

## 热镀锌厂酸洗废水及锌灰中锌回收

Recovery of zinc from wastewater and zinc ash of zinc hot galvanizing plants

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中文关键词: [酸洗废水](#) [锌灰](#) [蒸酸](#) [酸浸](#) [氨络合](#) [硫化物沉淀法](#)

英文关键词: [acid washing wastewater](#) [zinc ash](#) [steamed acid process](#) [acid leaching](#) [ammonia complexation](#) [sulphide precipitation](#)

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中文摘要:

分别采用蒸酸法、氨络合法和硫化沉淀法分离回收热镀锌厂酸洗废水及锌灰中锌铁。分别考察了酸洗废水中盐酸的逸出特性和氨浸法回收蒸馏渣中锌的效果;利用酸洗废水的酸度浸取锌灰中的锌并用氨络合法分离酸浸出液中锌铁;利用硫化物不同溶度积选择性沉淀酸浸出液中的锌,考察了 $\text{Na}_2\text{S}$ 加入量、曝气时间、反应溶液pH和反应时间的影响。研究表明硫酸的加入能提高盐酸的蒸发率但效果不明显,氨络合法难于有效分离锌铁,但硫化物沉淀法可较好地分离锌铁,铁回收率可达97.12%,锌沉淀率达到99.99%,所得沉淀物中ZnS纯度为68.51%。

英文摘要:

Steamed acid process, ammonia complexation process and sulphide precipitation process were conducted to investigate separation and recovery of zinc and iron from wastewater and zinc ash of zinc hot galvanizing plants. Different HCl evaporation characterization, zinc extracting effect with ammonia leaching process, and using the acidity of wastewater to leach out zinc ash and then separating zinc and iron from acid leaching solution by ammonia complexation were performed, respectively. Selective precipitation of zinc with  $\text{Na}_2\text{S}$  from acid leaching solution based on product solubility was employed under different conditions of  $\text{Na}_2\text{S}$  dosage, aeration time, pH value and reaction time. It is found that addition of sulphuric acid can slightly promote the evaporation of HCl. Ammonia complexation could hardly separate zinc from iron. On the contrary, sulphide precipitation can isolate zinc and iron effectively. Under the optimal conditions, the recovery rate of iron, the precipitation rate of zinc and the purity of ZnS can reach 97.12%, 99.99% and 68.51%, respectively.

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