

BUSINESS CONFIDENTIAL

MONTHLY REPORT

MEMORANDUM

RECEIVED

AUG 7 1967

R. N. Wheeler

TO: Dr. C. K. Fink

FROM: W. H. Bauer

DATE: July 31, 1967

SUBJECT: Vinyl Resin and Plasticizer Summary - Tarrytown Technical Center,
July, 1967

CALENDERING, FLOORING & RECORDS

RESINS FOR C. F. & R (333 A 90)

1. HAMPSHIRE MANUFACTURING, NASHUA, NEW HAMPSHIRE

A study of nine recent blends of QYSC-7 has been completed in an effort to find qualified resin for subject customer. Contracts have been signed for 1 MM# resin and 1 MM# of plasticizer.

Using Hampshire's test procedures, dry-blend time, fusion characteristics and heat stability of the blends were determined. The poor stability of Blend 69 (cause of rejection) was confirmed. Four blends (67, 70, 71, 73) were found to meet all selection parameters and have been submitted to the customer for approval.

Mr. R. Swan of Hampshire will visit Tarrytown on August 2nd to discuss a pipe insulation construction made of vinyl sheet and extrudable coal tar products.

(P. T. McCoy)

2. RCA, INDIANAPOLIS, INDIANA

Work is continuing on the torque rheometer characterization of both suspension and solvent type resin for RCA's record preblend requirements. The two samples promised by Mr. Miller as "too soft" and "too stiff" control compounds have not been received at Tarrytown.

(P. T. McCoy)

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3. PLATE OUT - FORD MOTOR COMPANY (QYTQ-7)

The search continues to isolate the formulating variables which control plate out. Thanks to Dean Richardson, six experimental resins were made in the pilot autoclave:

QEX - 1287	QYTQ-7	0.1% DOP - no additives
- 1288	QYTQ-7	0.1% EPO
- 1289	QYTQ-7	0.1% DOP - shortstopped with BHT
- 1290	QYTQ-7	0.1% DOP - shortstopped with BHT - ~0.5% ethylene
- 1293	QYTQ-7	0.1% 10-10
- 1294	QYTQ-7	0.1% DOP double-washed

These were tested using the Ford plate out test but results were obscured by variations in the Ferro 1212A stabilizer. The older laboratory sample (oxidized, hydrolysed or otherwise degraded) gave significantly lower plate out than fresh sample of stabilizer. This is being investigated in as much detail as possible. It has also been determined that an increase in stearic acid reduces plate out. This will be checked with DYNF and OPD.

(W. H. Bauer)

FLOORING PLASTICIZERS (333 D 50)

1. ACETOXYETHYL, 2-ETHYLHEXYL PHTHALATE

A sample of acetoxyethyl, 2-ethylhexyl phthalate (AEOP) taken from the eighteen thousand pound plant run made in June, 1967, is undergoing laboratory evaluation in unfilled vinyl compound, vinyl asbestos tile, and continuous-type vinyl flooring compositions. It is expected that performance characteristics of the experimental plasticizer, which is intended for application in vinyl floor coverings, will be completely defined by early August.

(L. G. Krauskopf)

MOLDING & EXTRUSION (211 E 50)

1. KESSLER PRODUCTS COMPANY, YOUNGSTOWN, OHIO

A sample of plasticized vinyl pipe seal, containing FLEXOL® plasticizer 426 and Escoflex 125, was subjected to mineral acid resistance tests according to the procedure defined in ASTM D-543-65. It was found that the vinyl gasket containing approximately 100 PHR calcium carbonate filler and 125 PHR of plasticizer (88/12 blend of FLEXOL 426/Escoflex 125) was essentially inert to attack.

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by 1 N HCl and 1 N H₂SO₄. The customer was advised that our tests showed his product to meet the ASTM C425-66T specification for "Compression Joints for Vitrified Clay Bell and Spigot Pipe".

(L. G. Krauskopf)

2. AMERCOAT CORPORATION, SOUTH GATE, CALIFORNIA

At the customer's request, additional samples of molded vinyl plaques were prepared according to our suggested formulation for the "knob-lock" application. The plaques will be subjected to specific low temperature impact tests required in the application.

(L. G. Krauskopf)

3. W. R. GRACE COMPANY, CHICAGO, ILLINOIS

This company became the first major customer for dry-blend grade QSAP-7 poly (vinylchloride) resin. Serious processing difficulties were encountered when QSAP-7 was substituted for "Geon" 101 EP-F12 in the extrusion of water stop compounds. A high priority laboratory project has been initiated to accomplish the following objectives:

(1) Assess the difference between "Geon" 101 EP-F12 and BAKELITE® QSAP-7 with respect to characteristics of the resins, per se, and performance in dry-blending and extrusion.

(2) Attempt to improve the processing characteristics of QSAP-7, presently in the customer's plant, by minor adjustments in his base formulation.

(3) Define the characteristics required to replace "Geon" 101 EP-F12 in this customer's application.

