PRODUCT DESCRIPTION
The synthesis of alkali activated slag cement using iron blast furnace slag becomes an important measurement for energy conversation and environment protection. Alkali activated slag cements differ from ordinary Portland cement through the use of an alkali-activated iron blast furnace slag with limestone and kaolin blends to give high compressive strength, long-term performance, improved durability characteristics and lower maintenance costs.

PROBLEM STATEMENT
One of the main challenges for the cement industry is to reduce CO$_2$ emissions into the atmosphere during the manufacture of Portland cement. In this context, the use iron blast furnace slag in cement serves to make concrete “greener.” Not only it can be considered a recycled material, but it can also significantly reduce energy consumption, reduces virgin material use and reduces greenhouse gases emitted in the production of concrete raw materials.

PRODUCT ADVANTAGES

<table>
<thead>
<tr>
<th>Compound</th>
<th>CaO</th>
<th>SiO$_2$</th>
<th>Fe$_2$O$_3$</th>
<th>MgO</th>
<th>Al$_2$O$_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>65</td>
<td>22</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>BF Slag</td>
<td>38.3</td>
<td>33.8</td>
<td>0.3</td>
<td>8.1</td>
<td>14.2</td>
</tr>
<tr>
<td>Kaolin</td>
<td>0.02</td>
<td>52.3</td>
<td>1.0</td>
<td>0.1</td>
<td>42.8</td>
</tr>
</tbody>
</table>

Compressive Strength Development of Alkali Activated Slag Mortar

- Alternative, low cost and green in making cement.
- Using waste in the making of cement
- Turns waste into wealth.

COMMERCIAL POTENTIAL
The production of alkali activated slag cements associated with low energy consumption and low CO$_2$ emission, along with the potential to reach high mechanical strength at early ages of curing, high stability in aggressive environments and resistance to elevated temperatures. These properties have made alkali activated slag cements a very interesting alternative from both scientific and commercial points of view.

PUBLICATION