

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

TO	W. Miringoff	AT	Burlington	DATE	August 29, 1975
FROM	R. F. Fanter	AT	Flemington	COPY TO	H. B. Carr W. C. Champion R. S. Cole R. R. Merkel J. W. Poarch G. I. Rozand P. R. Scarito A. C. Siegel J. T. Sweeney C. G. Thompson P. L. Wilson J. J. Zullo Pilot Plant P. E. Burlington ✓ File
SUBJECT	Flemington Process Engineering Report AUGUST, 1975				

The major areas of concern during August were the activities centering around two set-up batches of 315 and a series of LOP's for higher productivity. The plant was shut down August 4-10.

Set-Up Batches

The production plan for start-up after the maintenance shut down was 14 batches of 314 and then switch to 315. The 14 batches of 314 were all polymerized successfully and then the first batch of 315 set up. It was thought at first that the agitator had stopped, causing the set up but this idea was rejected when it became apparent that all the previous batches of 314 were coarse. Of the next six batches polymerized after the set up, three reacted to produce coarse resin, one produced BB's and two were shortstopped, one of which subsequently set up.

In an effort to counteract the coarseness trend, the gelatin level was increased and sodium bicarbonate was added. The effect of these changes was that the 100 mesh fraction was reduced and the fines increased but the large percent (20) of material on 60 mesh was not reduced. The system was pushed to the limit of 5 lbs. of bicarbonate and 50 lbs. of gelatin with no reduction in percent of material on 60 mesh. Based on the results of the sixth experimental batch, it was apparent that the coarseness trend had disappeared. Therefore, the plant was changed back to the original formulation (the one that produced the set up) and in spec material was produced.

In conjunction with the set-up batches, the following was done to determine the cause of the set-up:

- 1) The first four batches of 314 were made with pure monomer and so recovered monomer was discounted as the cause.

- 2) The deionized water was checked and found to be O.K.
- 3) VCM was used from two separate tanks and both gave the same results.
- 4) The lots of gelatin used were the same lots in use before the shut down to produce good material.
- 5) No TCE or VAM had been added to the storage tanks since the production of good material.
- 6) The pH of the charge water solution was in spec on all batches.
- 7) The slurry pH of the set-up batches was normal.
- 8) Chemical analysis of the VAM, VCM, TCE and recovered monomer showed no unusual properties or contaminants.
- 9) The weigh scale and water charge meter were checked and found to be O.K.

As a result of the set-ups, the following was learned and implemented:

- 1) The coarseness trend was probably not caused by a deficiency of the gelatin. The addition of bicarbonate reduced the 100 mesh agglomerates but not the 60 mesh material. Microscopic examination of the coarse resin showed the 60 mesh material to be large beads rather than agglomerates suggesting some other influence such as agitation or surface tension.
- 2) The present method of only checking lots does not permit a close control of the process. When lot results show a shift, there are already 10-15 batches in process (in reactors, strippers and blend tanks). We are attempting to develop a speedy accurate method for checking batch samples.
- 3) The addition of sodium bicarbonate prevents agglomeration but does not change the basic particle size.
- 4) A recorder has been installed on the deionized water conductivity meter.
- 5) Slurry pH's are now taken on every batch.

VPS Contamination

During loading of a 315 truck for CBS during the shutdown, large amounts of contamination were noted. Investigation showed the contamination to be coming from the VPS system. The entire system was opened up and inspected. The following was noted:

- 1) The bags in the VPS tanks weaken after 3-4 weeks service. Different materials of construction are being investigated.

- 2) The interior of the VPS tanks showed some black scale which was removed.
- 3) Some pieces of carbon steel were found in the air piping and were removed.
- 4) Some pieces of pipe were coated with what appeared to be soot! These pieces were replaced.

Upon reassembly, the system functioned contamination free.

VAM Odor

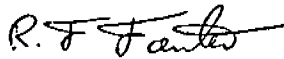
Several times during the month there was a noticeable odor of vinyl acetate in the plant area. A preliminary investigation showed that the odor is probably coming from the effluent plant ponds which in turn are getting the vinyl acetate from the water drained out of the storage tank in the recovery area.

Silo Condensation

An investigation is underway into the cause of silo condensation. The first area of concern will be what % of the moisture comes from the resin and what % comes from the air.

Other Projects

- 1) The deionized water tanks were steamed out during the shutdown but rechecks show the bacteria to be still present. More tests will be run to pinpoint the source of contamination.
- 2) The plant is considering cooling all pneumatic transfer air to 135°F. It was determined that this would not cause condensation in the system. The relief valves in the system are set at 15 psig.
- 3) We assisted the Pilot Plant in obtaining samples of all chemicals used in the plant.
- 4) For additional projects, see Ray Donovan's report.


R. F. Fanter

RFF:ms

a R. F. FANTER

From AUG 1, 1975 To AUG 31, 1975

Project	Account Number	Job Description	1st Week	2nd Week	3rd Week	4th Week	5th Week	Totals
		Flemington Plant	8	40	40	40	40	168
		Support						
Totals								168

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