The Addition Effect of MEPoxe to the Mechanical Properties and Thermal Stability Epoxy as Adhesive Material for A-36 Steel

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Abstract

Epoxy resin is a thermoset material that is widely used as adhesives, coatings, and polymer-based matrix composites. Epoxy has good properties in terms of tensile strength, bending strength and thermal stability. One application is as an epoxy adhesive or adhesive. Epoxy adhesive is a material that is acknowledged as one of the important adhesive because it can bind to a variety of materials such as steel, copper, wood, iron, cement, plastics and composites. Generally, epoxy adhesive formulation added with hardener and additives to be able to curing at room temperature. In this research, the process of making adhesive is an epoxy based thermoset polymer. Type of epoxy used was diglycidyl ether of bisphenol A and poliaminoamid, and with the addition of mepoxe ie 0, 2, 4, 6, 8, and 10% by weight. Furthermore, the adhesive will be applied to the ASTM A-36 steel. TGA test results showed the addition of mepoxe lowered thermal stability. FTIR testing showed a chemical bond between the epoxy, poliaminoamid and mepoxe. The results of tensile testing and testing optimum adhesive on the addition of 4% mepoxe of 18.93 MPa and 8.23 MPa.

Keywords: epoxy, poliaminoamid, mepoxe, adhesive strength, tensile strength