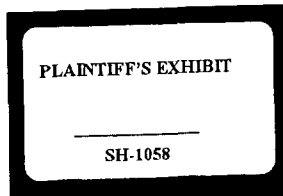


SHELL CHEMICAL CORPORATION



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SHELL DEVELOPMENT CO.	
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October 12, 1953

WASHINGTON HANDLE COMPANY
1402 St. Paul Avenue
Tacoma, Washington

Attention: Mr. Allen Lambert

Gentlemen:

Confirming our telephone conversation regarding preparation of an adhesive for bonding cadmium plated ferrules to wood, we are pleased to arrange for the shipment of a four-ounce sample of Thichol LP-3 and four ounces of diethylenetriamine, as samples for your evaluation. For information on price and availability of the Thichol, we suggest you contact the Thichol Corporation directly. They may have an office in the Northwest or, if not, they may be contacted at 1709 West Eighth Street, Los Angeles, California.

For your application, we suggest you evaluate the following formulation:

50 parts/v	EPCN 828
50 parts/v	Thichol LP-3
90 parts/v	Filler (woodflour or asbestos fibre)

The above system may be cured with several agents, depending upon the pot life which can be tolerated or is necessary, and the cure cycle desired. Using Curing Agent A, as you are at present, it is suggested that you add 5 parts per 100 parts of the above formulation. This will give a pot life of several hours and will cure in approximately one week. If faster cure is desired, 5 parts of either DEA (which we are supplying for evaluation purposes) or BQ-30 (available from Rohm & Haas) may be used. These will give a pot life on the order of 30 minutes or less, but will cure completely in about 24 hours.

This system gives an adhesive which will stand immersion in water and bonds extremely well to both wood and metal. The flexibility imparted by the Thichol prevents loss of bond due to differential coefficient of expansion of the metal and wood.

In using EPCN Adhesive VI, if this still appears preferable to you, we suggest that you consider two ways of reducing the viscosity other than by the use of lacquer thinner. The first would be to warm the mixture to approximately 125°F. This will reduce the viscosity to

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a considerable extent and will not shorten the wet life too severely. The second choice would be to add about 5 parts/weight of allyl glycidyl ether to EPCN Adhesive VI as we supply it. This will result in a more fluid material which will cure quite rapidly and should be adequate for your application. The use of solvents, such as lacquer thinners, has been found harmful in that it reduces adhesive strength very appreciably, and we feel should be avoided for most applications.

Since both the amines and EPCN Adhesive VI have certain toxicity hazards, resulting in dermatitis from the excessive contact with them or prolonged inhalation of vapors, we are enclosing our data sheet giving our recommendations for safe handling practices with these materials. By following these, you will avoid trouble in your use of these resins and auxiliary materials.

We trust the foregoing suggestions will be useful to you and will look forward to hearing from you regarding the results of your work with them. If we may be of any further service, please do not hesitate to contact us, either directly or through Mr. E. B. Kiker at our Portland Office.

Very truly yours,

ORIGINAL SIGNED BY J. L. MORRILL

John L. Morrill

Chemical Products Department

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Encl.

cc: San Francisco District-Manager
Portland Representative
Shell Development Company

THIS COPY FOR

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