



HBI PLANT

Construction Update: October 2020



Construction activities were in full swing in September. As we head into October, we are starting to ramp down construction activities and ramp up commissioning activities. We have completed all mechanical installation for the equipment and structures in the core process and are actively completing the electrical installation.

The pellet handling system is complete from a construction standpoint and is in the commissioning phase with a focus on instrument loop checks and uncoupled and coupled runs of the equipment. The HBI storage system is mechanically complete with electrical work ongoing and initial commissioning activities underway. The HBI load out system is mechanically complete with electrical work ongoing.

Rail installation reconvened and installation of the sub-ballast and underground work was completed in September.

Major Systems Progress

Completed

Pellet Storage System	100%
Oxide Feed System	100%
Nitrogen System	100%
Water Systems (Machinery cooling, Process, Potable)	100%
Water Treatment System	100%
DCS	100%
Air Systems (Plant, Instrument air)	100%
Electrical Substation	100%
Natural Gas Supply	100%
Process Gas System	100%
Core Process (Mechanical)	100%
HBI Storage System (Mechanical)	100%
HBI Loadout (Mechanical)	100%

In Progress

Core Process (Electrical)	89%
HBI Storage System (Electrical)	75%
HBI Loadout (Electrical)	50%
Rail System	60%

Project Timeline

Q2 2020 – Construction Restart

Q3 2020 – Systems Installed

Q4 2020 – Commissioning and Start Up

Cleveland-Cliffs Metallics

Cleveland-Cliffs will be producing a compact form of Direct-Reduced Iron (DRI) in the shape of briquettes for ease of shipping, handling, and feeding into an electric arc furnace. Hot-Briquetted Iron (HBI) is transported and fed similarly to scrap and pig iron, and requires no special handling. HBI can also be consumed into blast furnaces, helping to boost their productivity.



- U.S. based company: Cliffs is the only reliable domestic supplier of HBI in the Midwest
- Access to our own DR-grade pellet feedstock
- Midrex technology
- Capacity of 1.9 MTPY
- Access to consistent and abundant natural gas, power and transportation
- Close proximity to customers simplifies logistics, minimizing working capital costs for ore based metallics

A New and Improved HBI for Steel Producers

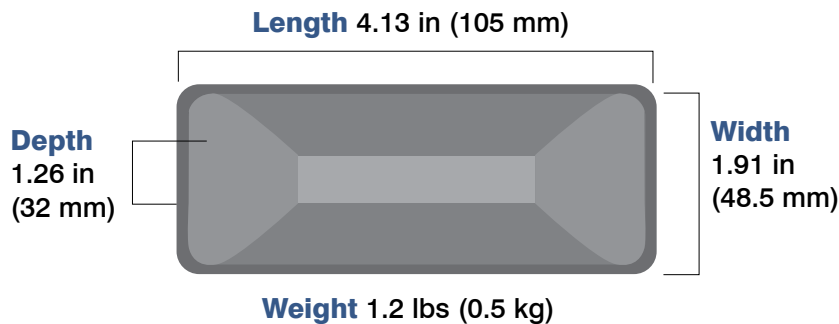
Reliability, consistency and value-in-use

- High metallization and high carbon
- High conversion yield from ore to steel
- Strong briquettes that can be stored and shipped
- Local production for dependable and regular delivery
- No need for specialized storage or charging systems

HBI Expected Analysis CHEMISTRY

Total Fe	90.6%
Metallic Fe	86.1%
Metallization	95.0%
FeO	5.8%
Carbon	3.0%
Sulphur	0.003%
Phosphorus	0.020%
Copper	0.001%
SiO ₂	2.69%
Al ₂ O ₃	0.34%
CaO	1.16%
MgO	0.42%

Dimensions



Questions? E-mail: northamericansales@clevelandcliffs.com