

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

TO W. Miringoff	AT Burlington	DATE June 27, 1975
FROM R.F. Fanter	AT Flemington	COPY TO
SUBJECT PROCESS ENGINEERING REPORT June, 1975		H.B. Carr W.C. Champion R.S. Cole Dr. L. Gross J.W. McBroom P.R. Scarito A.C. Siegel J.T. Sweeney J.J. Zullo P. Wilson L. Mederios J.W. Poarch Pilot Plant -Flemington ✓ File

In response to the problems encountered at CBS with Flemington produced 315, the entire month was devoted to studying the problem and running specials in the plant. A comparison of Burlington and Flemington produced materials showed several differences and these were evaluated in the Flemington plant by running the following specials:

Low R.V.

A four batch blend with an R.V. of 1.52 was desired. The specials run were:

1. The polymerization temperature was raised 2°F. on four consecutive batches, but the blend showed no change in R.V.
2. The polymerization temperature was raised 1°F. and 20 extra pounds of TCE was added to the charge. The R.V. was as desired (1.52) but the entire lot became contaminated as it went through the dryer.
3. The polymerization temperature was raised 1°F. and an additional 40 lbs. of TCE was added to the charge. This resulted in an R.V. of 1.52 and this material was sampled by CBS.

The table below summarizes the trials.

	Normal	1	2	3
Temperature °F.	157	159	158	158
LBS. TCE	114	114	134	154
R.V.	1.53-1.52	1.54	1.52	1.52

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EP0X01 9-5 Addition

Because Firestone resin has a better heat stability than 315, trials were run incorporating Epoxol 9-5 in the resin in an effort to improve its heat stability and thus hopefully its performance at CBS. Two methods of adding the Epoxol 9-5 were evaluated.

1. .75 pph of Epoxol 9-5 were added to a four batch blend of 315 and the material dried separately. The 400 lbs. of Epoxol were added by simply dumping bucketfuls of it through the blend tank manway.
2. After a checkout in the pilot plant, a batch incorporating .5 pph Epoxol 9-5 in the charge was made. The material was added to the water phase, after the gelatin and LPO, but before the manway was closed.

Samples from both trials were sent to CBS for evaluation.

A/B Mixed Gelatin

As a possible help in overcoming the CBS problem, a series of batches were made using a mixture of A/B type gelatin. This suspending system had been used previously for 315, but was discontinued in favor of a 100% type A system in 1974 due to supply difficulties. A single batch was made and when it checked out ok, three more batches were made and dried on top of the first. The lot was then sampled to CBS for evaluation.

All of the above samples were evaluated by CBS and deemed "not as good as normal Flemington material". In the meantime R. & D. had developed a "rower to Fusion" test that seemed to show variations in materials we had previously not been able to separate. Based on this new analytical tool, the following trials were made:

Burlington vs Flemington Water

CBS says Burlington and Flemington material do not perform the same! Based on this and the fact that it had been noted the demineralizer was probably not putting out "in-spec" water a series of batches were made at Flemington using Burlington water. The first shipments of water had to be discarded due to contamination from the transfer hoses and pump supplied by the trucking firm. The second series of batches was polymerized as planned, but one of the batches was made in a Reactor that had just been cleaned out after a set-up and it became contaminated with glass. This batch was blended with the others and the whole lot became contaminated. As of this date no decision has been made on repeating this test.

A Gelatin Trials:

Tests run on Flemington resin supplied through 80 mesh showed a lower "Power to Fusion". Also, tests showed the heat stabilizer content in compound is proportional to surface area. Based on these tests a number of agitation trials were run using an A/B gelatin mixture to determine if it was possible to develop an agitation system that would give a unimodal bead size. The combinations tried were:

RPM	88	100	102
Baffles	2	1&2	1&2

The data from these trials has not been completely analyzed yet, but preliminary results tend to show that a level increase in speed and number of baffles does not lead to a smaller and more consistent particle size.

Set-Up Batches

On Saturday, June 7, two batches of 315 set-up while running a Form #360-44, which use only A type gelatin. A thorough investigation into all the ingredients charged failed to show any positive reason for the set-up. Based on Process Engineering recommendation; the plant continued to charge 315 but with protective Colloid system composed of a 50/50 mixture of A/B type gelatin. Since the conversion to the A/B mixture there has been no more set-ups.

D.I. Water

Due to the set-up batches, a close look was taken at the Demineralized Water system. It was found that the Demineralizer normally supplies the plant with "out-of-spec." water (less than 1,000,000 ohms resistivity) in the range of 100,000 to 1,000,000 ohms resistivity. Based on this, a meeting was set up with Betz to review our water treatment program. As a result of the meeting, samples of our carbon and demineralizer beds were sent to Betz for analysis and Process Engineering will look at the entire water system in detail to determine if there is anything else that can be done to insure a good consistent water supply for Flemington.

R.F. Fanter (km)
R.F. Fanter

RFF:km

PROCESS ENGINEERING TIME SHEET

Name R. F. Fanter

From June 1, 1975 To June 30, 1975

Project	Account Number	Job Description	1st Week	2nd Week	3rd Week	4th Week	5th Week	Totals
		Flemington Plant						
		Support						168
Totals								168

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