

**ABSTRACT:**

The effects of bismuth and the combination of bismuth and strontium on the eutectic silicon structure in Al-7Si-0.4Mg alloys were investigated under different solidification conditions. The results show that bismuth has a refining effect on the eutectic silicon and its refinement behavior increases with increasing Bi content up to 0.5 (mass fraction). When bismuth is added into the molten alloy modified with strontium, a higher Sr/Bi mass ratio of at least 0.45 is required to attain full modification of the eutectic silicon.