



CASE HISTORY ~ CH-022

DIVER APPLIED BIO-DUR 561 PROTECTS MINESWEEPER HULLS

THE CHALLENGE: A class of naval minesweepers built with GRP encapsulated wooden hulls suffered from extensive cracking of the GRP sheath due to flexing of the hulls in service. When this GRP sheath is broken it allows attack by boring worms such as *Teredo* and *Limnoria* resulting in severe loss of integrity of the hull.

THE SOLUTION: BIO-DUR 561 was amongst several competitive materials chosen for on-site evaluation in the shore base of these vessels. Apart from two other competitive underwater applicable coatings two candidate elastomeric sheet materials were also examined. One of the sheet materials was "COLLMAT", a polyolefin sheet specifically marketed by TFT for use with BIO-DUR 561 type epoxy binders.

THE TESTING: An initial underwater survey by US Navy divers showed the surfaces adjacent to the damage to be relatively fresh and clean however exposed wood surfaces were heavily fouled with shell and algae. Before any underwater applications were attempted the repair surfaces were vigorously cleaned using scrapers and 3M abrasive "Greenie pads". The various candidate repair materials were applied promptly following this cleaning. An attempt to install the other elastomeric sheet material showed it to be entirely impractical requiring the use of staples underwater to hold it in place while its adhesive cured.

One of the other underwater coatings simply had negligible underwater adhesion and was discarded. The other underwater coating was based on the known carcinogen and liver toxin MDA and required the application crew to heat its curing agent to 110°F before mixing with the epoxy base in the ratio 3.2/1.00 by volume

When the heated curing agent was mixed with the epoxy base there was an almost immediate violent exotherm which required the immediate dumping of the mixed can overboard. When a second can was

taken underwater however this suffered from dripping after application resulting in severe contamination of the application crew and their equipment.



In stark contrast the "Non-Hazmat" BIO-DUR 561 is supplied in an easy 1/1 by volume mixing ratio and never requires heating before application. The mixed product was taken underwater and was seen to apply very easily, with no dripping, to the GRP and wood areas. Personnel were impressed by its ease of application and immediate adhesion to the prepared surfaces. A second test surface was first coated with BIO-DUR 561 then sheathed with COLLMAT which had been pre-primed with BIO-DUR 561 on the surface before taking it underwater. It was a simple matter to place the COLLMAT over the BIO-DUR 561 and press it in place to obtain a perfect and durable seal over the exposed wood

RESULT: Divers reported the following day that the BIO-DUR 561 and BIO-DUR plus COLLMAT patches had both cured perfectly and appeared entirely serviceable. Since these trials TFT has supplied considerable quantities of both BIO-DUR 561 and COLLMAT to the minesweeper base for ongoing underwater maintenance and repair work.

For more information regarding this project, contact:

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PRODUCT: BIO-DUR 561

YEAR: 2000

LOCATION: INGLESIDE, TEXAS

We go where others fear to spread!

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