

# **Reduction of Iron Oxides in Solid Wastes Generated by Steelworks**

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## **Abstract**

Solid wastes generated by the integrated iron and steel works cause environmental pollution and therefore must be discarded accordingly. Extensive research is being conducted to recover the iron oxide that these wastes contain and for their elimination. Production of sponge iron from these wastes could be considered as one of the methods of beneficiation. In this study, reduction of cold-bonded pellets, produced from the solid wastes of Ereqli Integrated Iron and Steel Works (ERDEMIR), using different reducing agents, was investigated. A rotary furnace was utilised for this purpose and the effects of different reducing agents, the ratio of  $C_{fix} / F_{total}$ , temperature and time on the reduction were studied. The kinetics of the reduction process was also investigated and the data obtained were correlated with the Ginstling-Brounshtein model. The activation energy of the reduction was found to be 48.5 kJ/mol.