



CONFORMITY CERTIFICATE						
Ground Granulated Blastfurnace Slag Produced at		Scunthorpe		Works		
Sample Period		December 2019				
Certificate of Conformity of GGBS to EN 15167-1:2006			Certificate of Conformity of Combinations of GGBS and CEM I Portland Cement to Annex A of BS 8500-2:2015			
Spot samples of GGBS were taken and tested to determine conformity to the autocontrol requirements of EN 15167-1:2006 "Ground granulated blastfurnace slag for use in concrete, mortar and grout" following the methods given in that standard. The values reported are mean values for the monthly production period.			Portland Cement Source:			
Scunthorpe GGBS Only			N/A			
For combinations of GGBS supplied from the above works with the above CEM I Portland cement the permitted proportions conforming to the requirements given in annex A of BS 8500-2:2015 are:						
Results	Product	EN Limit	Strength Class	Not Less Than**	Not More Than**	
Fineness m ² /kg	512	min. 275	52.5L	N/A	N/A	
Magnesium Oxide MgO %	8	max. 18	42.5L	N/A	N/A	
Sulfate SO ₃ %	0.3	max. 2.5	32.5L	N/A	N/A	
Sulfide S ²⁻ %	0.8	max. 2.0	Conformity Evaluation Period (if less than 6 months)	N/A	month(s)	
Chloride Content Cl ⁻ %	0.01	max. 0.10	Combination Designation (Table 1 BS 8500-2:2015)			
Moisture Content %	0.0	max. 1.0	CIIA-S	6	20	
Corrected Loss on Ignition %	0.7	max. 3.0	CIIB-S	21	35	
Aluminium Oxide Al ₂ O ₃ %	12.5	to 1 d.p.	CIIIA	36	65	
Note: If the value of Al ₂ O ₃ is ≥ 14.5% the '+SR' restriction will be exceeded if the C ₃ A of the CEM I is >10%.			CIIB	66	80	
<i>Alkalis as Na₂O equ. (acid soluble)</i>			** % GGBS			
Guaranteed Alkali limit %	≤ 1.0		<i>Results of tests in accordance with BS EN 196-1 for 50% GGBS in combination with 50% CEM I Portland cement shown above</i>			
Certified Average Alkali (Last 25) %	0.63		Age	7 Days	28 Days	
Declared Mean : Mean last 25 + (SD last 25 x 1.64) %	0.62		Compressive Strength N/mm ²	N/A	N/A	
COMBINATION OF 50% LABORATORY STOCK CEM I PORTLAND CEMENT AND 50% GGBS			<i>The samples of LKAB Minerals GGBS and the CEM I Portland cement were bulk average monthly samples for the works specified</i>			
Initial Setting Time min.	220	not > than 2 x PC				
Activity Index %	7 days	69				min. 45
	28 days	90				min. 70
LABORATORY STOCK CEM I PORTLAND CEMENT ONLY						
<i>The stock CEM I Portland cement used in these tests was supplied by Hanson Ribblesdale works and the following results were obtained from that sample</i>						
Initial Setting Time min	155					
Compressive Strength N/mm ²	7 days	46.4				
	28 days	57.6				
The GGBS contained no additional materials other than those permitted. The above results and other tests demonstrate the conformity of the material sold during the month to the requirements of EN 15167-1:2006			1333-CPR-00194			

Signed: