The Use of Hot Briquetted Iron (HBI) in the Basic Oxygen Furnace (BOF) for Steelmaking

The use of HBI as a part of the solid charge mix is recommended for the following situations:

- When the proportion of hot metal and scrap used results in overheating at the end of the blowing process (using HBI as a coolant produces the desired temperature without a cooling process)
- When iron ore is used as cooling agent due to scarcity of scrap (which reduces productivity)
- When scrap availability is an issue
- When lower sulphur content of the charge material is required
- When lower residual content is required

The Benefits of HBI in the BOF

HBI provides an optimal BOF charge due to

- Low levels of residual elements
- Bulk density of ~2.8 t/m$^3$ - higher than scrap
- Same metallic yield as hot metal
- More predictable mass and heat balances

HBI is an excellent trim coolant due to the following characteristics

- Free-flowing from overhead bins
- Well defined physical and chemical properties
- Maintains steel bath composition
- Easily charged from overhead bins
- Rapid penetration of slag
- Reduces slag volume when used instead of fluxes
- Higher yield and increased productivity than with conventional coolants
Results of Charging HBI as Part of the Solid Charge

<table>
<thead>
<tr>
<th>Coolant</th>
<th>Cooling intensity relative to scrap</th>
</tr>
</thead>
<tbody>
<tr>
<td>scrap</td>
<td>1.0</td>
</tr>
<tr>
<td>iron ore</td>
<td>2.0 - 3.0</td>
</tr>
<tr>
<td>limestone</td>
<td>3.0 - 4.0</td>
</tr>
<tr>
<td>HBI</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Additional Crude Steel Production based on various Coolants

Copyright International Iron Metallics Association Ltd. The information presented in this Fact Sheet is intended as general information only and should not be relied upon in relation to any specific application. Those making use thereof or relying thereon assume all risks and liability arising from such use or reliance.