### Measures to influence the quality of the slag

<table>
<thead>
<tr>
<th>Process stage</th>
<th>Measures to influence the quality</th>
<th>Influenced properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material preparation</td>
<td>selection, arrangement and pre-treatment of raw materials related to the chemical comp. of the blast furnace slag</td>
<td>chemical composition e.g. CaO, SiO₂, Al₂O₃, MgO, alkalis</td>
</tr>
<tr>
<td>Melting process</td>
<td>selection of suitable process conditions (blast furnace temp., minimization of carbon rate, gas flow, etc …)</td>
<td>temperature, composition of the products</td>
</tr>
<tr>
<td>Heat treatment</td>
<td>different cooling rates a) quick: - blowing - granulation - pelletizing</td>
<td>glass content, structure, porosity</td>
</tr>
<tr>
<td></td>
<td>b) moderate - foaming</td>
<td>bulk density, strength, porosity</td>
</tr>
<tr>
<td></td>
<td>c) slow - air-cooling</td>
<td>strength, porosity, resistance to polishing, grain size</td>
</tr>
<tr>
<td>Processing</td>
<td>crushing sieving grading milling</td>
<td>grain size, shape, grain size distribution</td>
</tr>
</tbody>
</table>

1) All process stages are subjected to a continuous production control

---

### Blast Furnace Slag

#### Blast furnace process

- **hot metal**
  - granulation quick cooling with water to produce vitrified granulates (0-5mm)
  - air-cooling slow cooling with air in slag pits to produce crystalline material

- **liquid blast furnace slag**
  - granulated blast furnace slag
  - crystalline blast furnace slag

- **off-gas**
  - blast furnace slag pellets
    - a) material <10mm: grinding to powder (<100μm) to produce GGBS or with addition of ground PC-clinker to produce Portland slag cements and blast furnace slag cements
    - b) material >10mm: crushing, sieving, grading to produce aggregates for road construction and concrete

- **coke, coal**

- **iron ore (lump ore, sinter and pellets)**
  - grinding to powder (<300μm), to be used as blast furnace slag lime

- **limestone, dolomite, additions**
  - a) material <10mm: grinding to powder, addition of ground PC-clinker to produce Portland slag cements and Bfslag cements
  - b) material >10mm: crushing, sieving, grading to produce light aggregates for concrete

---

EUROSLAG