

APR 2 1974

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FROM Dr. R. T. Gottesman AT Piscataway COPY TO
SUBJECT MONTHLY SUMMARY - MARCH 1974

Attached are copies of the Monthly Summary reports for March 1974 covering the activities of the Piscataway laboratories and associated pilot plants at Piscataway and Flemington.

R. T. Gottesman
R. T. Gottesman

RTG/ec

Attachments

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TENNECO CHEMICALS, INC.

TO Dr. R. T. Gottesman
 FROM Dr. F. J. Buono
 SUBJECT MONTHLY SUMMARY - MARCH 1974

AT Piscataway
 AT Piscataway

DATE March 29, 1974

COPY TO

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I. COATINGS INDUSTRY**A. Microbiocides**

1. Biocide and Compatibility Screening (E. DiBella, P. Minieri, H. Sidi, G. A. Trautenberg, G. Tirpak, G. M. Kagan, M. Landau)

(a) TOP Candidates

Biocide screening was completed on fifty-nine TOP candidates. The following ten were active and are undergoing paint compatibility (8-10) or can preservative evaluations (1-7):

- (1) Pentahydroxymethyl trimethylol aminomethane
- (2) Hexahydroxymethyl trimethylol aminomethane
- (3) Oxazolidine "A" buffered diethylene glycol di-hemiformal
- (4) Oxazolidine "E" buffered diethylene glycol di-hemiformal
- (5) Oxazolidine "T" buffered diethylene glycol di-hemiformal
- (6) Oxazolidine "T" acetate
- (7) N-Propyl carbamoyl oxazolidine "T"
- (8) 1,4-Bis-2-hydroxymethyl-2-nitro-n-butyl piperazine
- (9) N-(0-chlorobenzyl)maleimide
- (10) N-(4-Methylbenzyl)maleimide

*

Three month aging studies have been completed on the four amino alcohol/formaldehyde condensate can preservative candidates. No incompatibility or loss of efficacy was observed in either interior or exterior PVA and acrylic paints, or in the presence of commonly used latex fungicides (Skane M-8 and Dowicil S-13). The ability to chemically characterize (with a high degree of accuracy and reproducibility) the two tri-methylolamino methane derivatives (TID 2874, trihydroxymethyl trimethylolamino methane; and TID 2875, tetrahydroxymethyl trimethylolamino methane) dictates that these are the candidate can preservative(s) for EPA registration. Therefore, long term product stability and efficacy studies (per current EPA requirements) have been initiated.

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MONTHLY SUMMARY - MARCH 1974

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(a) TOP Candidates (continued)

Paint compatibility evaluations have been completed on nine fungicide candidates. Two maleimide derivatives, N-(2,6-dichloro)phenyl maleimide and N-(2-ethyl)phenyl maleimide, showed acceptable paint compatibility and have been test fence exposed.

* Preliminary results (two weeks aging) in the paint compatibility studies on the crystallized powder and two liquid formulations (50% active in ethylbenzene, 70% active in dimethyl formamide) of the prime fungicide candidate, N-(2,6-diethyl phenyl)maleimide have shown the following:

- (1) Unacceptable color development in the ethylbenzene formulation in acrylic paint.
- (2) Acceptable responses with the powder and the dimethyl formamide formulation in PVA at all test levels (0.5, 1.0, and 1.5%).
- (3) Viscosity increases and pH decreases with both the powder and dimethyl formamide formulation in aged acrylic paint at 1.0 and 1.5%. Room temperature stored paints were acceptable.

Extended paint compatibility evaluations with the powder and dimethyl formamide formulation in a variety of latex and oil-based paints are scheduled.

* After seven months' exposure in Puerto Rico, the prime fungicide candidate continues to show performance comparable to Super Ad-It. Panels for the annual comparative test fence exposure of commercial fungicides are being prepared for April exposure at Piscataway.

(b) Pasadena Laboratory Candidates

Six candidates submitted by the Pasadena Laboratory underwent primary biocide screening. All six candidates showed unacceptable efficacy or compatibility.

(c) Southern Research Institute Candidates

Seven triazenoimidazole esters obtained from the Southern Research Institute via the National Cancer Institute were screened for biocidal activity in paint. Five candidates showed excellent antimicrobial activity, but severely discolored the test paints.

