

TENNECO CHEMICALS, INC.

TO W. Miringoff AT Burlington DATE March 3, 1945

FROM J.W. Poarch AT Burlington COPY TO H.B. Carr
W.C. Champion
W.F. Cabel
Dr. R.T. Gottesman
Dr. L. Gross
Dr. P.A. Lobo
R.S. Miller
Dr. M. Rosen
G.I. Rozand
P.R. Scarito
A.C. Siegel
J.T. Sweeney
C.G. Thompson
T.T. Zuhl
J.J. Zullo
P.E. - Burlington
Pilot Plant - Flemington
File

SUBJECT PROCESS ENGINEERING MONTHLY REPORT
February, 1945

I. BURLINGTONA. Dispersion Resin1. Stripping Trials (L.A. Schappel & Pilot Plant Group)

The new higher pumping rate, low shear agitator was installed on No. 4 stripper, and set at a speed of 20 RPM for the initial trials. Four product types were tested with this modification, using varying amounts of nitrogen sparge over time periods up to nine hours. A total of 14 experiments have been run to date. Early experiments with low nitrogen sparge rates indicated little benefit with the new agitator. Higher sparge rates (25 cfm) are expected to show much better VCM removal with the higher speed agitator. As of this writing, these results are not complete. Attached, graphs I and II, illustrate the progress to date. New agitated results are highlighted with bold lines. Further increase in this agitator speed to 45 rpm, has been requested. Evaluations of this higher speed will take place in early March.

A four batch lot of 1730 was being run in "B" plant at the end of this month, where a nitrogen sparge rate of 25 scfm was maintained with full vacuum using the new agitator at 20 rpm. Stop problems were encountered, and the lot was blended with regular production. A repeat of this test will be scheduled.

2. Foam Resins, NPI 1042 & 1043 (L. Schappell)

The above NPI's were run to produce type 1750 and 1756 foam resins, respectively, on special request, by sales. Monitoring of the additive resin system, once again, showed poor control of pallet to pallet weights of AR903.

Page two

Latex samples were also analyzed for VCM. The averages are as follows:

<u>TYPE</u>	<u>NO OF TESTS</u>	<u>PPM, VCM</u>
1750	4	11,000
1755	4	11,600

3. VCM Decay in Dispersion Resins (R. Donovan)

Two pallets of resin 1750, 1756, 1755, 1757 and 0565 are being sampled daily and analyzed for VCM content. Present data shows a rapid initial decay, occurring during the first two (2) days, with a subsequent gradual decay. VCM content after five days in the warehouse has decreased to the 10 PPM level for most resin types, with assurance that all resins will be below the 10 PPM level after seven days. Attached is a graph showing the decay rates for the various resins sampled.

4. Process Control, Dispersion Process (R. Donovan)

Three parameters of process control were monitored to gain insight into reasons for rheology variations.

a. Water to monomer ratio, "B" Plant

<u>Resin Type</u>	<u>Observed water to monomer ratio</u>		<u>Formulation</u>
	<u>Average</u>	<u>Range</u>	<u>Target</u>
0565	1.0465	1.0377 to 1.0546	1.092
1757	1.076	1.070 to 1.0878	1.063
1730	1.084	1.075 to 1.090	1.075

The range of approximately 2% for each formulation appears reasonable; however, the average for 0565 is significantly lower than formulation target.

b. ΔP Control

Control charts are being prepared for both "A" and "B" plant. To date, ΔP consistency appears better in "A" plant than in "B" plant. The significance of the variability, which exists is not completely understood, at this time.

c. Emulsifier Weights

Based on weight scale readings, the emulsifier changes are within 5 pounds of the required formulations, which appears to be reasonable control.

The above areas are all being investigated, relative to the Task Force requirements. The significance, or lack thereof, will be evaluated by the group, and reported separately.

B. Suspension

1. Foam Blend Resin BR-505 (L. Schappell)

Slurry and drier samples of BR-505 produced on 1/28 were taken and analyzed for VCM content. The results are below:

<u>SAMPLE</u>	<u>PPM,VCM</u>
Slurry, B-348	14.57
Drier, 1030 hr., 595002	4.28
Drier, 1230 hr., 595002	14.95
Drier, 1430 hr., 595002	15.42
Drier, 1630 hr., 595002	2.35

2. Copolymer Production in the PVC Plant-LOP 1045-1 (L. Medeiros)

Five batches of T/315 were charged in R-10 and R-11 in Plant 3. All batches utilized a 1.56 W/M ratio and 125°F change temperature. Three batches charged via C-3360-140 incorporated a 25% increase in gelatin (44 lbs.). The latter two were charged via C-3360-141 with a 37% increase in gelatin (48 lbs.).

