

### 论文摘要

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## 平果氧化铝厂溶出液真实 $R_p$ 的计算及数学模型

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**摘要:** 根据实际生产数据及溶出和稀释过程的实际物料平衡, 探讨了溶出液真实 $R_{p真}$ 的计算方法, 克服了不能通过取样分析得到溶出液真实 $R_{p真}$ 的困难。通过回归分析得出了平果铝生产条件下溶出液真实 $R_{p真}$ 随溶出进料量和溶出液表观 $R_{p表}$ 变化的数学模型。分析了溶出液表观 $R_{p表}$ 与真实 $R_{p真}$ 差值产生的原因, 并提出了减小 $\Delta R_p$ 和提高溶出液真实 $R_{p真}$ 及氧化铝综合回收率的主要途径在于: 优化闪蒸操作, 降低闪蒸出口温度; 提高石灰分解率和活性度, 在保证溶出性能的前提下, 尽量减少进入溶出系统的 $CO_2$ 量和石灰加入量。

**关键字:** 溶出液; 真实 $R_p$ ; 氧化铝; 数学模型

## Calculation and math model of digested liquor real $R_p$

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**Abstract:** Using actual production data and mass equilibrium in digestion and dilution processes, the method of calculating digestion liquor real  $R_p$  was discussed and the difficulty in obtaining real  $R_p$  by sampling and analyzing was overcome also. Moreover, under the operation condition of Pingguo Alumina Refinery, math model of digestion liquor real  $R_p$  depending on digestion feeding rate and apparent  $R_p$  was regressed with actual production data. Reasons of difference between apparent  $R_p$  and real  $R_p$  were analyzed. The ways of lessening the difference and increasing digestion liquor real  $R_p$  and alumina recovery rate were as follows: making flash tank operation better and lowering temperature of digestion slurry at last flash tank outlet; increasing decomposition rate and activity of lime and decreasing quantities of  $CO_2$  and lime into digestion system as much as possible under assuring proper digestion performances.

**Key words:** digested liquor; real  $R_p$ ; alumina; math model

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