2. Competitive Products (G. A. Trautenberg, G. Tirpak)

Milidin TI-10 from Keil Chemical Company showed good biocidal activity but severely discolored the test paints. Biosperse 219 (Drew Chemical Corporation) showed good fungicidal activity in PVA paint, poor bactericidal activity and a complete lack of fungicidal activity in acrylic paint.

II. LUBRICANTS

* A. Crankcase Lubricant (M. Knapp, R. Smith)

A third crankcase oil candidate was submitted to Southwest Research Institute for L-38 engine testing. This candidate, R-535, utilized the Oronite XA-4235 additive package plus additional copper corrosion additives. It was formulated to improve on the performance of the Oronite additive package alone (tested as R-509).

L-38 ENGINE TEST RESULTS (40 HOURS)

	<u>"SE" Requirement</u>	<u>R-535</u>
Bearing Weight Loss, mg	40 maximum	65
Sludge and Varnish	No requirement, 60 = clean	59.5

These data are essentially equivalent to the results obtained on R-509 in spite of the fact that the results of our FL-10 test indicated the R-535 to be significantly improved. However, on close examination of the L-38 bearings, it appears that a different type of corrosion may have taken place, possibly lead corrosion. Additives to correct this will be evaluated in the FL-10 test (which will be modified to check lead corrosion).

Chevron has submitted three additional candidates for our evaluation. They are formulated for improved performance in L-38 and are balanced for either the VC, IIC, or IIIC tests. On completion of our tests, the best candidate will be submitted for L-38 tests.

B. Two Cycle Engine Lubricants (M. Knapp, R. Smith)

The CAR for this project has been approved and purchase orders for the required equipment submitted.

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C. Compressor Lubricants (M. Knapp)

Using the ASTM D1401 demulsibility test, seven silicone and fluoro-silicone fluids (alone and as blends) available in the laboratory were screened as sight glass fluids using our current fluid as a control. None of the tested fluids showed any improvement over the control. Additional samples are being solicited from suppliers.

Twenty formulation blends were evaluated in a modified FL-8 test for oxidation stability. One formulation, employing N-phenyl-beta-naphthylamine, showed slight advantages and will be evaluated further. Additive level variations will also be tested.

D. Evaluation of C-18 Polypropylene Oil (M. Knapp)

A sample of C-18 polypropylene fluid was evaluated as a lubricant base fluid and found to offer no advantages over our current base oils. It had extremely poor oxidation stability, high evaporation, and a low flash point.

F. J. Buono
F. J. Buono

FJB/amp

COLORITE 011661

I ER-OFFICE MEMO **TENNECO CHEMICALS, INC.**

TO Dr. R. T. Gottesman AT Piscataway DATE March 28, 1974
 FROM Dr. A. J. Deinet AT Piscataway COPY TO
 SUBJECT MONTHLY SUMMARY - MARCH 1974

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I. CHEMICALS/SPECIALTIESA. Fuel Oil Additives (A. Fischer)

* Raw material shortages (manganese sulfate and n-hexanoic acid) necessitated revisions in our approaches to a manganese 12% fuel oil additive. Laboratory preparations have indicated that the substitution of n-hexanoic acid by n-heptanoic acid (readily available) in our previous formulation which utilized a mixture of n-hexanoic, 2-ethyl hexoic and neodecanoic acids yields a product meeting the specifications required by Apollo Chemical. The shortage of manganese sulfate required for this product can be met by converting the readily available carbonate to an aqueous sulfate solution by means of sulfuric acid. The direct utility of this in our manganese 12% process is now being finalized.

The n-hexanoic acid shortage effects our copper 12% product and therefore the substitution by n-heptanoic acid in this product is also being investigated.

Initial work on an yttrium soap for United Aircraft indicated that a naphthenate of 6% metal content can be achieved directly from yttrium carbonate. Although of high viscosity, it appears that the use of small quantities of dibutyl tartrate will yield an acceptable viscosity. Work on a preparative procedure is expected to be completed shortly. Yttrium octoate was found to be too insoluble for further consideration.

II. PLASTICS INDUSTRYA. Additives* 1. Tin Stabilizers (S. Hoch, M. Spalding)

Storage data to date (3 weeks) on V-1562 derived from an Alfol 610 thioglycolate ester indicates good storage stability when prepared under correct stoichiometric ratios. A V-1528 type based on such material and containing 5% "TRIS" has equivalent functionality to a standard V-1528. A laboratory process proposal will be issued upon satisfactory completion of storage tests.

