

Bullet Proof Vest Inserts



Light Curing Resin Impregnated Fibreglass Prepregs



Case Studies

PROJECT: Composite reinforced ceramic plating inserts

CLIENT: Contractor to US Military / NATO

LOCATION: Malaysia / Yemen

PRODUCT: Auspreg UV MTT 929

DESCRIPTION: UV Curable Flexible VE S2 WR 830 Glass

YEAR OF PROJECT: 2005-2010

OVERVIEW: An approved contractor to the US Military and NATO has developed a NIJ Level 3 standard approved 8mm ceramic panel insert for bullet proof vests using Australian Composite's proprietary UV cure S2 glass prepreg. The client approached Australian Composites and were seeking a way to achieve multi-hit capability of ceramic panel inserts without adding considerable weight. The innovation lies in the ability of the composite reinforcement to keep the ceramic plate from shattering after each hit. Consideration was also given to rapid manufacturing time, low cost raw materials, low cost manufacturing tooling requirements, and low material scrap. The client produced over 150,000 units per year which were deployed to forces stationed in the Middle East. Manufacturing involved applying a fast setting epoxy adhesive to the ceramic plates then wrapping each one with multiple layers of UV cure S2 glass and curing these with light on both sides for 10 minutes. During the curing process, the composite covered ceramic panels were vacuum bagged to guarantee that the composites formed perfectly to the ceramic plate and cured permanently in shape. The cured plates were then wrapped in multiple layers of flexible woven aramid fiber and Kevlar before being sew together into a wearable bullet proof vest. Finished products were independently tested in the US to NIJ III standard and achieved no penetration using a 7.62 Ball, M80, 149 gr, at 42.0 ft from Muzzle.

Auspreg UV MTT 929 was offered as the ideal composite material to meet all these criteria for anti-ballistic capabilities. The rapid cure process and easy handling enabled tens of thousands of units to be produced each week for successful on time supply.



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