Tata Steel's GGBS has been awarded with "GreenPro" Certification by CII-Godrej GBC. This certification comes as a validation of our efforts towards sustainability and working towards creating an eco-system for green building materials in India.

Tata Steel is one of the first organizations in India to be awarded with this prestigious award for GGBS.

**About GreenPro - Green Product Certification**

GreenPro is a product certification which helps an environmentally conscious customer to make an informed choice in buying eco-friendly products. GreenPro is a mark of guarantee that a product which bears the GreenPro label is environment friendly throughout its life cycle.

It is being used in major infrastructure projects, strengthening the core of India and contributing to a clean, green planet.

**Product Packaging**
- 50 kg and Jumbo Bags.
- Also available in Bulkers

**Shelf Life**
- 6 months (Store in dry places)

**Safety Direction**
- Tata Steel GGBS is non-toxic. Use of gloves and goggles recommended

**First Aid Measures**
- **Eye Contact:** Rinse the eyes with clean water with the eyelids open. Seek medical advice if irritation persists
- **Skin Contact:** Wash with soap and water
- **Ingestion:** Rinse mouth and drink plenty of water
- **Inhalation:** Move affected person into fresh air. Seek medical advice if irritation persists

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What is GGBS?

Ground-granulated blast-furnace slag (GGBS) is obtained by quenching molten iron slag (a by-product of the steel making process) from a blast furnace in water or steam, to produce a glassy, granular product which is then dried and ground into a fine powder.

GGBS has an important role to play in the making of stronger and durable concrete.

GGBS is the most preferred material for—high-rise buildings, marine applications such as dams, shore protection structures and effluent and sewage treatment plants.

Different applications:

- Composite Cement (CC)
- Cement Fibre Boards (CFB)
- Plain Concrete (PC)
- RMC
- Hume Pipe Mfg. (HPM)
- INFRASTRUCTURE (IP)

Tata Steel’s GGBS Parameters

<table>
<thead>
<tr>
<th>Elements</th>
<th>Chemical Properties</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>FeO</td>
<td>%</td>
<td>0.20</td>
</tr>
<tr>
<td>CaO</td>
<td>%</td>
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<tr>
<td>SiO2</td>
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</tr>
<tr>
<td>Al2O3</td>
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<tr>
<td>Sulfur</td>
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<tr>
<td>MgO</td>
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<tr>
<td>Moisture %</td>
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<tr>
<td>Bentonite Residue</td>
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<tr>
<td>Loss of Ignition</td>
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</tr>
<tr>
<td>Glass Content</td>
<td>%</td>
<td>10.00</td>
</tr>
</tbody>
</table>

Physical Properties

- Fines Powder
  - 4000-6200 cm²/gm (Blaine)
  - As per IS 14714:2018 | Max. 1%
  - Whitish

Advantages

Concrete Strength:
Concrete made with GGBS continues to gain strength over time, and has been shown to double its 28-day strength over periods of 10 to 12 years.

Concrete Durability:
- Low heat of hydration hence reduced chances of thermal cracking:
  i) GGBS lowers peak and overall heat of hydration
  ii) It also reduces temperature differential in the concrete
  iii) Reduces early stage thermal cracks
- Lower chloride penetration hence resistance to corrosion:
  i) GGBS cement paste is more effective at binding chlorides than an equivalent Portland cement paste
  ii) Offers much superior protection from corrosion due to chloride ion penetration
- Lower rate of alkali silica reaction hence reduced expansion cracks:
  i) GGBS reduces the alkalinity of the concrete, and thus the alkali-silica ratio. GGBS also reduces free lime in the concrete (regarded as an important factor for ASR)
  ii) Higher resistance to sulphate attack hence reduced expansion cracks:
    i) Due to absence of tri calcium aluminate in GGBS, the concrete that contains GGBS doesn’t have conducive atmosphere for sulphate attack to take place