

عنوان مقاله:

Kinetic Study of Nickel Leaching from Spent Catalyst in Sulfuric Acid solution

محل انتشار:

همایش ملی یافته های نوین شیمی در صنعت پزشکی (سال: 1388)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

The kinetics of spent nickel oxide catalyst (NiO/Al₂O₃) leaching in sulfuric acid solution was investigated. The effects of spent catalyst particle size, acid concentration and reaction temperature on Ni extraction rate were determined. The results obtained show that extraction of about 96% is achieved using 200 mesh spent catalyst particle size at a reaction temperature of 100C for 360 min reaction time with 60% sulfuric acid concentration. The solid/liquid ratio was maintained constant at 1:20 g/ml. Leaching kinetics are controlled either by diffusional mass transfer of either reactant or product ions through a liquid boundary layer or a product metal deposit. The leaching kinetics indicates that chemical reaction at the surface of the particles is the rate-controlling process during the reaction. The activation energy was determined as about 33.65 kJ/mol. This is consistent with values of activation energies reported for surface controlled reactions.

کلمات کلیدی:

Spent catalyst – Leaching - Sulfuric acid - kinetic study

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