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锌冶炼含汞污酸生物制剂处理新技术

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摘要: 针对锌冶炼行业含高浓度多种重金属的污酸特性, 采用生物制剂配合-水解新工艺进行处理, 工业试验运行过程中对污酸及处理后出水中各重金属及氟、氯的浓度进行监测, 并对产生的渣样进行分析。结果表明: 重金属浓度分别由汞14.78-56.70 mg/L、砷13.71-40.15 mg/L、锌20.50-58.90 mg/L、铅12.8-64.2 mg/L、镉2.1-13.6 mg/L、铜0.54-1.44 mg/L、氟339-512 mg/L、氯472-3400 mg/L脱除至汞0.029-0.049 mg/L、砷0.029-0.065 mg/L、锌0.11-0.37 mg/L、铅0.1-0.43 mg/L、镉低于0.01 mg/L、铜低于0.1 mg/L、氟0.054-4.99 mg/L、氯29.5-43.7 mg/L, 处理后出水中各重金属含量及氟、氯含量均远低于《污水综合排放标准》(GB8978—1996)。配合渣中的汞含量高达29.95%, 可作为汞原料进行回收, 水解渣中重金属含量低, 便于妥处理和处置。

关键字: 污酸; 生物制剂; 配合; 水解

Novel technology for treatment of acidic wastewater containing Hg by biologics in zinc smelter

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Abstract: Acidic wastewater with high concentration of heavy metals discharged from zinc smelter industry was treated by the novel technology of biologics complex-hydrolyzation, and the removal effect of heavy metals(Hg, As, Zn, Pb, Cd, Cu) and F^- , Cl^- was examined. During stable industrial experiments heavy metals and F^- , Cl^- of acidic wastewater are removed from 14.78-56.70 mg/L Hg^{2+} , 13.71-40.15 mg/L As, 20.50-58.90 mg/L Zn^{2+} , 12.8-64.2 mg/L Pb^{2+} , 2.1-13.6 mg/L Cd^{2+} , 0.54-1.44 mg/L Cu^{2+} , 339-512 mg/L F^- and 472-3400 mg/L Cl^- to 0.029-0.049 mg/L Hg^{2+} , 0.029-0.065 mg/L As, 0.11-0.37 mg/L Zn^{2+} , 0.1-0.43 mg/L Pb^{2+} , 0-0.01 mg/L Cd^{2+} , 0-0.1 mg/L Cu^{2+} , 0.054-4.99 mg/L F^- and 29.5-43.7 mg/L Cl^- respectively, which are all lower than those required in "Integrated Wastewater Discharge Standard" (GB8978-1996). Sediment from stable industrial experiments was analyzed. The result shows that mercury in complexing sediment reaches 29.95% and low concentration of heavy metals in hydrolytic sediment makes it easier to

dispose and treat.

Key words: acidic wastewater; biologics; complexing; hydrolyzation

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