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INFORMAL REPORT

**PROJECT NO.: 328K10
DATE: June 12, 1973
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**POLY(VINYL CHLORIDE) RESINS: ANALYTICAL DETERMINATION OF RESIDUAL
VINYL CHLORIDE MONOMER IN "PVC" RESINS**

By use of a Standard Testing method, WC-326-G, developed in the Texas City Resins Laboratory by J. L. Hockersmith, a number of samples of poly(vinyl chloride) resins and 30 per cent solutions have been analyzed for residual vinyl chloride monomer by flame ionization gas chromatography.

The FDA has recently lifted the approval of the use of blow-molded bottles made from PVC as containers for alcoholic beverages (chiefly liquor), based on the reported observation of "leaching of up to 20 ppm of a chemical called vinyl chloride monomer from the plastic bottles into distilled spirits stored for one year."

Eight possible contaminants have been checked for retention times relative to the vinyl chloride peak with none giving any interference. When the vinyl chloride peak was small there appeared a shoulder on it which made it difficult to determine which peak was actually the vinyl chloride peak.

A word of caution as to the validity of these results should be given here. The results are listed as "apparent vinyl chloride monomer" values. The peak that is being measured is in the position on the gas chromatogram for vinyl chloride. However, this does not make certain that what we are calling vinyl chloride really is vinyl chloride. Such confirmation is virtually impossible in the concentration ranges with which we are working. At the present time, we are working on several approaches to making the vinyl chloride identification more certain and will report progress at a later time.

A table is attached giving the amounts of vinyl chloride monomer found in the samples analyzed. The bottom portion of the table lists the results for the resins in solution. For analysis of these solutions, no dilution was required; the samples were run as received. On the other hand, the solid resins were dissolved in tetrahydrofuran (1 part resin to 9 parts THF) before

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introduction into the gas chromatograph. Accordingly, results obtained from the gas chromatographic scans of the diluted samples must be augmented by the dilution factor. This has been done for the results reported.

Notebook Reference: 3-HTB-125-126-127-135



H. T. Bias

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APPARENT VCM CONTENT OF SELECTED PVC RESINS

<u>Resin Description</u>	<u>Approximate Age</u>	<u>Vinyl Chloride Monomer (ppm by weight)</u>
VYHH - B1 4860	1 year	25
VYHD - B-951	1 year	25
VMCH - B-649	1/2 year	25
VMCC - 202	1/2 year	25
VMCA - B1 1	3 months	25
B1 29	3 months	25
VYLF - B1 A570	1 year	44
VERR - B1 4	2 years	25
B1 15	3-4 months	33
VROH - B1 2	1 year	33
VYHD - 5/18/73-515 produc- tion	Fresh	25
VYHH - 5/18/73-515 Produc- tion	Fresh	33
VMCH - 5/18/73-515 Produc- tion	Fresh	43

Competitive Resins

FPC-470 - Lot 70498-E		9
FPC-454 - Lot 70419-U	New Sample	216
Geon 222 - Lot 1931	New Sample	476
ACVX - (France)	1 year	25
AXCM-3	6 months	93
Geon 222	1-2 years	50
Geon 427	1-2 years	73
Geon 443	1-2 years	44

Resins in Solution
(no dilution required
for analysis)

VYDS - B-532	1/23/73	7
VYDS - B-545	3/12/73	7
VYDS - B-555	4/23/73	2
VYDS - B-535	2/1/73	6
VYDS - 072 - 515 Produc- tion	5/18/73	6

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