

The Influence of Brazing Method on Corrosion Behavior of Brazed Aluminum Joints

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Abstract : Fluid transmission pipes made of aluminum are widely use in petrochemical industries. For many applications they have to be brazed to each other. The brazed joints, in many cases, are encountered with corrosive medias. This paper reports a part of a work to investigate the corrosion behavior of brazed Al6061 using Al4047 as filler metal with and without the use of flux to discover the effect of different brazing atmospheres. The samples brazed under air, vacuum, argon, and hydrogen atmospheres. The interfacial area of the joints was examined to ensure being free of any defects. The sides of each test piece were covered with insulator and the surface of the joint was encountered to polarization test. The results revealed a significant difference of corrosion resistance. The samples that brazed under argon and hydrogen atmospheres had better corrosion resistance than other samples. Microstructure of the corroded joints revealed that the amount of the filler metal is a critical parameter on corrosion resistance of the joints.

Keywords : brazing, corrosion behavior, Al6061, polarization

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