Additional laboratory runs towards our T-136 match confirmed the feasibility of preparing bis(monobutyltin diisooctylthioglycolate) disulfide from butyltin trichloride, isooctylthioglycolate and sodium sulfhydrate. The use of butyl stannic acid and hydrochloric acid was found to be an unsatisfactory substitute for butyltin trichloride. Substantial quantities of both the disulfide and sulfide are to be prepared for more extensive evaluations at Flemington.

A previously submitted sample of dibutyltin dineodecanoate was found acceptable by Armstrong Cork and an additional 5 gallons has been prepared for their further evaluation. A laboratory process proposal for its preparation has been issued.

Further samples of dimethyltin diisooctylthioglycolate have been prepared from Argus dimethyltin dichloride. Neutralization with caustic soda is preferred over soda ash since it avoids the emulsion problems found with the latter during reaction of the dichloride with isooctylthioglycolate. Evaluations at Flemington with various levels of added butyl "TRIS" content indicated a 15% level to yield a product readily matching TM-181-S in performance.

*

2. Liquid Stabilizers (S. Hoch, R. Lally)

Attempts to prepare a match to Lubrizol 2106 (a barium nonylphenate stabilizer) continued. Samples representing:

Barium nonylphenate - tallate - carbonate
Barium nonylphenate - neodecanoate - carbonate
Barium nonylphenate - alfol 610 - carbonate
Barium nonylphenate - oleyl - carbonate

were prepared, but showed poorer plate-out resistance than Lubrizol 2106 when compounded in V-1399 and V-1413. Other variations to reduce plate-out will be prepared.

3. Powder Stabilizers (S. Hoch, R. Lally)

Samples of the zinc, barium and cadmium salts of p-t-butyl benzoic acid and nonanoic acid were heat-treated to reduce volatility and submitted to Flemington for use in formulating a match to Ferro 5921A. Tests to date have shown excessive fogging characteristics, which on IR identification of the sublimates, were shown to be due to the use of Ionol, monopentaerythritol and cadmium-p-t-butyl benzoate in the compounding. Reformulation to circumvent the use of these components is underway.

*

4. Flame-Retardants (E. DiBella, H. Gould, H. Sidi, G. Kagan)

Five of the twenty candidates evaluated in flexible polyurethane foams showed self-extinguishment. These were:

PVC + Sb₂O₃ + Kadox-15 ("French process" ZnO)
PVC + Sb₂O₃ + Photox-169 ("French process" ZnO)
Bis-(1,3-dichloropropyl)tribromoneopentyl phosphate
Bis-(chlorovinyl)tris-(tribromoneopentyl)antimonate
N-Phenyl bis-(tribromoneopentyl)phosphoramidate

The first two were shown by Foam & Plastics to present processing difficulties. The third compound has also been forwarded to them for further evaluation. Further work is planned on the last two.

Of nine materials evaluated in rigid polyurethane foams, self-extinguishment was shown by NUOGARD 23-P, diphenyl dichloropropyl phosphate (DPDCP), Fyrol-2 and Butler's tris-(2,3-dibromopropyl) thionophosphate. The latter was effective in all three foam formulations utilized, while the remainder lacked broad range effectiveness (flame-retardant in only one of three formulations). The Butler material suffers from a strong thio-odor and exhibits internal scorch as does our T-2,3-P. Its evaluation in other areas indicated foam collapse in flexible polyurethane formulations (due to immediate reactivity with water), lack of self-extinguishment on wood and a high loading requirement on paper which imparted a wet feel and a strong odor.

Evaluation of the two "French Process" zinc oxides in PVC sheets indicated no synergism and excessive discoloration.

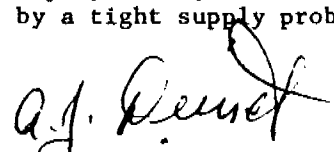
Hexabromobutene-2 (HBB-2) has demonstrated potential utility in architectural coatings and in flame-retardant boxboard coatings. No further work is planned for the former because of the limited market, while market potential for the latter utility will be pursued with Packing Corporation of America.

A total of 19 new candidates were synthesized and submitted for evaluation.

III. COATINGS INDUSTRY

A. Driers (S. Hoch, G. Kagan)

A sample of Vertex Cobalt Fines was shown to be suitable for use in the DMR cobalt process. Reactivity was high, yield was normal (96%) and the resultant NuXtra Cobalt 12% gave normal polyester gel times. Alternate cobalt sources are necessitated by a tight supply problem.


