Characterization of epoxy-based encapsulants

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Imperial College London, INSTITUTE OF SHOCK PHYSICS TEAM — A range of experiments have been performed in order to investigate the effects of strain-rate on the compressive response of both an epoxy resin and an epoxy-based syntactic foam. Strain-rates ranging from the quasi-static ($10^{-4} \text{ s}^{-1}$) to dynamic ($10^{3} \text{ s}^{-1}$) regime have been investigated using an Instron 5584 Universal Testing Machine and Split-Hopkinson Pressure Bar (SHPB) apparatus. The effects of temperature (-20 to 80°C) on the compressive response of the materials have also been investigated. Finally, the experimental results are discussed with reference to the wider challenge of numerical simulation.

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