

# Kekuatan geser dan kelenturan komposit woven's glass berbasis epoxy resin araldite ly 5138 2 dengan hardener hy 5138 untuk basis data di bidang kedirgantaraan = Shear strength and flexibility of woven's glass based epoxy resin araldite ly 5138 2 with hardener hy 5138 composites for aerospace database

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## Abstrak

Badan Pengkajian dan Penerapan Teknologi (BPPT) Indonesia mengembangkan teknologi komposit untuk struktur Pesawat Udara Nir Awak (PUNA). Sebagai basis data material komposit, telah dilakukan pengujian terhadap material S-glass/epoxy dengan variasi orientasi serat S-glass. Pembuatan komposit dilakukan dengan metode hand lay-up dan diikuti vacuum bagging, kemudian dilakukan perhitungan densitas dan fraksi volume serat, serta uji geser dan uji lentur. Kerusakan permukaan komposit setelah uji mekanik diamati menggunakan Scanning Electron Microscope. Hasil pengujian ini menunjukkan komposit dengan orientasi serat  $0^{\circ}/90^{\circ}$  memiliki sifat mekanik yang lebih baik daripada komposit dengan orientasi serat  $\pm 45^{\circ}$ , yaitu memiliki kekuatan geser, kekuatan lentur, dan modulus lentur secara berurutan sebesar 25,38 MPa, 273,21 MPa, dan 18,41 GPa.

Badan Pengkajian dan Penerapan Teknologi (BPPT) Indonesia has developed composite technology for Pesawat Udara Nir Awak (PUNA) structural application. To establish a composite material database, a series of test was conducted on S-glass/epoxy composite materials with a variation of S-glass fiber orientation. The materials were fabricatied using a hand lay-up and followed by a vacuum bagging method; then density and fiber volume fraction measurement, as well as shear and bending testings were carried out. The composite failure surfaces after mechanical test were observed using Scanning Electron Microscope. The results showed that the  $0^{\circ}/90^{\circ}$  fiber orientation composites had a better mechanical properties than the  $\pm 45^{\circ}$  fiber orientation composites, which shear strength, flexural strength, and flexural modulus were 25,38 MPa, 273,21 MPa, and 18,41 GPa respectively.