

BUSINESS CONFIDENTIAL

MONTHLY REPORT

MEMORANDUM

TO: Dr. C. K. Fink

FROM: Mr. W. H. Bauer

DATE: September 28, 1967

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

CALENDERING, FLOORING & RECORDS

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

1. MODIFIED PROCESS - 7 RESINS

Based upon the data reported in the August summary, plant production runs of ethylene-modified vinyl chloride polymer (0.3 - 0.5 per cent ethylene) have been scheduled. This category of polymer will be subsequently referred to as Type I. A sample of Type I QYSL - 7 (Blend 78) has already been received (see Section 2b - Ford Motor Company). Type I QYTQ - 7 will be available the second week in October. The receipt of Type I QYSC - 7 from plant autoclave will complete the series and a complete evaluation made in flexible compounds.

(W. H. Bauer, A. W. Conkling)

2. FORD MOTOR COMPANY, MT. CLEMENS, MICHIGAN

a. Plate-Out (QYTQ - 7)

This program is just about concluded -- not that it has been solved, we are merely running out of ideas. The failure of diphenyl phosphite in the polymerization recipe has been attributed to the hydrolytic instability of the compound. If this be a fruitful approach to reducing plate-out, it will be a longer term program and will not satisfy short-term sales objectives. Meanwhile, hopes ride with Type I QYTQ - 7. This material from Texas City production autoclaves will be available in standard and double-washed form as well as conventional QYTQ - 7 from the same run. In the interim, "pure" QYTQ - 7 (Blend 211) is being prepared by methanol extraction to remove any trace of residual suspending agent. At least one sample from the plant run will also be extracted and Ford plate-out run on all samples. The individual effects of ethylene, washing and suspending agent will thus be determined.

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If definitive, a decision on future production modification must be made.

(W.H. Bauer, S. Solomon)

3. HAMPSHIRE MANUFACTURING COMPANY, NASHUA, N.H.

Pending the acceptance of customer selection tests by the Quality Control Laboratory at Texas City, selected blends of QYSC - 7 (Blends 78 and 82) are being tested at Tarrytown on a customer service basis. ICMT and ultimate heat stability continue to be problems in this resin.

(W. H. Bauer, A. W. Conkling)

4. RCA, INDIANAPOLIS, INDIANA

Test work continues in attempts to correlate results of torque-rheometer data between Union Carbide and RCA. Lack of definitive samples has hindered this program. A customer call is scheduled in which our number five head will be substituted for RCA's in hope of shedding more light on this problem.

(P.T. McCoy)

FILM AND SHEETING (333 B 50)

1. HARTE AND COMPANY, BROOKLYN, NEW YORK

Our analytical department is in the process of analyzing a sample of calendered film. The film spewed, therefore, the work is directed toward defining the possibility of a weigh-up error, and will also provide direction to Harte on how to work the film off as scrap.

(E. B. Harris)

FLOORING PLASTICIZERS (333 D 50)

1. FLEXOL® PLASTICIZER 128

FLEXOL plasticizer 128 (acetoxyethyl, 2-ethylhexyl phthalate) is being introduced to The Ruberoid Company, Inc. and Kentile Floors, Inc. during the last week of September. Our laboratory evaluations have indicated that FLEXOL 128 can be expected to compete with butyl benzyl phthalate in vinyl asbestos tile. It is anticipated that we can gain plant trials with the use of FLEXOL 128 in vinyl asbestos production at both Ruberoid and Kentile.

(L. G. Krauskopf)

2. VINYL ROLL GOODS

Arrangements are being made to make a series of joint calls with Messrs. L. D. Harris and K. D. Cavender on manufacturers of vinyl roll goods for flooring during the week of October 16th. The objective of this survey is to review Union Carbide products for this application and to learn the current state of the art as now practiced by the various suppliers. From this, we expect to become more active in customer servicing for the overlay roll goods producers and to pursue the development of Union Carbide plasticizers and resins specifically designed for the application.

(L. G. Krauskopf)

MOLDING AND EXTRUSION (211 E 50)

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

Laboratory efforts have failed thus far to either reproduce the problem or measure the characteristics which are responsible for processing differences found between QYSC - 7 and "Geon" 101 EP F-12 in a dry-blend extrusion application. Typical mixes that simulate those employed by W. R. Grace have been prepared in a 100 pound Papenmeier mixer. These mixes will be examined for differences which may be the cause of the processing difficulties described by this potential customer.

(L. G. Krauskopf)

2. GENERAL ELECTRIC COMPANY, LOUISVILLE, KENTUCKY

This company is investigating the possibility of producing its own vinyl components for appliances. Arrangements are being made to conduct a technical seminar for the Technical and Managerial staffs at Louisville, Kentucky. The objective is to review formulating and production parameters for making extruded and molded shapes from plasticized vinyl dry-blend.

(L. G. Krauskopf)

3. THE HOOVER COMPANY, NORTH CANTON, OHIO

A laboratory appraisal of a Union Carbide resin replacement for "Opalon" 660 in Hoover's vacuum hose is being initiated.

