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## **The Impact of Intermetallic FeSi and Eutectic Al-Si Composition on Pinhole Defect Emergence in Aluminium Foil 8011 Alloy**

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**Abstract:** In this paper, pinhole defect as one of the most important defects of Aluminium foil used in food and medical packaging as well as the origin of such a defect have been studied in an industrial foil rolling mill machine. In this study, different samples of Aluminium 8011 foil & sheet ranging from 7mm to 14 $\mu$ m have been provided and studied through optical metallography as well as scanning electron microscopy (SEM). The results of the present study proved the effect of intermetallic FeSi and eutectic Al-Si composition on the emergence of pinhole in the foil. Moreover, it has been found that  $\alpha$  sediment with the dimension of more than 2  $\mu$ m creates the pinhole in an Aluminium foil 8011 alloy.

**Keywords:** Pinhole; 8011 Alloy; Twin roll casting; Eutectic Al-Si composition