

INTER-OFFICE MEMO **TENNECO CHEMICALS, INC.**

TO	D. C. Lee	AT	Houston	DATE	July 8, 1968
FROM	J. C. Fisher	AT	Flemington	COPY TO	H. B. Carr M. G. Caine P. M. Reed G. I. Rozand M. W. Williams
SUBJECT	<u>Status of MVC Quality Program</u>				

Difficulties are currently being encountered maintaining a satisfactory resin plaque color level due to a reduction in the quality of vinyl chloride monomer. This has been the subject of investigative programs at both Tenneco Plastics and Tenneco Oxi-Chemicals' Texas facility.

Recent History

1. The color stability of our production resins is monitored via a light transmission test. Quality is reported as the absorbance of the resin being evaluated as a percent of a control resin. The control resin exhibits the maximum color development permitted after a specified heat history. The production resin being tested must not have a light absorbance value greater than 100% of the absorbance of the control resin.

Prior to April, 1968, Tenneco 315 resin (as a typical example) had light absorbance indexes in the 35-65% range. Starting in April, these values increased until by mid-May, 1968, they were in the 75-105% range. They now fall in the 80-110% range with the average about 90%.

2. A plant evaluation using Dow vinyl chloride monomer is currently in progress. The first resin produced with virgin Dow MVC and recovered Tenneco monomer showed an 83% absorbance index. Subsequent production with Dow virgin and mostly Dow recovered monomer dropped to a 61% absorbance. With Tenneco MVC now being fed back into the system, a current absorbance of 87% has been reported.
3. P. M. Reed has reported that recent gas chromatographic analyses of VCM light ends at the Pasadena plant show no change in light end composition from that of good shipments in the January, February, 1968 period. Initial work to determine heavy ends indicates that total heavy ends are probably less than 10 ppm.

4. In an attempt to identify possible problem areas at Pasadena, tank cars were identified which were loaded before and after changing of the caustic scrubber solution at Pasadena and also tank cars which were loaded from the VCM storage tanks versus a car of VCM which bypassed the storage tanks during loading. Neither of these differences led to an improvement in MVC quality. Bottle polymerizations were run at Flemington on VCM samples taken from the subject tank cars on arrival at Burlington. The light absorbance indexes of the bottle polymerized resins were adjusted to give an approximate comparison with production processed resins. The results are shown in Appendix A.
5. P. M. Reed has passed on reports of the deleterious effects of water in MVC on subsequent resin heat stability. This has been noted especially during extended MVC storage. Hydrolysis products of acetaldehyde and HCl were reported.
6. Tenneco Plastics has found, in the past, that the presence of water and HCl in monomer stored in steel tanks will lead to the formation of soluble iron salts which will affect heat stability.

Future Action

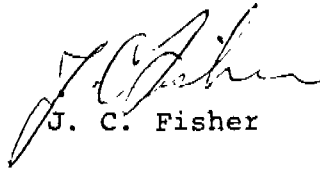
1. Tenneco Plastics will continue to monitor resin quality using Tenneco monomer as well as run comparative studies with MVC from other sources as they are received.
2. P. M. Reed will evaluate methods for in-process analysis of water in MVC at Pasadena. Tenneco Plastics will be notified of any promising instrumentation or techniques.
3. Tenneco Plastics will initiate a program to monitor incoming tank cars for the presence of free-water at the bottom sampling valve.
4. Tenneco Plastics will test representative MVC samples of tank car and storage monomer for the presence of trace water and aldehydes.

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5. The justification for corrective measures to prevent or remove water will be based on the results of the above studies.
6. The Pasadena plant should maintain an intensive program to ascertain other process variables which could be deleteriously affecting monomer quality. This should include a study for the presence of contaminants which could promote a hydrolysis reaction between vinyl chloride and water.


J. C. Fisher

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Att.

APPENDIX A

EFFECT OF PROCESS VARIABLES AT TEXAS PLANT ON MVC QUALITY

<u>Monomer Sample Identification</u>	<u>Date Sampled at Burlington</u>	<u>Resin Light Absorbance Index*</u>
NATX-38007; MVC control before caustic scrubber change	5/17/68	91%
NATX-38053; MVC processed after caustic scrubber change	5/17/68	91%
NATX-38015; MVC processed after caustic scrubber change	5/17/68	91%
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NATX-38037; MVC control from Pasadena storage tank	6/10/68	84%
NATX-38034; MVC bypassed storage tanks on loading	6/10/68	88%

*These values based on light absorbance of bottle polymerized resins adjusted to compare with production processed resin.