

Recovery of zinc from EAF dust by hydrometallurgical route with sulphuric acid as leachant

Kamalesh K Singh, Aritra Raut and T R Mankhand
Banaras Hindu University, India

Electric Arc Furnace (EAF) usage in producing steel is gaining importance day by day due to its special advantages. During smelting and refining of steel, the gases leaving the furnace carries a substantial amount of fine dust particles. The amount of dust generated is usually in the range of 9-18 kg per ton of scrap melted. The dust is important resource for the recovery of zinc and always better than its disposal as landfill. In order to recover zinc, the hydrometallurgical processes have been considered which are more eco-friendly and produces residues suitable for safe disposal as zinc could be selectively dissolved in suitable lixivants viz. sulphuric acid, hydrochloric acid, ammoniacal solution, sodium hydroxide have been used on bench scale. Sodium hydroxide however is selective for zinc dissolution but it needs further development for the metal recovery from the sodium zincate solution by electrolysis. Processes based on hydrochloric acid have not yet found any commercial application due to non-selective leaching and costly material of construction. Sulphuric acid have been found to be effective reagents for treatment of EAFD. The present paper examines and optimizes various parameters to recover zinc from EAF dust.

Biography

Kamalesh K Singh has completed his PhD in the year 2010 from Ranchi University and obtained Post-graduate diploma in Business Administration from Banaras Hindu University in the year 2014. He is holding position of Associate Professor in Metallurgical Engineering at Indian Institute of Technology (Banaras Hindu University) Varanasi, India. His broad area of research is Waste Recycling and Management.

kksingh.met@iitbhu.ac.in

Notes: