



Improving serviceability of zinc aluminium magnesium coatings



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ABSTRACT:

Zinc Aluminium Magnesium (ZAM) alloy galvanised coatings have been the focus of numerous research studies over the past two decades. A variety of compositions exist, each forming complex microstructures containing primary zinc within eutectics rich in magnesium and aluminium. The alloying additions enhance the corrosion resistance and pressing performance. However, studies have shown that eutectic phases are susceptible to cracking on forming. This study investigates the relationship between coating weight and cracking on formed samples and how it influences the electrochemical behaviour of the coated systems. It was found that thinner coatings (8micron) exhibit fewer cracks than thicker, 30micron coatings. Electrochemical measurements showed forming increases the current in both coating weights while the potential was shifted more positive in thin coating (8 micron) and more negative with the 30micron coating, when compared to their respective flat samples.



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