



**CEMENTOS ALFA, S.A.**

**PLANT: MATAPORQUERA**

ER Certificate: ER-0572/1998



**TECHNICAL CHARACTERISTICS CERTIFICATE**

**Cement**

**CEM I 52.5 R MA**

**Period**

**November, 2016**

**CE: 0099/CPR/A33/0831**

TESTS	Results Average Value	Standard Spec. EN/UNE
<b>Chemical Characteristics</b>		
Loss on Ignition %	2,4	< 5,0
Insoluble Residue %	0,4	< 5,0
Sulphates (SO <sub>3</sub> ) %	3,3	< 4,0
Chlorides %	0,01	< 0,10
<b>Physical and Mechanical Characteristics</b>		
Normal Consistency Water %	30,1	
Initial Setting Time min	161	> 45
Final Setting Time min	216	< 720
Soundness Le Chatelier mm	0,0	< 10
Specific Surface (Blaine) cm <sup>2</sup> /g	4829	
Compressive Strength at 2 days MPa		
• Monthly average	39,9	> 30,0
• Cumulative average (12/2015 - 11/2016)	40,4	> 30,0
• Cumulative Std. Dev. (12/2015 - 11/2016)	1,9	
Compressive Strength at 28 days MPa		
• Monthly average	65,9	> 52,5
• Cumulative average (12/2015 - 11/2016)	65,7	> 52,5
• Cumulative Std. Dev. (12/2015 - 11/2016)	2,5	
<b>Additional Characteristics</b>		
C3A * (%)	3,4	
Alkali Equivalent (%)	0,71	< 0,75

\* Corresponding to clinker composition  
This document doesn't imply that any amount of cement has been supplied by the Company

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Chief of Quality Control

