

## Oil Absorption Behavior and Its Effect on Charpy Impact Test of Glass Reinforced Polyester Composites Used in the Manufacture of Naval Ship Hulls

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**Abstract :** This article presents results of experimental investigations of the durability of (GFRP) composite exposed to typical environments of marine industries applications, The use of fiber-glass reinforced polyester composites in marine applications such as Hulls of voyage boats and hulls of small vessels for the military navy , this type of composite is becoming attractive because of their reduced weight and improved corrosion resistance. However, a deep understating of oil ageing effect on composite structures is essential to ensure long-term performance and durability. in this work evaluate the effect of oil ageing on absorption behavior and impact properties of glass/polyester composites manufactured with two types of fiber fabrics (fibreglass mat and fiberglass woven roving) and isophthalic polyester resin. The specimens obtained from commercial (GFRP) profiles made of unsaturated polyester resin were subjected to immersion in (i) marine oil for boats and (ii) salt water at ambient temperature for up to 1 month. The effects of such exposure conditions on this types of profile we analysed in what concerns their (i) mass change, (ii) mechanical response in impact, namely on the mechanical response - oil immersion caused a higher level of degradation, compared with salt water immersion; fracture surface examination by scanning electron microscopy revealed delamination, fiber debonding and resin crumbling due to oil effect.

**Keywords :** Marine Engine Oil, Absorption, Polyester, Glass Fibre

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