

SEPARATION SCIENCE & ENGINEERING

## 氢氧化钠浸取-浸取渣熔融法从炼钢厂烟尘中提取锌的研究

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收稿日期 修回日期 网络版发布日期 接受日期

**摘要** Extractability of zinc from two types of electric arc furnace (EAF) dusts containing 24.8% and 16.8% of zinc respectively (denoted as Sample A and Sample B) were tested using direct alkaline leaching followed by fusion of the resulting leaching residues with caustic soda. The experimental results show that the extraction of zinc is heavily dependent on the contents of iron in the dusts. The higher iron content, the lower extraction of zinc is obtained. 53% and 38% of zinc can be extracted when both dusts were directly contacted with  $5\text{mol} \cdot \text{L}^{-1}$  NaOH solution for 42h. The remaining zinc left in the leaching residues, which supposed to be present as zinc ferrites, can be further leached when the residues were fused with caustic soda. Quantitative extraction of zinc can be obtained from the leaching residue of Sample A while only 85% from Sample B. The extractability of zinc from dusts with various contents of iron is compared. The production flowsheet for zinc from the dusts using the process proposed is discussed.

关键词

分类号

## Extraction of Zinc from Electric Arc Furnace Dust by Alkaline Leaching Followed by Fusion of the Leaching Residue with Caustic Soda

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### Abstract

Extractability of zinc from two types of electric arc furnace (EAF) dusts containing 24.8% and 16.8% of zinc respectively (denoted as Sample A and Sample B) were tested using direct alkaline leaching followed by fusion of the resulting leaching residues with caustic soda. The experimental results show that the extraction of zinc is heavily dependent on the contents of iron in the dusts. The higher iron content, the lower extraction of zinc is obtained. 53% and 38% of zinc can be extracted when both dusts were directly contacted with  $5\text{mol} \cdot \text{L}^{-1}$  NaOH solution for 42h. The remaining zinc left in the leaching residues, which supposed to be present as zinc ferrites, can be further leached when the residues were fused with caustic soda. Quantitative extraction of zinc can be obtained from the leaching residue of Sample A while only 85% from Sample B. The extractability of zinc from dusts with various contents of iron is compared. The production flowsheet for zinc from the dusts using the process proposed is discussed.

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