No problems in kinetics or suspension stability were encountered. The monomer from these batches was charged mixed from the copolymer plant weight scale. Particle size distribution was, as follows:

Lot:	615017	615018	615019	
Formulation	3360-140	Control	3360-141	(B-550)
P S + 60	3	1-4	tr	2
+80	21	17-29	3	8
+100	38	40-51	13	69
+140	71	73-80	54	82
+200	92	90-95	85	98
Thru	8	5-10	15	2
Gelatin "A", lbs.	44	33	48	

Higher gelatin levels appear to be required for running in the PVC plant.

C. General

1. Vent Condenser Blow-Off (L. Schappell)

Daily monitoring of the gas being discharged to the atmosphere through the vent condenser shows roughly 470#/day of VCM exhausted during the month of February. This result is based on a 26.0% VCM content in the vented gas. Compared to January figures, which show 220#/day discharged, the amount of VCM has more than doubled. The increase is due, in part, to various stripping conditions, resulting in greater residual VCM removal, being evaluated in the plant.

Page four

II. FLEMINGTON (M.S. Wilkenfeld)

- A. Waste Treatment - Roy Elam is being contacted to advise him that we are ready for mechanical tie-in to the RTMUA manhole.
- B. VCM in Waste Water - A quotation has been received from ARCAS covering a VCM in water analyser.
- C. Centrifuge Modifications - The spare centrifuge conveyor has been returned to Bird Machine for modifications. The first two attempts by Bird were done improperly. Lou Iszak will check the construction to be certain it is correct this time. When the conveyor is returned "A" side drying system can be converted for fopolymer production.
- D. AOP's - All AOP's, with the exception of waste treatment, have been written in collaboration with Bill Bord. The waste treatment AOP's are being prepared.
- E. Field Checking - A constant check is being made as field work progresses. Compliance with flow sheets and process requirements are under daily review. A punch list is being developed.

III. PASSADENA START UP

L. Medeiros and J. Poarch assisted with the Pasadena start-up. Along with general trouble-shooting activities, the following were accomplished:

A. VCM Removal Unit ---A complete examination of the VCM removable unit (carbon adsorption system) showed the need for several minor revisions needed prior to start-up.

1. The K355 feed gas blower control action was modified from manual to automatic, by using the signal from the slurry tank pressure switch to start the blower when the pressure relief valve opens and stop the blower when the relief valve closes. This modification prevents the slurry tank pressure relief from being dead-headed against the adsorption system if an operator neglected to start the K355 blower.
2. Another cycle was added to allow the regeneration gas heater, an electrical heater, to cool prior to switching the gas to the cooling cycle. An electrical modification was also made, to prevent the heater from staying on if the K356 regeneration gas blower failed, or stopped during the heating cycle.
3. Prior to our departure, the unit was placed on stream with the slurry tank vent and inert vent condenser.

B. Reflux Condensers

It was noted, during the first few batches, that the reflux condensers

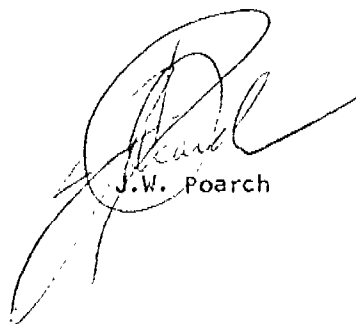
Page five

were not carrying their expected share of the heat load. A study revealed that there was insufficient head on the condensate return to overcome the pressure drop on the vapor header; hence, the condensers were flooding. A prototype design was sketched and installed on reactor no. 1, which gave the desired results—the condenser worked according to design. Following this, a permanent design was fabricated with all the necessary valves on reactor no. 3. All reactors were to be so modified.

IV. General

- A. The services of R. Donovan, Process Engineer, from the Organics Process Group, have been utilized for the entire month.
- B. The pilot plant group has given their full services to the Burlington Process Engineering effort during the month.