A. J. Deinet

AJD/ec

INTER-OFFICE MEMO

TENNECO CHEMICALS, INC.

TO Dr. R. T. Gottesman
 FROM Mr. I. Huppert
 SUBJECT MONTHLY SUMMARY - CHEMICAL DEVELOPMENT
MARCH 1974

At Piscataway

DATE March 27, 1974

At Piscataway

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I. Organics**A. Phosphates****1. TOF (J. DeGaetano, L. Schinas)**

FMC - Pilot Plant scale evaluation of TOF (R-526) at Princeton, showed this material to be acceptable in their peroxide application. R-526 was obtained by washing Fords plasticizer grade TOF (Lot #74001) with dilute H_3PO_4 and vacuum drying. The acid number of this preparation was 0.97 and had an interfacial tension (IFT) of 16.88 dynes/cm. Subsequent treatment through an alumina column yielded R-527 (1 pass acid no. 0.63) and R-528 (2 passes; acid no. 0.47). FMC (R & D) will now evaluate the more extensively treated R-528 in the same application, and based on these results, make recommendations to their production people for upward revision of the acid number specification which is presently 0.20 maximum.

Because of the availability problems in the supply of 2-ethylhexanol (2-EH) and other alcohols, the preparation of TOF types by the standard procedure using a) 59:50 mole ratio of 2-EH: Alfol 610, b) 20:60:20 mole ratio of n-hexanol: 2-EH: isodecanol, and c) 67:33 mole ratio of n-hexanol: tridecanol, was undertaken. Significant yield losses (maximum yield - 76% on $POCl_3$ compared to 91% for TOF) and, or, processing difficulties were encountered in all cases. Weight losses were markedly obvious during the final water wash. Attempts will be made to determine the reason for the low yields before abandoning this approach.

B. Parahydroxy Benzoic Acid (I. H. Cooper)

One more Pilot Plant batches of p-hydroxybenzoic acid has been completed through the isomerization stage and worked up in the laboratory:

Run No.	% Para Acid By Assay	% Yield As Is	% Yield (Assay Corrected)	% Yield Based on Consumed Phenol
74-7	99.17	60.1	59.6	76.0

COLORITE 011665

The reactor was sealed after the second phenol addition step to prevent losses of phenol overhead during heat-up for carboxylation. This resulted in the best assay - corrected yield to date, based on phenol consumed. This program is continuing on a high priority basis in both the Pilot Plant and Process Development Laboratory.

C. Fuel Oil Additives (M. Q. Ceprini)

Union Carbide has decided to cease manufacture of n-hexanoic acid which is used in the manufacture of NUODEX CHROMIUM 7-X. A substitute acid replacement program was undertaken. Two modified formulations were developed where the n-hexanoic acid was replaced by n-heptanoic or n-pentanoic acids on a mole for mole basis. Results showed that substituting either of these acids will not increase the manufacturing cost and will still maintain United Aircraft's specifications of metal content, viscosity and sodium and potassium levels. Recommendations to this effect have been made to Manufacturing and Purchasing.

D. Nuosperse HOH (D. Goodman, G. Cohen, R. Caruso, G. Kagan)

The Garfield Plant start-up was successfully completed. Two additional batches were produced under R & D supervision. The processing proceeded uneventfully and salable, brilliant, functional, stable, filtered product was obtained. Subsequent production has achieved Pilot Plant yields of 19,000 lbs. per batch.

The initial four batches cannot be sold because of particulate contamination. Investigative work is underway in the Piscataway Pilot Plant to determine a plant feasible method of recovering these batches. Initial attempts will be by filtration techniques.

E. Foamacure 142 (L. Schinasi, G. Kagan)

In an attempt to produce storage stable product two new laboratory processes were developing using an Eppenbach mixer for shear effect and agitation. The two processes are identical except that, in one case NUOSPERSE HOH was added before the heat-up cycle, and in the second case, it was added after heat-up and cooling. Addition of HOH before heat-up gave a more fluid and less milky dispersion. Both preparations have shown stability at 120°F for three weeks to date, with initial functional acceptability. Stability and functionality tests are continuing. The use of an in-line "Eppenbach" will be recommended for plant trial; this equipment is available on a rental basis.

