

论文摘要

中国有色金属学报

ZHONGGUO YOUSEJINSHUXUEBAO XUEBAO

第19卷 第2期 (总第119期) 2009年2月

 [PDF全文下载]  [全文在线阅读]

文章编号: 1004-0609(2009)02-0228-07

半固态A356铝合金初生相形貌的分形特征

刘 政^{1, 2}, 于锋波²

(1. 江西理工大学 机电工程学院, 赣州341000;
2. 江西理工大学 江西省有色金属加工技术工程研究中心, 赣州341000)

摘 要: 利用低过热度浇注技术制备半固态A356铝合金浆料, 应用Matlab编制计算软件以及图像计盒分形维数的计算方法, 研究半固态A356铝合金初生相形貌的分形特征。结果表明: 所制备的半固态A356铝合金初生相形貌属于一种分形结构; 不同工艺条件制备的初生相形貌有不同的分形维数, 分形维数大的初生相, 其形貌复杂; 分形维数小的初生相, 其形貌趋于简单; 半固态A356合金的凝固过程是一个分形维数变化的过程。

关键字: A356铝合金; 半固态; 分形特征; 初生相

Fractal characteristics of morphology of primary phase in semi-solid A356 Al alloy

LIU Zheng^{1, 2}, YU Feng-bo²

(1. Faculty of Mechanical and Electronic Engineering, Jiangxi University of Science and Technology, Ganzhou 341000, China;
2. Jiangxi Nonferrous Metal Processing Engineering Research Center, Jiangxi University of Science and Technology, Ganzhou 341000, China)

Abstract: Semi-solid A356 alloy slurry was prepared by low superheat pouring technology, and the fractal characteristics of morphology of primary phase in the alloy was researched by calculating program and computing method for box-counting dimension of images written with Matlab. The results indicate that the morphology of primary phase in semi-solid A356 alloy prepared belongs to fractal structure, and there are different fractal dimensions for the morphologies of primary phases prepared by different technologies, and the primary phase with a big fractal dimension has complicated morphology, and the primary phase with a small fractal dimension has simple morphology. The solidification of semi-solid A356 alloy is a process of fractal dimension change.

Key words: A356 Al alloy; semi-solid; fractal characteristics; primary phase

版权所有：《中国有色金属学报》编辑部 湘ICP备09001153号

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-ysxb@mail.csu.edu.cn