

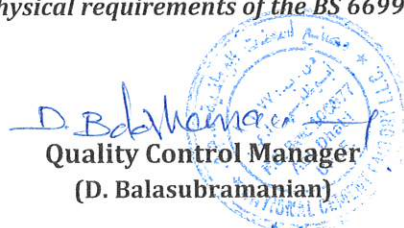
## خبث محبب من صناعة الحديد والصلب

### GROUND GRANULATED BLAST FURNACE SLAG CERTIFICATE

Product : GGBFS  
 Standard : BS 6699:1992  
 Week No. : 17/21  
 Sample Date : 23-29.04.2021 تاريخ العينة :  
 Issue Date : 31-May-21

Parameters	Units	Results %	Specification
<b>Chemical Test Results</b>			
Loss On Ignition (Corrected for Oxidation of Sulfur) LOI	%	1.56	Max. 3.0 %
Silicon Dioxide SiO <sub>2</sub>	%	32.58	
Aluminium Oxide Al <sub>2</sub> O <sub>3</sub>	%	16.29	
Ferric Oxide Fe <sub>2</sub> O <sub>3</sub>	%	1.28	
Calcium Oxide CaO	%	35.71	
Magnesium Oxide MgO	%	8.13	Max. 14.0 %
Potassium Oxide K <sub>2</sub> O	%	0.40	
Sodium Oxide Na <sub>2</sub> O	%	0.37	
Sulphur Trioxide SO <sub>3</sub>	%	1.76	Max. 2.5 %
Chloride Cl	%	0.023	Max. 0.10 %
Sulphide Sulphur S <sup>-2</sup>	%	0.80	Max. 2.0 %
Manganese Oxide Mn <sub>2</sub> O <sub>3</sub>	%	0.18	Max. 2.0 %
Insoluble Residue IR	%	0.20	Max. 1.5 %
Product Moisture	%	0.35	Max. 1.0 %
Glass Content	%	96.3	Min. 67.0 %
<b>Chemical Module</b>			
(CaO + MgO + SiO <sub>2</sub> )	%	76.42	Min. 66.7 %
(CaO + MgO) / SiO <sub>2</sub>	%	1.35	Min. 1.0 %
CaO / SiO <sub>2</sub>	%	1.10	Max. 1.4 %
<b>Physical Test Results</b>			
Fineness (Specific Surface) Blaines	m <sup>2</sup> /kg	460	Min. 275 m <sup>2</sup> /kg
+45 µm Residue	%	3.10	
Specific Gravity		2.88	
Initial Setting Time IST	Minutes	240	Not less than OPC
Final Setting Time FST	Minutes	265	
Soundness-Le-Chatlier Expansion	mm	0.5	Max. 10 mm
<b>Compressive Strength ( N/mm<sup>2</sup>)</b>			
		OPC-100%	GGBFS -70 % & OPC-30 %
2 Days	N/mm <sup>2</sup>	23.9	8.4
7 Days	N/mm <sup>2</sup>	40.4	23.8
28 Days	N/mm <sup>2</sup>	51.3	40.0

*We hereby certify that above described GGBFS, at the time of consignment, meets the chemical and physical requirements of the BS 6699:1992*

  
 Quality Control Manager  
 (D. Balasubramanian)