

8th International Arab Iron & Steel Conference

Sponsored by Arab Iron and Steel Union (AISU)

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Marriott Hotel

Doha, Qatar

HBI – Steel Scrap Substitute or Steel Scrap Supplement?



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HBI Association Ltd. (HBIA)

- **50 million tonnes traded and consumed**
 - ✓ 11% in the Middle East and Gulf region
 - ✓ 14.6% in GCC states, 25% in UAE alone
- **Per capita leads the world**
 - ✓ 380 kg per person in GCC states
 - ✓ 500 kg per person in Dubai
- **Dependence on imports**
 - ✓ 25 million tonnes in 2006 (region)
 - ✓ 21 million tonnes in 2008 (GCC)
- **Boom in steel/steel-related projects**
 - ✓ 27 completed in 2007
 - ✓ 97 to be completed by 2010



Qatar Steel Company

First DR/EAF-based Steel Mill in Middle East and North Africa

- **Traded internationally**
 - ✓ Steel scrap – 100 million tonnes/year
 - ✓ Pig iron – 16 million tonnes/year
 - ✓ Scrap substitutes/supplements – 14 million tonnes/year

- **“Sit in the same bathtub”**
 - ✓ Pricing waves pass from country to country

- **As important as operating practice**

➤ **Libyan Iron & Steel Company (LISCO)**

- ✓ Only plant solely dedicated to HBI production
- ✓ 650,000 tonnes/year capacity

➤ **Qatar Steel and Shadeed Iron & Steel**

- ✓ Designed to supply DRI to adjacent steel mill
- ✓ Capable of producing HBI to meet changing market conditions
- ✓ 1.5 million tonnes/year capacity (each plant)



Iron Ore



Direct Reduction



Hot Briquetting



Soft-loading



Shipping per IMO guidelines



Steelmaking

- **Direct Reduced Iron (DRI):** Iron oxide pellets, lump ores, or fines that have been reduced (oxygen removed) without reaching the molten stage resulting in a high purity, metallic product. *Classified by IMO as DRI (B) Pellets, Lumps, and Cold Molded Briquettes*
- **Hot Briquetted Iron (HBI):** An enhanced form of DRI that has been compacted at temperature at or above 650° C and has a density greater than 5.0 grams per cubic centimeter (g/cm³). *Classified by IMO as DRI (A) Hot Molded Briquettes*



- **Weight:** 0.5 to 1.5 kg (1.0-3.5 lbs)
- **Apparent Density:** >5.0 g/cm³ (>310 lbs/ft³)
- **Bulk Density:** 2.88 tonnes/m³ (180 lbs/ft³)
- **Size:**
 - ✓ Length = 90-130 mm (3.5-5.0 in)
 - ✓ Width = 48-110 mm (1.9-4.5 in)
 - ✓ Thickness = 20-50 mm (0.75-2.0 in)



Typical (%)

Total Iron (Fe)	90.00 to 93.00
Acid Gangue	1.95 to 5.10
P	0.015 to 0.060
S	0.005 to 0.020
C	1.07 to 1.60

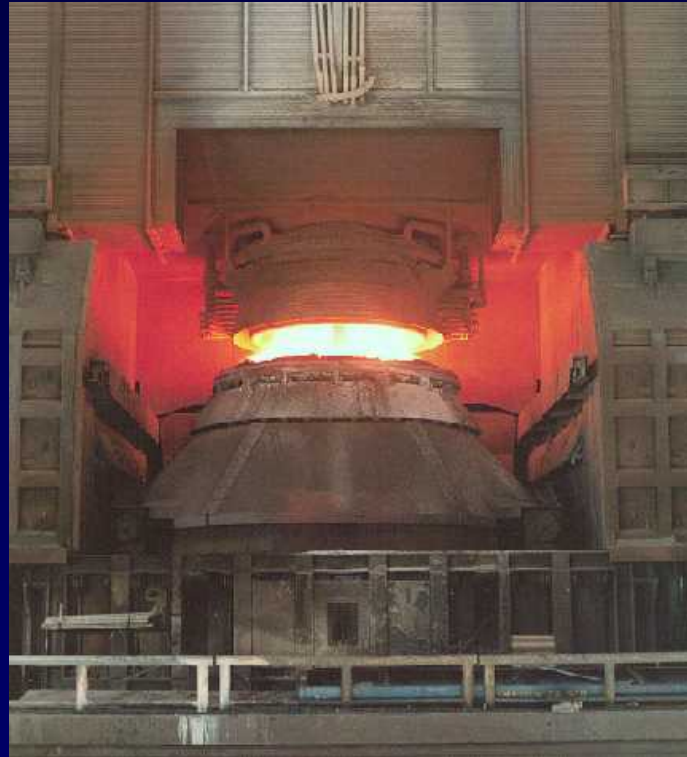
- AC or DC furnaces, long or short arc
- Well-defined, consistent chemistry
- Low residual content
- Application flexibility
- Continuous feeding
- Foamy slag practice
- Shields refractory
- Attractive cost structure
- Year-round production



- **Increases BF iron production**
- **Reduces coke rate, lowers CO₂ emissions**



- **Compatible with injected fuels and oxygen**
- **Metallic yield similar to hot metal**
- **Predictable mass and heat balances**



Use in LMF and Foundry



- **Rapid penetration of slag layer**
 - ✓ Density > 5.0 grams per cubic centimeter
- **Faster melting**
 - ✓ High thermal and electrical conductivity
- **Fewer fines**
 - ✓ Increased user value
- **Safer for ocean and inland transport**
 - ✓ 75% less water pickup
- **Easy to handle, store, and transfer**
 - ✓ No special equipment
 - ✓ All types of weather

- **Realistic solution to greenhouse gas emissions**
 - ✓ Natural gas as reductant and fuel
 - ✓ DRI or HBI feeding EAF
 - ✓ 60% less CO₂ emissions/tonne of steel than BF/BOF route
- **Lower carbon emission in BF iron production**
 - ✓ 10% burden metallization increase lowers coke rate 7%
 - ✓ 200 kg of HBI replacing coke reduces CO₂ emissions 14%/tonne of hot metal

- **Steel consumption in Middle East & N. Africa** 
 - **Current steel imports** 
 - **Steel and steel-related projects in region** 
 - **Availability of energy, skilled labor, and experience** 
 - **Access to major shipping lanes** 
 - **Increasing global demand for steelmaking metallics** 
 - **Development of indigenous iron ore sources** 
- All signs point  for the Arab Steel industry to become a leading supplier of steelmaking metallics

- **To promote HBI as the preferred source of merchant steelmaking metallics**
- **To inform shipowners/operators, charterers, and terminal operators of the handling, shipping, and storage benefits of HBI**
- **To assist iron and steel producers in the effective use of HBI**



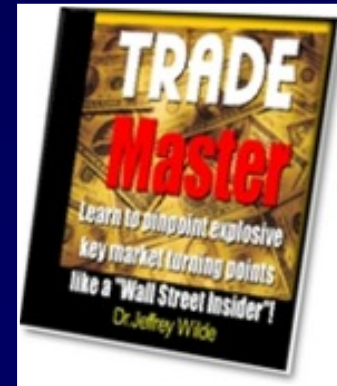
Producers



Associates



Traders



Special





Promotion

Transportation

Technical



- **Networking with major players in steelmaking
metallics market**
- **Representation at major steel industry events**
- **Industry news, information, and statistics**
- **Presence in international shipping and trade
forums**
- **Members Only area of Web site (www.hbia.org)**
- **Roster of member companies and contacts**



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Thank you for your attention

www.hbia.org