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## **FINES RECYCLING PLANT- COLD BRIQUETTING OF FERROUS MATERIALS FOR REUSE IN THE HBI MIDREX PROCESS**

VOESTALPINE, TEXAS, USA

# VOESTALPINE TEXAS LLC., USA

## 2.0 MTPY HBI PLANT - FINES RECYCLING PLANT

### MAIN BENEFITS

- Recycling of pellet fines, sludge and dust generated in the plant and charging directly back into the main process plant as raw material substitute
- Saving of raw materials by partially substituting pellets with the ferrous briquettes produced in the fines recycling plant
- Avoid dumping costs and transport of by-products
- Semi automatic operation, minimizing manual operation and transport of materials
- Low manpower requirements for operating the plant



3D Model view of voestalpine Fines Recycling Plant

Primetals Technologies and voestalpine Texas LLC. collaborated and developed a project of a Fines Recycling Plant to be installed at the voestalpine HBI plant in Corpus Christi, Texas, USA.

The pellet fines, dusts and sludge generated in the Midrex process are briquetted in the plant and charged directly to the HBI plant as pellet substitute.

After 15 month of project execution the plant is in operation since early 2017.

### SOLUTIONS

The by-product fines, with an average iron content defined by the process are collected directly in and at the HBI plant complex and utilized in the cold briquetting plant located centrally within the plant complex. The pellet fines generated at the screens are collected in an intermediate storage silo and transported to the briquetting plant, without any additional handling. The dewatered sludge generated in the process is also transferred to the briquetting plant located next to the water treatment plant. In the Fines Recycling Plant the mixture of the by-products is briquetted using an inorganic binder and after a short curing time the briquettes are added directly to the charging conveyor to the HBI plant as a raw material substitute.

### SCOPE OF SUPPLY

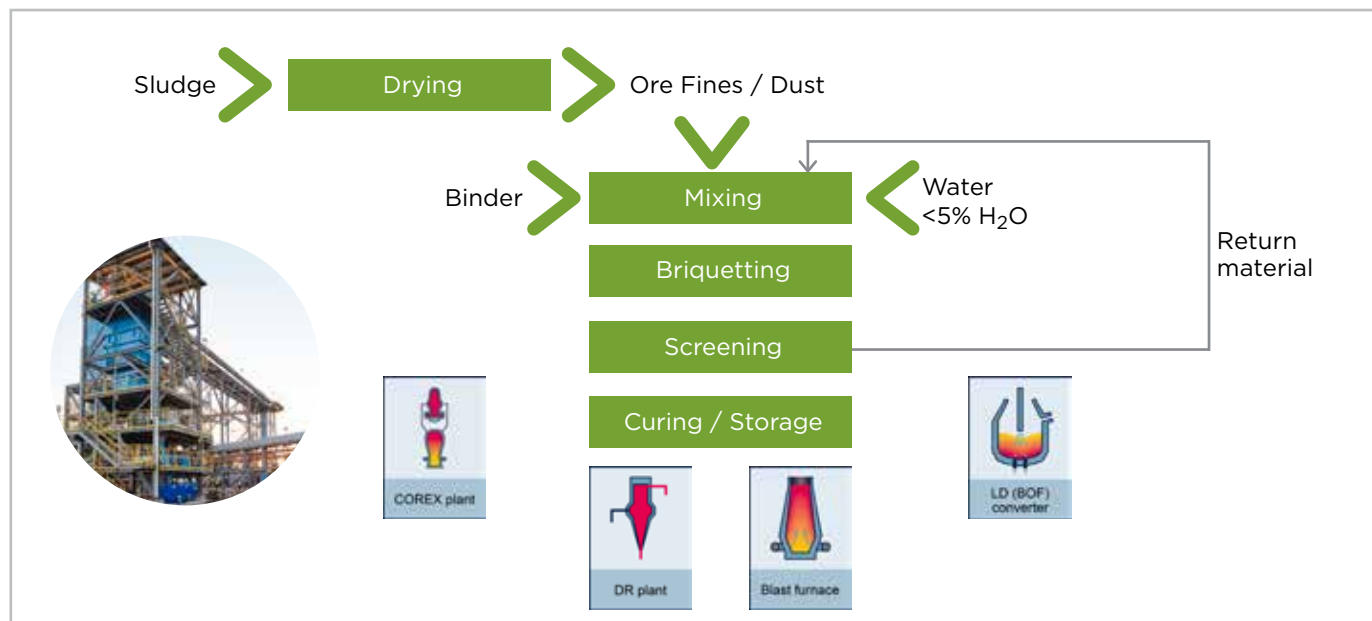
Summarized, the scope of work of Primetals Technologies consists mainly of the following:

Basic engineering and process know how Preparation of technical inquiry documents Supply of electrical and automation equipment and software Advisory services for start-up and commissioning.

Procurement, civil works and erection were done by voestalpine Texas.

### PLANT DATA

Fines Recycling Plant	
Pellet fines, sludge, miscellaneous dust, HBI chips and fines	approx. 160,000 t/a
Design capacity (briquettes)	24.6 t/h
Binder system	Inorganic binder
Briquette size	approx. 5 ccm



Typical process-flow of oxide briquetting



**Primetals Technologies Austria GmbH**

A joint venture of Mitsubishi Heavy Industries and partners

Turmstrasse 44  
4031 Linz  
Austria

[primetals.com](http://primetals.com)

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