles report sharply rising demand this year among public-utility companies and private contractors. While the shortage in wood is the prime mover, the RP poles also are reportedly being selected over galvanized steel or aluminum structures on grounds of performance, light weight, installation economies, long service life, and ease of maintenance. Thus, although the plastic poles are initially more expensive than any of the alternatives, cost/performance is another story; one that is getting wider currency among prospective customers.

**Starting 'small.'** The ultimate aim is production of an RP pole that could replace the ubiquitous 40-ft. wooden powerline distribution pole. But such a pole is only in the early experimental stage in the U.S. The market that is opening wide is that for 16- to 23-ft. hollow-core lighting standards that accept top-mounted fixtures and are fed by buried power lines. It's not small potatoes. Such units are increasingly used to illuminate streets, shopping centers, and other residential and commercial complexes.

Among a number of firms in the business, the two largest are Whatley Inc., Denver, Colo., and Shakespeare Co., Columbia, S.C. Each has its own materials/processing approach to production of the tapering structures.

The pole made by Whatley is glass fiber-reinforced polyester, filament wound on automatic equipment de-