F. Benzoic Acid1. Wiped Film Distillation (S. Cinco)

Wiped film evaporator distillations of benzoic acid still bottoms (Benzotar) obtained from the Garfield Plant benzoic acid facility were investigated as to the feasibility of recovering benzoic acid values. It was projected that these values (benzoic acid and anhydride, and benzyl benzoate) could be recycled to the initial reaction site where any necessary hydrolysis and oxidation would occur eventually leading to an increased production of benzoic acid. Wiped-film runs at different temperatures and feed rates showed this approach not to be feasible due to the difficult separation of volatile components in the Benzotar.

2. Soluble Cobalt Catalyst (J. DeGaetano)

The use of a soluble cobalt catalyst at 13.7% metal, was further evaluated. Obtained by removing the lower boiling components of mineral spirits from NuXtra Cobalt 12%, the 13.7% cobalt solution was introduced (at ten times the normal level) into a typical benzoic oxidation mixture and distilled according to plant procedure. The benzaldehyde so obtained was analyzed for mineral spirits by G.C. at Piscataway and for odor and bisulfite reaction at Garfield. Bisulfite and odor tests failed, while G.C. results could not reveal the presence of mineral spirits components. These results eliminate the use of a mineral spirit containing soluble oxidation catalyst in our process which manufactures benzaldehyde as a by-product. No further work will be done at this time.

II. POLYMERSA. Plasticizers1. Nipro Overhead Stream (O. Fuchs)

A sample of a Nipro Overhead Stream (74-G-18) was found to contain 60% alcohols (n-pentanol, n-butanol and cyclopentanol) along with 10% water and 21% cyclohexanone. This material was converted to a phthalate and a benzoate. The phthalate ester, with a Gardner color greater than 11 and no economic advantage over DOP is unsuitable for plasticizer use. The benzoate which was a canary yellow color was sent for functional evaluation as a possible extender or substitute for Nuoplaz 1537.

B. Tin Compounds - Self-Manufacture1. Disproportionation Approach (O. Fuchs)

Vacuum fractional distillation improved commercial Bu₄Su assay from 70 to 92.6%. Subsequent redistillation gave 11.4% of "pure"

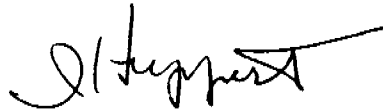
Bu₄Sn while 80.4% of the charge showed essentially no change in purity (91.8%). The "pure" Bu₄Sn on reacting with SnCl₄ was converted to Bu₂SnCl₂ and subsequently to Bu₂SnO with and without prior flash distillation weight. Yields in both steps were in the 95+% region. Analytical data is presently being obtained.

2. Direct Method (L. Schinasi)

Initial work on the conversion of BuI to Bu₂SnI₂ using magnesium shavings and 2-ethoxyethanol at 130-140°C gave a 73% yield of product with a purity of 92.8%. Additional work on catalyst systems will be done, as disclosed in the Nitto patent. Emphasis will be on the use of BuCl.

C. Cal/Ink Vehicles (R. Caruso, J. DeGaetano)

* Two Pilot Plant batches of Uni-Cal Vehicle were prepared and found to be functionally acceptable by Cal/Ink Division. This completes work on the Uni-Cal Vehicle at TOP R & D. Reconfirmation of the General Purpose Dispersion Vehicle process is in progress in the Pilot Plant.



I. Huppert

IH/sgf

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

TO Dr. R. T. Gottesman AT Piscataway DATE March 27, 1974
FROM Mr. H. R. Johnson AT Piscataway COPY TO
SUBJECT MONTHLY SUMMARY - MARCH 1974
ANALYTICAL SERVICES

METHODS DEVELOPMENT (N. Eider, N. Conzo P. Manzo, D. Tylicke)

1. The following analytical procedures have been written:

M-000.88 - Aliphatic Methyl Ketones: Bisulfite Test
M-000.89 - Hexabromobutene-2: Trace Amounts by TLC
M-000.90 - Polyoxymethylene Oxazolidine T: Total Solids
GC-77.0 - Polyoxymethylene Oxazolidine T: Water Content
GC-78.0 - Polyoxymethylene Oxazolidine T: Compositional Analysis
E-55.05a - Manganese: Pyrophosphate Method

MISCELLANEOUS*1. Experimental Biocides (N. Conzo, I. Wakeman)

The reaction products of trimethylolaminomethane with formaldehyde (TOP 2874 and 2875) have been identified by gas chromatography and NMR studies as mixtures of the bicyclic formaldehyde compound (Oxazolidine T) and its polyoxymethylene derivatives. No other organic components are present in the mixture. The complete compositional analysis can be carried out by gas chromatography of the trimethylsilyl ether derivatives.

