

论文摘要

中国有色金属学报

ZHONGGUO YOUSEJINSHUXUEBAO XUEBAO

第17卷 第4期 (总第97期) 2007年4月

 [PDF全文下载]

文章编号: 1004-0609(2007)04-0657-06

镁合金对16MnR钢液的脱氧作用

李尚兵, 王 谦, 何生平

(重庆大学 材料科学与工程学院, 重庆 400044)

摘 要: 用镁合金脱氧剂在内衬为MgO质坩锅的真空感应炉中对16MnR钢液的脱氧行为进行研究; 选取FeAl、AlMg、SiCa和SiCaMg合金, 对比考察脱氧后钢水的总氧和硫含量以及脱氧后夹杂物的变化。研究表明: 镁合金在对钢水脱氧的同时具有较强的脱硫能力; 残余在钢中的镁含量为0.000 7%-0.005 0%时, 微量镁对钢材的强度没有明显的影响, 但钢材塑性明显提高; 钢水脱氧后夹杂物大多转化为复合夹杂物, 其中Al₂O₃夹杂物主要转变为MgO·Al₂O₃等, FeS和MnS等硫化物夹杂转变成MnS、CaS和MgS等复合硫化物夹杂。

关键字: 镁合金; 16MnR钢; 脱氧; 脱硫; 夹杂物

Influence of magnesium alloy on deoxidation of 16MnR molten steel

LI Shang-bing, WANG Qian, HE Sheng-ping

(College of Materials Science and Engineering, Chongqing University, Chongqing 400044, China)

Abstract: Deoxidation behavior of magnesium alloy in 16MnR steel was investigated in a vacuum induction furnace with MgO crucible. The total oxygen and sulphur content in 16MnR steel during the course of deoxidization, as well as the deoxidized products were researched, in which Al, AlMg, SiCa and SiCaMg were used as deoxidizers. Effect of deoxidation and desulfurization in the steel with magnesium alloy were studied, and the change of inclusions was discussed. The results show that the effect of deoxidation with magnesium alloy is obvious, and the ratio of desulfurization is high. The mechanical properties of steel are not obviously changed when the content of Mg is 0.000 7%~0.005 0%. The deoxidized products are changed. Especially the inclusion of Al₂O₃, FeS and MnS are respectively changed into compound inclusion such as MgO·Al₂O₃, MnS, CaS and MgS.

Key words: magnesium alloy; 16MnR steel; deoxidation; desulfurization; inclusion

版权所有：《中国有色金属学报》编辑部

地 址：湖南省长沙市岳麓山中南大学内 邮编： 410083

电 话： 0731-8876765, 8877197, 8830410 传真： 0731-8877197

电子邮箱： f-yssxb@mail.csu.edu.cn