(L. G. Krauskopf)

4. GENERAL ELECTRIC COMPANY, LOUISVILLE, KENTUCKY

This company is investigating the economics of manufacturing vinyl gaskets, boots and trim items which are currently purchased from custom molding and extrusion houses. It is estimated that the operation represents a potential annual consumption of 1.0 million pounds of plasticizers.

Vinyl formulations designed to meet the various performance specifications are being developed by means of the computerized formulating program for submittal to the General Electric Company.

(L. G. Krauskopf)

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5. TAYTEC CORPORATION, COLUMBUS, OHIO

Performance characteristics of a vinyl formulation based on FLEXOL plasticizers are being compared to this company's current formulation for weatherstrip gasketing. The laboratory work was deemed necessary to convince this potential customer of the quality of a suggested lower cost formulation. The introduction of FLEXOL plasticizers will replace Monsanto plasticizers. Diamond 500 resin is being used, but Taytec was not interested in considering substitution with a BAKELITE resin.

(L. G. Krauskopf)

WIRE & CABLE (223 C 50)

1. CHLORINATED POLYETHYLENE

Exploratory work is being conducted to determine the utility of CPE as a plasticizer for vinyl for use in high temperature wire insulation. CPE's history has been as an impact modifier for rigid vinyl products. Use as a highly permanent plasticizer for vinyls has been known but is just beginning to be actively promoted by Dow.

(E. B. Harris)

2. FLEXOL 63

(1) Approval and orders for this plasticizer at Carol Wire Company have been received. The plasticizer was believed to be a deterrent to the battery cable stripping operation, but, this was found not to be so.

(2) Oil aging data on FLEXOL 63 is being measured to determine its capabilities for use in oil resistant 60° insulation.

(E. B. Harris)

3. THW WIRE - 10-10/EPO BLENDS

A brief study is underway to learn more about possible water sensitivity of 10-10/EPO blends for use in THW wire. It was the intent to use Taft EPO (W) but because of plant start-up uncertainties, Institute EPO (W) is being used. A cursory check on Taft production will be performed when that facility is on-stream.

(E. B. Harris)

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PLASTISOLS (343 G 50)

1. PYROLOC CORPORATION, HAWTHORNE, NEW JERSEY

Laboratory work is being performed for this customer to develop a foam plastisol for use in the protective packaging of Chevrolet auto bumpers.

(E. B. Harris)

2. ASSOCIATED PLASTICS COMPANY, HIALEAH, FLORIDA

Customer was presented with a formulation suggestion for vinyl fishing lures.

(E. B. Harris)

3. HALL PAINT COMPANY, HIALEAH, FLORIDA

A organosol formulation suggestion for coating cloth braid on appliance heater cords was prepared for this customer.

(E. B. Harris)

4. SPI - PER CENT SOLIDS ROUND-ROBIN

This laboratory is participating in a round-robin to develop a test method for determining the per cent solids (non-volatile) of an organosol, being sponsored by the Vinyl Dispersions Division of the Society of the Plastics Industry.

(E. B. Harris)

5. C. W. BRABENDER

The writer visited the C. W. Brabender laboratory to appraise a prototype of a plastisol gel-rate tester patterned after the gel-rate tester developed at Carbide. The C. W. Brabender instrument provided data exceptionally close to that obtained from the Carbide instrument. Plans are now being formulated to mass-produce this tester, identifying it as the "Carbide Gel Test Kit" modification of the C. W. Brabender Viscocorder.

(E. B. Harris)

GENERAL PROGRAMS

1. FLEXOL R3M (MODIFIED)

Lauric acid and urea-treated 2-ethylhexanoic acid terminated R3M polymeric plasticizers were compared to the original R3M (untreated 2-ethylhexanoic acid cap) and Santicizer 409 for high speed mill heat stability. The lauric capped plasticizer provided heat stability in a Ba-Cd-Zn stabilized compound equivalent to S-409. In lead stabilized compounds, the lauric terminated R3M was not as good as S-409 but a satisfactory improvement over the original R3M.

A cursory check on the effect of the capping agent interchange on the processing and end-properties of a vinyl compound containing these plasticizers will be performed.

(E. B. Harris)

2. n-PHTHALATES

The third phase of the evaluation of n-alkyl phthalates (C₆-C₁₂) has been delayed due to equipment difficulties. This phase covers mixed alcohol phthalates directed toward determining the variability in end-use properties of the plasticizer as a function of the n-alkanol feed stream.

(E. B. Harris)

3. POLY - ε - CAPROLACTONE

A high molecular weight solid polymer of ε - caprolactone is being evaluated as a plasticizer for PVC. This polymer is a relatively efficient plasticizer with good initial low temperature impact resistance and, of course, good permanence. It suffers from limited compatibility and possibly heat and light instability. In general, this material shows promise and work designed to explore its potential in vinyl applications will continue.

(E. B. Harris)

H. N. Bauer

WHBauer:ccb

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