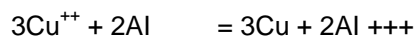


BoatCraft Pacific

USE OF PROOFPLY IN CONTACT WITH ALUMINIUM

Some concern has been raised in connection with use of Proofply as a floor material in contact with aluminium boats, querying whether there is any electrolytic corrosion of the aluminium due to the copper content of Proofply. Proofply contains a relatively insoluble copper compound known as ACQ. In principle, if any copper ions are leached from the Proofply, they could cause corrosion according to the equation



The reaction would clearly be limited by the very low amount of soluble copper available to be leached from the Proofply. It can only proceed in the presence of an aqueous electrolyte such as salt water.

A small piece of aluminium angle 20x20x1.5 x 70 mm has been glued to Proofply 100x100x12 and immersed in 3% salt water for 4 weeks. After that time the following changes were observed:

1. There was a slight coppery discolouration on the aluminium and some accumulation of rubbish at the water surface. No corrosion was associated with these.
2. In a few places along sharp edges very slight corrosive etching of the aluminium was initiated.
3. There was no corrosion on the flat surfaces of the aluminium.

In a separate test the aluminium was screwed to the Proofply using a 304 stainless steel screw. In this case, electrolytic corrosion was evident all over the surface and edges of the aluminium.

CONCLUSION

Aluminium in contact with Proofply, and in the presence of an aqueous electrolyte, will suffer very slight etching along cut or extruded edges where there may be more active electrochemical sites. In a practical situation in an aluminium boat it would be unlikely that the system would be in sufficiently continuous wet immersion for the corrosion reaction to proceed to this extent.

In contrast if any stainless steel fastenings are used, the corrosion reaction will immediately proceed, but this is due to the two electrolytically dissimilar metals, and is unrelated to the copper content of the Proofply.

B.H. McConkey December 5, 2001