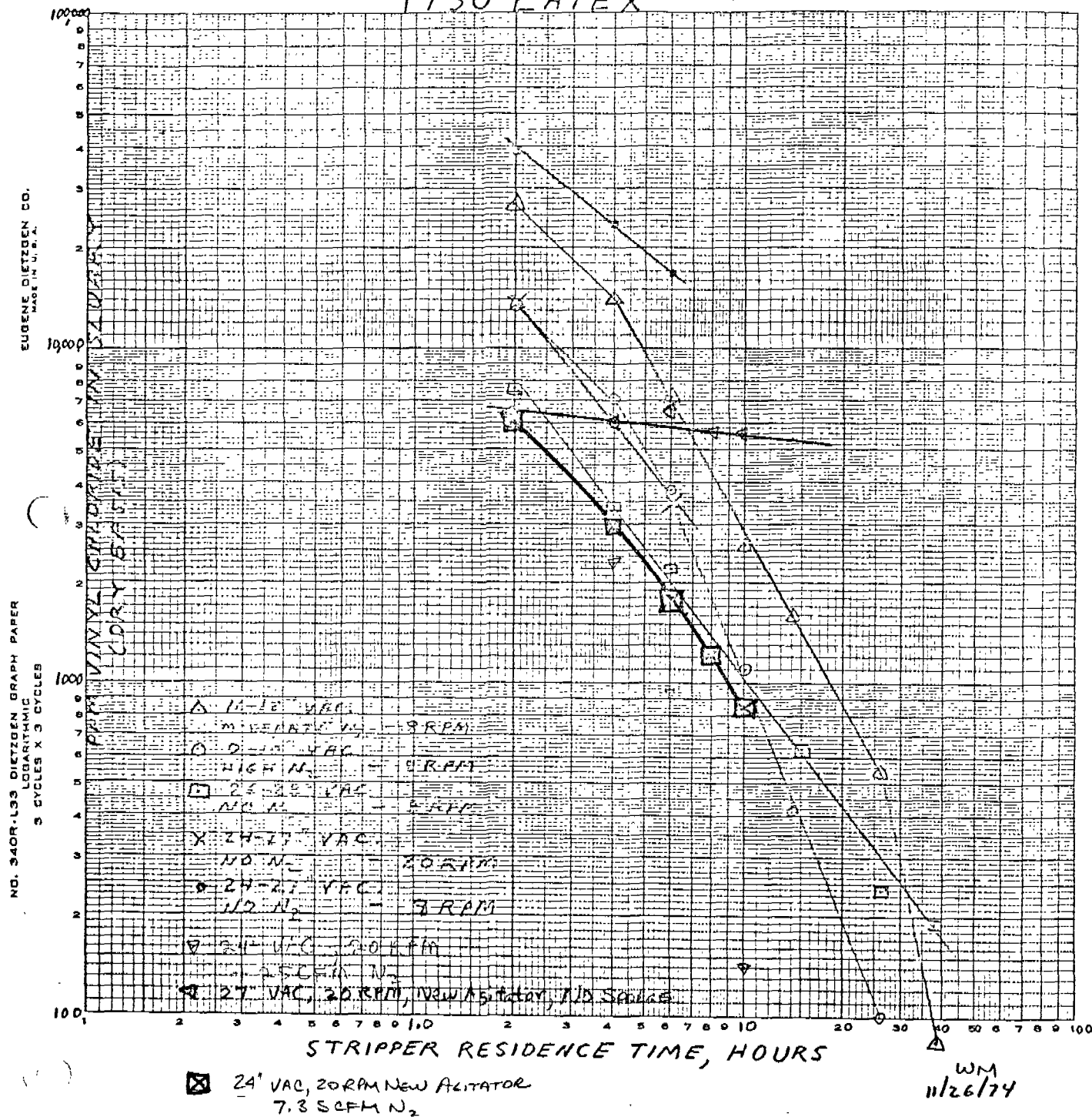
JWP:mm



J.W. Poarch

GRAPH I

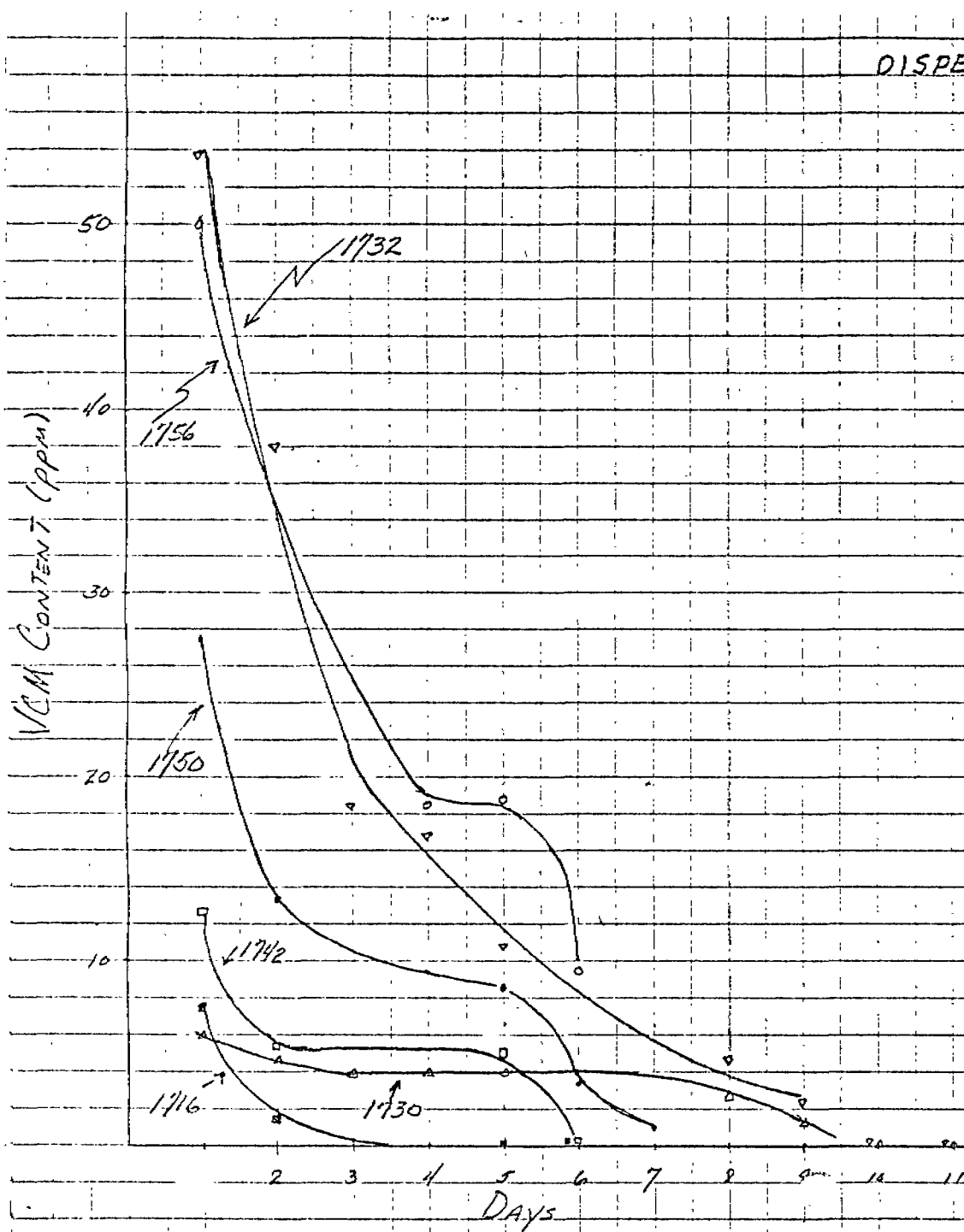
1730 LATEX



DISPERSION RESINS VCM DECAY

2/21/75

- RESIN 1750
- RESIN 1756
- △ RESIN 1730
- ▽ RESIN 1732
- RESIN 1742
- RESIN 1716



13

I.W. Poarch

FROM Feb. 1

TO Feb. 28, 1975

TENNECO INTERMEDIATES DIVISION ENGINEERING TIME DISTRIBUTION - MONTHLY (SALARY)

PROJECT NUMBER	ACCOUNT NUMBER	JOB DESCRIPTION	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
09922-0391		Passadena Start-Up								128
DEI-377		VCM Reduction								56
		Burlington Plant Support								16
		Holiday								8
TOTALS										208

ENG. FORM #29

COLORITE 010928

17.

FROM

Feb. 1, 1975

TO

Feb. 28, 1975

TEMNECO INTERMEDIATES DIVISIONENGINEERING TIME DISTRIBUTION - MONTHLY (SALARY)

PROJECT NUMBER	ACCOUNT NUMBER	JOB DESCRIPTION	SUN	MON	TUE	WED	THU	FRI	SAT	TOTAL
		MVC Reduction-Dispersion Latexes		18	23	23	25	18		107
		Foam Resins-Bagging & Sampling		2		4	4	6		16
		NPI 1042, 1043								
		LOP 1045, 315 in R-10 & R-11			8	4	2			14
		Recovered, MVC - Material						7		7
		Holiday		8						
		Study BMT charging & Homogenizations		4	1	1	1	1		8
TOTALS				32	32	32	32	32		160

ENG. FORM #29

TOTALS

32

32

32

32

32

160

COLORITE 010930