These analytical techniques, however, are not applicable to the propanolamine-formaldehyde derivatives (monocyclic oxazolidine compounds). The monocyclic adducts are not sufficiently stable to permit the preparation of derivatives for gas chromatographic analysis. Since exact compositional analysis is not possible, they would run into the same difficulty with EPA clearance which was experienced with Nuosept 77.

HRJ/sgf

H. R. Johnson
H. R. Johnson

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

TO Dr. R.T. Gottesman
FROM Mr. J.C. Fisher
SUBJECT MONTHLY REPORT - MARCH 1974

AT Piscataway
AT Piscataway

DATE March 28, 1974

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PLASTICS INDUSTRYAdditives1. PVC Processing Aids (J.C. Fisher, D. Goodman, M. Koral, M. Rosen)

Laboratory runs have determined the kinetics for a higher solids (40% vs current 35%) Supercryl 100 and 100-H polymerizations. Plots of latex specific gravity vs % conversion have been prepared for plant process control using a volumetric flask technique.

An EVOP program based on the laboratory development has been initiated in the Fords' plant to effect the increase to 40% solids in order to increase plant productivity. Initial samples have been submitted for functional testing.

The Flemington pilot plant has ordered 2 new turbine agitators for their 300-gallon reactor based on Mixco recommendations. They will be used to establish peripheral speed and horsepower/ gallon correlations with the Piscataway pilot plant's 100-gallon reactor and the Fords reactor. The effect of increased agitation on functional properties will be studied with this agitation system.

2. PVC Processing Aid/ Lubricant (M.L. Feldman, D. Goodman)

Rohm & Haas Acryloid K-175 has been identified as an MBS resin. Analysis was by NMR and pyrolytic G C. The non-destructive NMR technique was considered more reliable and gave the following results:

Butadiene	13-14%
Styrene	35-36%
Methylmethacrylate	50-51%

PVC RESINS

1. Pasadena PVC Process (M.L. Feldman, J.C. Fisher, D. Goodman, M.K. Rosen)

The pilot plant is evaluating the use of the Shin-Etsu dual catalyst system (ADMV/IPP) in TK-1300SD polymerizations. The use of the dual catalyst gave polymerizations with pronounced heat kicks near the end of the reaction, typical of IPP catalyst. Adjustments of catalyst levels to the lower end of Shin-Etsu's recommended range are now being studied. The effectiveness of Ional vs. bisphenol A as a short-stop for the dual catalyst formulations is also under study.

An improvement in dry blend properties appears likely with TK-1300SD by using a lower IB/IC suspending agent ratio (but within the Shin-Etsu recommended range).

Hazards Research Corp. has initiated their study on the parameters for safe operating conditions when using the TCE/ethanol solvent system required for the OC reactor coating.

Emergency disposal alternatives for catalyst solutions were developed by the laboratory. No changes in the plant storage facility design are contemplated using these procedures.

Contact was made with the New England Research Applications Centers for a thorough literature search on activated carbon adsorption-desorption of vinyl chloride monomer.

2. Gelatin Replacement (J.C. Fisher, M.K. Rosen)

The Burlington plant has initiated a program to evaluate A-type gelatin formulations for copolymer polymerizations.

3. Blending Resin Drying (J.C. Fisher, P.J. Patel)

Spray-drying runs were made on BR-501 slurry at Nichols Engineering. The results of these tests showed:

- a.- Spray-drying does not adversely effect the functional properties of BR-501 over a range of outlet air temperatures (140-175 F) if indirect fired air heating is used.

b.- A preferred atomizing wheel design was chosen.

c.- A Nichols' spray dryer could be utilized for drying BR-501.

A report is being issued covering these trial runs reviewing spray drying conditions, functional testing and projected spray dryer capacities.

4. Chemical Foam Blending Resin (M.L. Feldman, D. Goodman)

The laboratory is preparing a status report covering the use of various post-additives to blending resin and their effect on wicking properties. No further work is planned.

5. Dispersion Resins (J.C. Fisher, P.L. Patel, M.K. Rosen)

Investigation of emergency short-stop systems for Wacker dispersion resins was continued in the pilot plant. The addition of emulsifier to Thiostop N solutions had minimal effect on reducing coagulation of the latex on addition of the solution. Higher emulsifier levels are being evaluated. The addition of water only at the usual short-stop addition point had no deleterious effect on the latex.



J.C. Fisher

JCF/lj