著者 | 甲府 洋弘
---|---
標題 | 高級進口製造における粒成長の影響を、高格度の酸素と硫黄の影響を考慮した高炭素・高硫黄高級铸鉄の熱処理における微細組織と硬さの変化について考察
発行誌名 | 科学報告：東北大学研究機関、物理化学冶金
巻 | 17/18
頁 | 51-51
年 | 1965
URL | http://hdl.handle.net/10097/27208
ABSTRACTS OF PAPERS
Published in Other Journals

The Effects of the Degree of Carbon Saturation and Sulphur on the Graphitization and Mechanical Properties of High Grade Cast Iron Annealed at Low Temperatures*

Hiroshi Meguro

The Research Institute for Iron, Steel and Other Metals

Abstract

The effects of the melting conditions and the relation between the degree of carbon saturation and sulphur on the low temperature annealing treatment were examined. The oxygen amounts in the chill-cast samples were analyzed. The annealing of the specimens was carried out at 500°, 550° and 600°C for 6 hrs and then the specimens were cooled in a furnace. The results obtained are summarized as follows: (1) The amounts of oxygen in the specimens prepared by the reducing refining which contain from 0.02 to 0.05 per cent sulphur were from 9 to 35 p.p.m. and those of oxygen in the specimens prepared by the oxidizing refining which contain from 0.02 to 0.07 per cent sulphur were from 26 to 60 p.p.m. (2) In the various degree of carbon saturation, the rate of graphitization of specimens prepared by the reducing refining which contain 0.05 per cent sulphur is lowest and the mechanical properties of this specimens are best. Generally, the tensile strength and hardness of the specimens which were annealed at 600°C for 6 hrs are much lowered with the increase in silicon content from 1.8 per cent silicon. (3) In both as-cast and annealed state, when comparison was made in a constant tensile strength and deflective load, the hardness of the specimens prepared by the reducing refining is lower compared with that of the specimens prepared by the oxidizing refining. This means that the relative hardness of the former is lower than that of the latter. Therefore, it may be said that the quality of the former is superior.