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SHELL CHEMICAL CORPORATION

PLAINTIFF'S EXHIBIT

DUP-3021

SHELL DEVELOPMENT CO.
REC'D JUN 12 1953
9962
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TO HANDLE:
ANS'D: BY:

June 9, 1953

KALMFELL LABORATORIES, INC.
P. O. Box 1578
San Diego 10, California

Attention: Mr. D. C. Kalmfell

Gentlemen:

In response to your inquiry of June 3, we regret to advise that we have no adhesives suitable for operation at temperatures as high as 1000°F. At the present time, our best adhesive for operation at moderately high temperatures is EPON Adhesive VIII which is described in the attached data sheet SC: 52-46. You will note that the maximum service limit on this is approximately 300°F., after which the properties fall off very rapidly.

An improvement in the temperature resistance of EPON Adhesive VIII can be made by incorporating dicyandiamide (6 parts per 100 parts of resin) in place of Curing Agent A. This retains a strength of about 3,000 psi tensile shear with aluminum up to temperatures of 275°F. and it drops off to 1,800 psi at 300°F., so even this falls far short of your goal.

Another possibility which is still in the development stage is the combination of EPON 1001 with Plyophen 5023 (Reichhold Chemical Company) in a ratio of 33 parts to 67 parts. This mixture, mixed with 100 parts of aluminum dust and 6 parts of dicyandiamide, and cured for 30 minutes at 350°F., gives strengths on the order of 1200-1500 psi at 500°F. This formula has a limited shelf life and has not yet been developed to a commercial product. However, if it appears to be of interest, we could supply information to assist you in compounding it yourself.

We regret that we are unable to offer anything of the type you need at this time. If any of the above suggestions are of interest to you, however, we would be glad to supply additional data and assistance on using them. If we may be of this type of service at any time, please do not hesitate to contact us.

Very truly yours,

ORIGINAL SIGNED BY J. L. MORRILL

John L. Morrill
Chemical Products Department

Encl.

bc: Los Angeles District Manager
Shell Development Company ← THIS COPY FOR

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