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EFFECT OF Zn CONTENT AND PROCESS PARAMETERS ON CORROSION BEHAVIOUR OF TWIN-ROLL CAST ALUMINUM BRAZING ALLOYS

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ABSTRACT

Al–Mn alloys are used as fin materials in various brazing applications of automotive industry. With the addition of Zn, these materials become more prone to corrosion with respect to tube materials and behave sacrificial to protect whole structure. Centerline segregation (CLS), inherently existing feature of Twin-Roll Cast material, is believed to play a role on electrochemical behavior of aluminum alloys. The aim of this study was to reveal contribution of centerline segregation to the overall corrosion behavior of Zn bearing Al-Mn alloys. Influence of casting parameters on magnitude of CLS and Zn content of the alloy is correlated with the open circuit potential measurements and salt spray test results. Complementary studies that aim to elucidate corrosion mechanism operating at the scale of microstructural features was also carried out by employing metallographic techniques and SEM-EDS studies.

Keywords: twin-roll cast aluminum, corrosion, brazing.