FEECO INTERNATIONAL

Project Profile: Indirect Kiln Pilot Plant for Red Mud

PROCESS

In response to the rising demand for aluminum, red mud (bauxite residue left over from the conversion of bauxite to aluminum) has become a growing stream of industrial waste.

The customer, a waste valorization company, wanted to recover the valuable iron still contained in the red mud, reducing the amount of material going to landfill and recovering the inherent value in the waste.

As a result of our advanced thermal processing and granulation knowledge, the customer approached FEECO to assess their intended process. Their plan was to granulate and dry the sludge-like material so it could be fed into a rotary kiln and converted from hematite to magnetite iron.

After extensive development work in the FEECO Innovation Center confirmed proof of process, the customer wanted to build their own pilot plant for carrying out the process on a larger scale.

FEECO provided plant engineering, including plant layouts, heat & mass balances, process flow diagrams (PFDs), controls engineering, as well as equipment design and fabrication.

Major equipment included a pugmill mixer for granulating the material, a rotary dryer for drying the granules, an indirect rotary kiln to carry out the chemical conversion, and a hammer mill for reducing oversize granules and feeding the back-mixing circuit.

PROJECT SPECS

Customer:
Proprietary

Equipment Supplied:
Indirect Rotary Kiln
Chain/Hammer Mill
Pugmill Mixer
Rotary Dryer

Project Location:
Canada

Industry:
Mining & Minerals

Material:
Red Mud (Bauxite Residue)

Project Engineer:
FEECO International, Inc.