

SHELL CHEMICAL COMPANY

PRIVATE & CONFIDENTIALTO MARKETING - MANAGER
PLASTICS AND RESINS DIVISION

DATE NOVEMBER 8, 1962

FROM PRODUCT MANAGER - RESINS
PLASTICS & RESINS DIVISIONSUBJECT
Product-Resins Summary
October 1962

OCTOBER 1962

HANDLE

HIGHWAY PRODUCTS

The GUARDKOTE® work on the Triborough Bridge is expected to be completed within two weeks and the Triborough Bridge and Tunnel Authority indicate that they are generally satisfied with the work. While no claims are expected to be made against the contractor until next year when the one-year guarantee on the job has run out, there are several areas, totalling approximately 4,000 sq. ft., which are considered as questionable in quality.

FLOORING

The members of ASTM Committee C-9 are working on the establishment of specifications, test methods, and recommended practices for application of chemical-resistant flooring materials based on epoxy resins. In addition, they are currently working on epoxy resin tank linings and other chemical-resistant products. We are cooperating on these projects which have been under way for approximately two years, and it is expected another two years will be required before any final work can be reported.

REINFORCED RESINSFilament Winding

The General Tire and Rubber Company are showing increased interest in becoming a supplier of commercial filament wound tanks and vessels. They have been active in the past on the military side of the filament winding industry with their Aerojet Division. Following a recent meeting with Shell Oil, they have stated informally that we shall receive a statement from them in about 60 days which will include details of their capability and quotations on gasoline storage tanks. Also discussed in the meeting was a possible joint program with Shell Oil to gain API approval for aboveground storage of inflammable hydrocarbons in filament wound tanks.

The Dow-Smith Company are predicting that the price of their two-inch diameter filament wound pipe will be \$1/ft. and that they will have a pipe suitable for chemical service in the near future. Presently, their pipe is strictly for low temperature and low pressure, i.e., 150°F and 300 psi service. They have also published an article on a new arc extinguishing thermoplastic. It is believed that this development resulted from their filament winding of tubes for sale to the circuit breaker industry. Ordinarily, a borax filler is bonded inside the tube to act as a flame snuffer. It is probable that Dow will now use this new thermoplastic as a mandrel upon which to wind the exterior shell, thus putting them in the fuse business directly. We should prepare for further developments of this type due to Dow's being active in the fabrication industry through the Dow-Smith organization.

PLAINTIFF'S EXHIBIT

SH-1004

ABS-018147

LAM 028941

Epoxy/Coal Tar Pipe Coating

The meeting with Owens-Corning and U.S. Steel reported in the September Summary has taken place and samples of possible formulations developed at UTSL have been supplied to Owens-Corning for evaluation in their laboratory. Depending upon the results obtained, larger samples for field trials will be made at UTSL.

Following this discussion, U.S. Steel expressed interest in discussing with Shell their work on the wide uses of coal tar pitch with a view to exploring how far there may be scope for any cooperation between our two companies in promoting outlets for epoxy-modified coal tar products. A meeting has been arranged for the near future.

Paint Industries Show

The annual Paint Industries Show was held October 15-17, in St. Louis, Missouri. Our own activities were curtailed considerably compared to previous years because of the strike situation. Emphasis was placed on EPONOL® 55, zinc-rich primers and solvent-free coatings.

Regarding the activities of competitive epoxy suppliers, Ciba was promoting three new items. These were Araldite DP-131 hardener and accelerator as the basis for three-package, solvent-free coatings; DP-134 and DP-135, xylenol amine hardeners which are claimed to allow formulators to compete technically and economically with epoxy coal tar coatings; and Araldite DP-624, an epoxy ester emulsion. Union Carbide Plastics Company introduced Phenoxy PKDA-8500, their equivalent to EPONOL 55. General Mills had a large display devoted to polyamide and GenEpoxy resins, but had nothing really new to talk about. Reichhold and Dow devoted only a token amount of booth space to epoxies, and Jones-Dabney did not have an exhibit at the show.

Heyden Chemical had a small but impressive display on Terpenox resin, which is an epoxy derived from a terpene-phenolic. It was also apparent that ADM is actively promoting their Aroflint 505, a two-package system based on an epoxidized oil.

A number of exhibitors were emphasizing urethanes for both interior and exterior varnishes, but there appeared to be little activity on urethanes for other uses.

ADHESIVESMarketing

The third quarter sales total \$188,000, which compares favorably to the first two quarters of 1962. September sales of \$87,000 were the best ever. This increase was accounted for by increased sales to our five regular largest customers. Sales development work has been progressing satisfactorily and an excellent morale booster came with the news General Motors are now using EPON Adhesive 901/Bl in a production line automotive use. While it is not anticipated that the volume will

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immediately become great, it is an encouraging start. Also, a new product, 47-13, which is a lightweight, moderate cure temperature tape, has been receiving good acceptance. Another development is a new use for an existing product, EPON Adhesive 913, in the thermal insulation of missile gantrys and test frames.

A substantial amount of sales effort is currently being expended in the introduction to Bendix of our epoxy/nylon film, and of our EPON Adhesive 940 to Boeing. It is planned to be in production with these two adhesives early in 1963, and it is hoped we will have a waiting market developed for both products at that time.

Production

Production for the third quarter was still a new record total of 46,000 lbs.

The production of EPON Adhesives VI and VIII is progressing satisfactorily and the blending off of previously produced high slump material is being accomplished. Regualification of these products under MIL-A-8623A, which is required due to the change of manufacturing site, is progressing satisfactorily. We are still able to continue the manufacture and sale of these products on the basis of verbal statements from the NAMC indicating that approval of our adhesives as produced at our new manufacturing site is merely a formality.

The qualification of EPON Adhesive 934 under MIL-A-5090D has been received and we have started action to have EPON Adhesive 940 qualified under this same specification.

Our development of equipment is progressing, with current major projects concerned with the machinery for the production of tape or film adhesives. The acquisition of the Meyers mixer, the Hobbs turret winder, and the Ohmart beta ray gauge have helped in improving production efficiency with regard to decreasing the problems encountered in semi-continuous metering, mixing, and the application of a fast-curing paste to the rolls of a tape machine.

The final data on the EPON Adhesive 927, which contains a surface-active material, have been obtained. We hope no further investigations will be required on this product since it is anticipated that it will be replaced at Boeing early in 1963 by EPON Adhesive 940.

Development

The development effort has been particularly concentrated on EPON Adhesive 940, and an unsupported tape for use by Convair. The 940 work resulted in the development of an improved surface conditioner which gives improved handling characteristics to the tape/surface conditioner system. The unsupported tape developed for Convair is a continuation of work started last spring in an effort to develop a nonvolatile-producing tape with good filleting characteristics, and strength to temperatures up to 350°F. It is planned to use this tape in bonding the nonperforated honeycomb used in the TFX Mach 2 plane.

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We continue to develop data showing the superiority of our epoxy/nylon tape over FM-1000. The major problem remaining is the development of a satisfactory tack coat for use with this tape.

Testing of three rolls of EPON Adhesive 940 to conform to the Boeing specification for EPON Adhesive 927, indicates that we can qualify with ease on all their requirements except the one concerning salt spray. However, previous tests at Boeing showed that Adhesive 940 passed the salt spray test to their satisfaction.

for E. M. Sheets
T. G. Nock

DMS:arb

cc: Operations Manager - P&R Division
Resins-Development Manager - P&R Division
Marketing Services Supv. - P&R Division
UTSL, Resins Manager (2)
Adhesives Supv. - Shell Point (3)
Product-Resins Manager - P&R Division (6)

cc T F M.ka ✓

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