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Comparison on the graphite particles formed in as-cast and commercial hypereutectoid steels after subsequent graphitization treatment

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Abstract

Graphite is one of the main phases in the structure of most cast irons whose shape, morphology and distribution have a significant effect on the mechanical properties of cast irons. In present research, the presence of graphite in the matrix of hypereutectoid steel is studied after performing the graphitization transformation from martensite structure using SEM (Scanning electron microscope) images and EDX (Energy Dispersive X-ray) qualitative analysis. In addition, the effect of casting process and the addition of graphitizing alloying elements on the morphology, size and distribution of graphite during the graphitization process in cast hypereutectoid steels is studied in comparison with commercial ones.

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Index Keywords

As-cast; Casting process; Energy dispersive x-ray; Graphite particles; Graphitization process; Hypereutectoid steel; Martensite structures; matrix; Phase transformation; Qualitative analysis; Scanning Electron Microscope; SEM
Engineering controlled terms: Alloying elements; Graphite; Graphitization; Iron; Linear transformations; Martensitic steel; Mechanical properties; Morphology; Scanning electron microscopy
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