

BUSINESS CONFIDENTIAL

MONTHLY REPORT

MEMORANDUM

TO: Dr. C. K. Fink

FROM: W. H. Bauer

DATE: May 29, 1967

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

RECEIVED

JUN 5 1967

R. N. Wheeler

CALENDERING, FLOORING & RECORDS

CALENDERED FILM & SHEETING (333B50)

1. NON-FOGGING PLASTICIZERS

Reports are beginning to filter back concerning use of higher performance, higher priced plasticizers for automotive use. To date, it is indicated that their only "accepted" use is in the vacuum-formed side panels in which the resin system is PVC, ABS and nitrile rubber. Materials of choice appear to be Admex 752 and Rohm and Haas XP-2007. We have requested that Mr. J. A. Francis advise a course of action we may wish to take on submitting candidate materials to customers, e.g. n-octyl, n-decyl analogue of FLEXOL PEP; glycerol triepoxystallate; n-octyl, n-decyl trimellitate, etc. GM purchasing specification remains at 140°F, however, and there are no confirmations of use of new materials in "accepted" upholstery and crash pad applications.

The modified condenser-door for the GM fog test has just been received from Ternstedt Division and will be installed on the test oven as soon as possible.

(W. H. Bauer, E. B. Harris)

2. HARTE & COMPANY, BROOKLYN, NEW YORK

An exudate from one of the company's standard products was analyzed. In addition to the known liquid components, 10-12% of a high boiling hydrocarbon was detected and concluded to be the causative agent.

(E. B. Harris)

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3. PLASTIC CALENDERING CORPORATION, WESTBURY, N. Y.

The computer approach was used in an attempt to find a FLEXOL blend which was cost performance competitive with Santicizer 839

(45:55 blend of DOP:NODA). Performance can be met with DOP/10-A blends but at a slightly higher cost. Results of this analysis have been forwarded to the technical representative.

(E. B. Harris)

RESINS FOR C.F. & R (333A90)

1. INTERLABORATORY EVALUATION COMMITTEE

Torque-rheometer data utilizing standard resin, plasticizer and filler as well as calibrated thermometers have been determined (apparent melt viscosity and dry blend time) and submitted for assessment as a part of a round-robin program.

(P. T. McCoy)

2. "O" RESIN SEMINAR - MINNESOTA MINING & MFG.

St. Paul, Minnesota

The "O" resin seminar was presented to the Industrial and Retail Tape and Electrical Products Divisions of 3M. The reception was generally favorable and interest was forthcoming for use of these resins in both rigid and flexible applications. Appropriate samples are being submitted. A strong feeling is evident at this customer that all resins purchased must be of our "double-washed" variety. Future samples of QYSC-7 and QSAH-7 will have to meet this requirement in order that electrical and clarity specifications be met.

(W. H. Bauer, P. T. McCoy)

3. QYTQ-7, FORD MOTOR COMPANY

We have formally lost our approval at Ford on QYTQ-7 for failure to pass customers plate-out test. This test consists of running consecutively on a two-roll mill a scrubber batch, a red pigmented test batch and a wash compound. The pick-up of red pigment by the wash compound must be equal to or less than the standard resin.

A program is currently under way evaluating two Ford standards, standard QYTQ and three blends of QYTQ-7 (284, 286, 288) all made with 0.1% DOP added during polymerization. Results should indicate whether the DOP addition results in an inherent resin deficiency with respect to plate-out or if other factors are determining performance.

(W. H. Bauer)

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MOLDING & EXTRUSION (211E50)

1. HAARTZ AUTO FABRICS (Newton, Massachusetts)

A customer call was made at this account with respect to a compatibility problem coincidental with the use of Geon 121 (customer presently extrudes plastisol film which is laminated to rubber impregnated substrate for convertible topping). It appears that the problem is associated with the resin and/or stabilizer. Customer will evaluate specific suggestions with no laboratory work required on our part.

(L. G. Krauskopf)

2. NEW ENGLAND PLASTICS (Woburn, Massachusetts)

A plant trial of QSOM-7 (B-6) was made at customer in flexible and rigid contour extrusion. Details of this run are presented in a status report now being issued. Conclusions were as follows:

(a) QSOM-7 (B-6) was not suitable for rigid extrusion in this plant. A lower molecular weight copolymer may be useful and a lubricant adjustment may be required to optimize processibility.

(b) The dry-blending characteristics of QSOM-7 were similar to Blacar 250-1 but inferior to Escambia 2225. They were judged quite acceptable for conventional dryblend applications.

(c) Direct substitution of "O" resin for homopolymer PVC with corresponding plasticizer adjustment was not successful. A change in process conditions was required to achieve proper gloss; this change resulted in poor thermal stability of the "O" resin.

(d) The heat stability of QSOM-7 (B-6) is subject to question.

(e) The QSOM-7 (B-6) had a significant level of hard particles which were not reduced during processing.

(L. G. Krauskopf)

3. HOOVER, COMPANY (No. Canton, Ohio)

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A customer call was made on this account to review the problem of reduced flex life and abrasion resistance of vinyl vacuum hoses. The problem eventually resolved itself to a change in the cotton duck cloth used in the abrasion test procedure. Samples of the different cloths were obtained and abrasion tests run on plasticized vinyl films prepared in this laboratory. Significant differences were obtained as a function of the cloth employed. A Technical Service Report is being prepared for the customer.

(L. G. Krauskopf, J. A. Young)

4. GENERAL MOTORS CORPORATION, (Detroit, Michigan)

At the request of the technical representative, suggestions for a "patch-up" kit for vinyl door bumper strip were made.

