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Mr. M. E. Eisenhour

Date

October 10, 1974

Texas City (515)

Originating Dept.

R/D

See Attached List

Subject

VCl Monomer in
Vinyl Solution Resins

Dear Merle:

In a recent letter, Russ Hanna discussed the interference observed from acetaldehyde in the VCl monomer analysis of polymer latexes containing vinyl chloride and vinyl acetate; this observation indicates a need to develop a modified method, particularly for use with systems in which the acetaldehyde is an interfering volatile material.

To put the data developed on the vinyl solution resins in proper perspective, the following should be considered:

1. In data reported on vinyl solution resins indicating <1.5 ppm of vinyl chloride no significant interference from acetaldehyde in the vinyl chloride peak was detected. Thus, these results are valid.
2. The question does remain in the recently reported high values of apparent VCl noted in recent samples of the VMCC resin. These are the only vinyl solution resin samples in which an apparent interference of acetaldehyde has been noted.

These observations lead to the following conclusions and suggestions:

1. It is unlikely that a single method will suffice for the determination of vinyl chloride monomer in PVC, vinyl solution resins and in polymer latexes, though this will be a goal of a revision of the method.
2. As you know, analysis of other retained blends of VMCC resin and of other vinyl solution resins is in progress at the Plant Laboratories. We suggest that this program be continued with the present method. The results, if they show >1.5 ppm of VCl, will establish if the acetaldehyde interference noted with the VMCC resin is an isolated case. Values showing <1.5 ppm are valid.

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Mr. M. E. Eishour
Page 2
October 10, 1974

3. Recent preliminary studies by Al Gabany of the samples of VMCC resin under question indicate that with a change of columns able to resolve the VCl and acetaldehyde peaks, no VCl monomer was detected in the VMCC samples, while a definite peak for acetaldehyde was observed.
4. Thus, the statement that no detectable VCl monomer (1.5 ppm lower level of detectability) is present in vinyl solution resins is still valid and the current method is technically sound when acetaldehyde interference is not present.

Obviously, a modification of the current method is required to provide quantitative definition of VCl monomer in the presence of acetaldehyde, to remove this complication from consideration.

An important objective of the revision of the present method and modified method will be to establish that the lower level of VCl detectability is 1.0 ppm (or less, if possible). This is necessary as the new FDA standard will indicate 1.0 ppm maximum VCl monomer in the food contacting surface. We anticipate no significant problem in reducing the level to 1.0 ppm.

If there are any questions regarding these comments, please feel free to contact me.

Regards,

J. John Brezinski
J. John Brezinski

JJB:pw

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