Corrosion study was performed on Au-Al wire bonds, thin layers of sputter deposited Au and Al, and Au-Al intermetallic nuggets. The test environment was iodine-vapour in air (1 mg/L) at 85 °C with varying relative humidity, and 500 mg/L of KI in water. GDOES, XRD, SEM EDS, wire bond shear, and electrochemical testing were used to characterize the samples. Failures of Au-Al wire bonds were found to be primarily attributed to the corrosion of Al via formation of Al iodides and consequent formation of Al oxides and/or hydroxides. Most susceptible to corrosion are Al metallization and Al rich intermetallic phases.