

## عنوان مقاله:

Interaction between Strontium and Phosphorus during Solidification of Hypereutectic A390 Cast Alloy

## محل انتشار:

دهمین همایش مشترک و پنجمین کنفرانس بین المللی انجمن مهندسی مواد و متالورژی و انجمن علمی ریخته گری ایران (سال: 1395)

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## خلاصه مقاله:

In this study, the effect of individual Sr and combined additions of Sr and P on microstructure and hardness property of A390 cast alloy have been investigated. Results showed that eutectic silicon size changed when strontium was added into cast alloy. The flakes structures of eutectic silicon changed to finer fibrous structure and the shape of primary silicon altered from faceted to more dendrite with increasing Sr concentration. The addition of strontium with presence of phosphorus refined the structure of primary silicon and changed the size of eutectic silicon. However, further increase of Sr did not modify the eutectic silicon morphology but affected primary silicon phase. Excess addition of strontium in phosphorus- treated melt deactivated therefining effect of phosphorus. Al<sub>2</sub>Si<sub>2</sub>Sr intermetallic was detected for higher amount of strontium. Proper refinement and distribution of primary silicon along with modification of eutectic silicon was achieved in the alloy containing 0.5 wt% P and 0.03wt% Sr. The highest hardness of eutectic Al-Si phase was obtained while eutectic structure changed to the fibrous morphology with lowest eutectic spacing.

## کلمات کلیدی:

Aluminium, A390, Interaction, Strontium, Phosphorus

## لینک ثابت مقاله در پایگاه سیویلیکا:

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