(L. G. Krauskopf)

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WIRE AND CABLE (223 C 50)

1. COMPETITIVE RESIN ANALYSIS

Eight competitive vinyl resins for dry-blend preparation of wire and cable compounds have been evaluated. Three additional resins have been received and at least five more are promised. Also, QSAN - 7 with approximately 0.4 per cent ethylene will be evaluated when received. Most of the resins evaluated fall into the medium molecular weight range corresponding to an inherent viscosity of 0.95 - 1.10. Generally speaking, QSAN - 7 appears to fit into this group quite well in molecular weight, dry-blend characteristics and electricals.

Nine of these resins were employed in a round robin, on volume resistivity measurement, between Texas City and Tarrytown. Preliminary results indicate that there is work necessary to improve correlation of results between the two sites. In addition, the program is aimed at relating volume resistivity to wire insulation resistance to arrive at a meaningful electrical specification for wire resins.

(E. B. Harris)

2. COLEMAN CABLE AND WIRE, RIVER GROVE, ILLINOIS

A project will be underway, as soon as resin is received, to compare FLEXOL R3M to "Santicizer" 409 in 105° wire insulation. The intent is twofold; to aid the customer in developing their own, lower cost, version of "Geon" 8800, and to capitalize on the opportunity of a field trial of R3M. The potential business for this application is one million pounds of plasticizer per year and the outlook is good since Coleman prefers not to use S-409.

(E. B. Harris)

3. CERRO WIRE COMPANY, MASPETH, NEW YORK

This customer encountered extrusion difficulties with an initial bulk run of QSAN - 7. QSAN - 7 Blend 60 was evaluated and found very satisfactory, but, when the first formal shipment (Blend 46) was run, cold streaks appeared on the wire. Work is in progress to determine what the problem is and if it is due solely to resin interchange, how can we scrutinize resins to prevent future difficulties.

(E. B. Harris)

4. FLEXOL 63

No progress has been made in the evaluation of this plasticizer's oil resistance.

(E. B. Harris)

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5. THW WIRE, 10-10/EPO BLENDS

Work on defining the moisture sensitivity of this plasticizer blend, using the UL S.I.C. test, is in progress.

(E. B. Harris)

PLASTISOLS (343 G 50)

1. CHEMSEARCH, RUMFORD, RHODE ISLAND

Eight samples of TERGITOL 15-S-3 were examined for presence of contamination. During a plant relocation, the surfactant was removed from a tank wagon compartment and placed in eight "empty" drums for shipping. Immediately following this move, plastisol viscosity problems were encountered when the 15-S-3 was employed as a viscosity depressant. Analysis of the eight samples revealed drum number five contained 100 per cent hydrocarbon oil, no 15-S-3, and number six contained an 80/20 mixture of 15-S-3/hydrocarbon oil. The other six were good 15-S-3.

(E. B. Harris)

2. CAMBRIDGE RUBBER COMPANY, TANEYTOWN, MARYLAND

A visit was made to this customer to discuss a plastisol viscosity problem encountered in the recycle of material used in slush molding vinyl boots. The problem was in part technical and in part communication difficulties. In addition to suggestions on modifying the machinery, a successful effort was made to reconcile the feud between the plant chemist and the plant engineer.

(E. B. Harris)

PLASTICIZERS GENERAL

1. FLEXOL EPO, BORDEN CHEMICAL CO., N. ANDOVER, MASS.

A call was made at the subject account to assist in gaining product approval for FLEXOL EPO in red mead ant produce wrap. Material indicative of Taft production has been evaluated and found fully equivalent to their present epoxidized soybean oil (Paraplex G-62). The problem with polymer formation and its relation to peroxide number is now of the past. The problem of die build-up occurred only in produce wrap (DOP/EPO system) and only when Allied's DOP was used. The use of Hatco's DOP presented no difficulty. The customer reports the causative agent to be phosphoric acid used by Allied as an esterification catalyst and/or for color reduction. Borden was pressed for approval on EPO and DOP and a

letter of certification forwarded with the concurrence of Messrs. O'Rourke and Donaldson as to the absence of chemical treatment known to be critical to the application. With A-26 already approved, potential business at this account is 2MM pounds of EPO and a like quantity of DOP.

(W. H. Bauer)

2. FLEXOL R3M

The problem of heat stability of this plasticizer has not been completely solved. The use of lauric acid as the terminating agent has helped to some extent. It is probably acceptable at this point in lead systems but color change in the high speed mill test using barium-cadmium-zinc stabilizer is extremely rapid. The effect of epoxy plasticizer and phosphite in broadening the processing range is being investigated.

The upgrading of heat stability to its present level was not without sacrifice. R3M (lauric terminated) will not produce a free-flowing dry-blend in typical 105°C appliance wire formulations; R3M (2-ethylhexanoic terminated) did not suffer from this deficiency.

Final physical performance properties in vinyl compounds are being compiled and assessed.

(E. B. Harris)

3. C. F. & R. SCHOOL (885-273)

A three-day technical session was conducted at Tarrytown for approximately 30 members of the new Elastomer Products field force.

(W. H. Bauer, E. B. Harris
L. G. Krauskopf, P.T. McCoy)

W.H.Bauer:cch



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