Perbandingan Metode Fabrikasi Cold Press-Adhesive dan VARI Komposit Sandwich dengan Kulit Epoksi Berpenguat Woven Roving Glass Fiber dan Inti Honeycomb Polyropylene = Comparison of Cold Press-Adhesive and VARI Fabrication Methods Sandwich Composite with Woven Roving Glass Fiber Reinforced Epoxy Skin and Polypropylene Honeycomb Core

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Abstrak

Komposit sandwich merupakan salah satu material yang banyak digunakan sebagai material penyusun rancang bangun struktur ringan karena memiliki perbandingan strength to weight yang tinggi. Penelitian ini bertujuan untuk membandingkan sifat mekanik komposit sandwich dengan kulit epoksi berpenguat woven roving glass fiber dan inti honeycomb polypropylene dengan metode fabrikasi cold press-adhesive dan Vacuum Assisted Resin Infusion (VARI). Uji tekan, uji tarik, serta uji lentur dilakukan untuk mengetahui kekuatan mekanik, pengamatan morfologi komposit sandwich sebelum dan sesudah pengujian dilakukan untuk mengetahui kerusakan material komposit sandwich tersebut. Hasil penelitian ini menunjukkan komposit sandwich metode VARI memiliki sifat mekanik yang lebih baik dibandingkan komposit sandwich metode cold press-adhesive, yaitu memiliki kuat tekan, kuat tarik, dan kuat lentur secara berurutan sebesar (2,21 ± 0,02) MPa, (0,36 ± 0,04) MPa, dan (26,87 ± 0,30) MPa.

.....Sandwich composite is one of the materials that has been widely used as a material for lightweight structures because it has a high strength-to-weight ratio. Sandwich composites with woven roving glass fiber reinforced epoxy skin and honeycomb polypropylene core and their mechanical properties was studied. This research aimed to compare mechanical properties of sandwich composites woven roving glass fiber reinforced epoxy skin and honeycomb polypropylene core with cold press-adhesive and Vacuum Assisted Resin Infusion (VARI) fabrication methods. Compression, tensile, and flexural tests were carried out to determine the mechanical strengths, while morphological observations of the sandwich composites before and after the tests were observed to determine the failures. The results showed that the sandwich composites fabricated by VARI method had better mechanical properties than ones by the cold press-adhesive method, with compressive, tensile, and flexural strength were (2.21 ± 0.02) MPa; (0.36 ± 0.04) MPa; and (26.87 ± 0.30) MPa, respectively.