



## 论文摘要

中南大学学报(自然科学版)

ZHONGNAN DAXUE XUEBAO(ZIRAN KEXUE BAN)

Vol.暂无 No.暂无 暂无

[PDF全文下载] [全文在线阅读]

文章编号: 1004-0609(2000)02-0253-05

## 等温与非等温过程中 $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$ 的热分解行为

罗永勤<sup>1</sup>, 嵇 鹰<sup>1</sup>, 徐德龙<sup>1</sup>, 赵江平<sup>1</sup>, 周龙宝<sup>2</sup>, 贾国瑞<sup>2</sup>

(1. 西安建筑科技大学材料工程系, 西安710055; 2. 白银氟化盐有限公司, 白银 730901)

**摘 要:** 在不同的等温与非等温条件下, 对 $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$ 进行了热重法(TG)实验, 得出不同等温温度时三水氟化铝干基氟含量 $w(\text{F})/\%$ 、湿基水含量 $w(\text{H}_2\text{O})/\%$ 与等温时间或不同升温速率下等温加热温度的关系式。求出了不同加热过程中氟化铝产品特定品质指标( $w(\text{F})/\% \geq 61.0$ ,  $w(\text{H}_2\text{O})/\% < 0.50$ )下的特征操作参数及其相互关系。结果表明, 升温速率越大, 越有利于 $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$ 的脱水, 而对其水解脱氟具有相对的抑制作用; 提高等温温度, 有利于 $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$ 的脱水而不利于保氟。适当选择不同加热过程中的操作参数及其控制范围, 能满足三水氟化铝的脱水和保氟要求。

**关键字:** 三水氟化铝; 热分解; 脱水

## Thermal decomposition behavior of $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$ during isothermal and non-isothermal processes

LUO Yong-qin<sup>1</sup>, JI Ying<sup>1</sup>, XU De-long<sup>1</sup>, ZHAO Jiang-ping<sup>1</sup>, ZHOU Long-bao<sup>2</sup>, JIA Guo-rui<sup>2</sup>

(1. Department of Materials Engineering, Xi'an University of Arch and Technology, Xi'an 710055, P.R.China;  
2. Baiyin Fluoride Trade Co. LTD., Baiyin 730901, P.R.China)

**Abstract:** By using TG measurement, the thermal decomposition behavior of  $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$  under isothermal and non-isothermal conditions was studied. The relationships of fluorine content in moisture-free basis,  $w(\text{F})$ , the water content in moisture basis,  $w(\text{H}_2\text{O})$ , with the time elapsed under isothermal condition or with the temperature were obtained. For the aluminum fluoride quality specifications ( $w(\text{F}) \geq 61.0\%$ ,  $w(\text{H}_2\text{O}) < 0.50\%$ ), the characteristic operation parameters and the relationships between them during different heating processes were derived. The results indicated that greater heating rate is beneficial to dehydration of hydrolytic defluorination; higher degree of isothermal temperature results in more efficient dehydration and more deterrent to preservation of fluorine. Choosing optimum parameters and controlling scope properly during different heating processes, the requirement of dehydration of  $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$  and preservation of fluorine can be met.

**Key words:**  $\text{AlF}_3 \cdot 3\text{H}_2\text{O}$ ; thermal decomposition; dehydration

# 有色金属在线 中国有色金属权威知识平台

版权所有：《中南大学学报(自然科学版、英文版)》编辑部

地 址：湖南省长沙市中南大学 邮 编： 410083

电 话： 0731-88879765 传 真： 0731-88877727

电子邮箱： zngdxb@mail.csu.edu.cn 湘ICP备09001153号