Heavy metal recovery from electric arc furnace steel slag by using hydrochloric acid leaching

ABSTRCT

Electric Arc Furnace steel slag (EAFS) is the waste produced in steelmaking industry. Environmental problem such as pollution will occur when dumping the steel slag waste into the landfill. These steel slags have properties that are suitable for various applications such as water treatment and wastewater. The objective of this study is to develop efficient and economical chlorination route for EAFS extraction by using leaching process. Various parameters such as concentration of hydrochloric acid, particle size of steel slag, reaction time and reaction temperature are investigated to determine the optimum conditions. As a result, the dissolution rate can be determined by changing the parameters, such as concentration of hydrochloric acid, particle size of steel slag, reaction time and reaction temperature. The optimum conditions for dissolution rates for the leaching process is at 3.0 M hydrochloric acid, particle size of 1.18 mm, reaction time of 2.5 hour and the temperature of 90˚C.

Keyword: Electric Arc Furnace steel slag; Steelmaking industry; Steel slag waste