(L. G. Krauskopf)

5. AMERCOAT CORPORATION, (South Gate, California)

This customer requested assistance in formulating a plasticized vinyl to be used both as a tank lining for corrosive chemicals and a knob-lock extrusion for concrete. Both resin and plasticizer business are at stake. From the physical properties required, a plasticizer system was determined by computer (28 seconds elapsed time) and the ultimate resin choice, QYTQ/QYSJ, made on the basis of apparent melt viscosity. Samples of filled and unfilled compounds utilizing this resin system and FLEXOLS 426 and GPE will be forwarded along with the suggested formulations for the customers evaluation.

(L. G. Krauskopf)

6. MARINE PLASTICS

From general information submitted by the technical representative, four starting formulations both filled and unfilled at two hardnesses were determined by computer for vinyl shoe welting. Results were forwarded in a Technical Service Bulletin.

(L. G. Krauskopf)

7. MAYON PLASTICS & SPERRY RUBBER COMPANY

At the request of the technical representatives, the standard Technical Service Report and Technical Service Bulletin on vinyl milk tubing was submitted to the customer.

(L. G. Krauskopf)

8. W. R. GRACE & COMPANY (Chicago, Illinois)

The computer program was used to suggest a formulation for a waterstop compound. A formulation could not be found that met the elongation of 250% at the other required properties. Other starting formulations with elongation values up to 300% were suggested. The problem lies in the change in specifications by Grace. No specific Durometer is required by the Corps of Engineers. Grace requires a hardness of 80, which is unrealistic. The Plastics Division compound for this application has a hardness of 67.

(E. B. Harris)

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9. PLASTIC CALENDERING CORPORATION, (Farmingdale, N. Y.)

For comic relief, we have analysed a solution coating for subject customer whose former chemist kept the formulation in his head. As it happened, it was nothing like the suspected composition. The resin was identified as an acrylic ester (not VCl-VAc) and the solvent system was found to be cyclohexanone, trichloroethylene and toluene (not MEK, DMF and THF). Such is life.

(L. G. Krauskopf)

WIRE AND CABLE (223C50)

1. DRYBLEND WIRE AND CABLE RESIN

A plant run of QXAP-12 has been made by D. E. Richardson and resin properties determined. The median particle size is high, the resin being quite similar to Escambia 2225. Meanwhile, samples of competitive resins are being received from the field for purpose of comparison and definition of current use requirements. Six samples (five resins) are under test with additional materials promised.

A second run of QXAP-12 on wire will be made by H. J. Pazinski at Bound Brook. Operating problems made the first run subject to some question and results must be verified.

(E. B. Harris)

2. GENERAL ELECTRIC COMPANY, (Bridgeport, Connecticut)

Infra-red spectra and specific resistance data are being generated for FLEXOLS DOP, 10-10, 10-10X, 13-13, 13-13X and EPO. This information is to be used for sales introduction in establishing confidence in the UCC line at GE and as a technical assistance to a potential customer.

(E. B. Harris)

PLASTISOLS (343G50)

ESSEX CHEMICAL/WARD MFG. COMPANY

At the request of R. E. Gulick, physical properties were determined on a sample of slush molded vinyl bumper from a plastisol manufactured by Essex Chemical. The resultant data suggest that Kodaflex TXIB is the major plasticizer component (high volatility, high water extraction). It now becomes evident that additional information will be required (cost, viscosity, gel rate) before a replacement system can be considered.

(E. B. Harris)

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2. FOY-JOHNSTON, (Cincinnati, Ohio)

Work is now in progress to characterize a competitive plastisol used in the dip coating of tool handles.

(E. B. Harris)

GENERAL PROJECTS (All Areas)

1. COMPUTER PROGRAM - PAPER

The paper entitled "Computer Aided Vinyl Formulating" by Y. P. Tang and E. B. Harris was presented at the SPE ANTEC in Detroit by Mr. Harris. From comments made to me, the paper was very well received and will elicit quite a bit of customer response. Direction will be required from the business areas in dealing with requests for data and/or assistance.

(W. H. Bauer)

2. COMPUTER PROGRAM - DATA

A procedure to include extender plasticizers (hydrocarbons) into the computer program is being tested. Extended phthalates were evaluated and selected blends will be included in the program as individual, discrete plasticizers. This may be a limited but helpful technique.

(E. B. Harris)

3. N-ALKYL PHTHALATES

The assessment of the performance of di-n-hexyl, di-n-octyl, di-n-decyl and dilauryl phthalates in vinyl films is now complete. The unexpected high efficiency of the di-n-hexyl phthalate precludes a general approach of the blending of the symmetrical diesters to achieve the properties of the present FLEXOLS NHDP and NODP. A second series of esters made from mixed alcohols are being prepared by Bob Kelso. These will be evaluated and the data fed to the computer program in order to calculate the optimum utilization of the normal alcohol stream.

The problem of n-hexanol utilization is well on its way to resolution. At least two alternatives will be presented for products which will consume the excess hexanol above that required for NHDP (~10 MM #) and for non-plasticizer use (~10-15 MM #).

(E. B. Harris, W. H. Bauer)

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4. BUSAN 23, BUCKMAN LABORATORIES

The suppliers literature reports this plasticizer to be a highly permanent, low temperature plasticizer. A screening evaluation at 50 PHR showed it to have low oil and water extraction and low volatility but T_g was -5°C rather than the -50°C reported. With a selling price around 50 cents/pound, Busan 23 will not make any major penetration in the present vinyl market.

WHBauer/nal

H. H. Bauer

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