



CEMENTOS ALFA, S.A,

Plant: MATAPORQUERA

ER Certificate: ER-0572/1998



QUALITY ANALYSIS CERTIFICATE - CEMENT

TYPICAL RESULTS

Cement Type: **CEM I 42,5 R**
(EN 197-1)

PERIOD: JULY 2015

CE: 0099/CPR/A33/0154

N: 015/001358

The Quality Management System adopted in our company for the production and commercialization of cements and clinker, complies with UNE-EN-ISO 9001:2008, and it is certified by AENOR. It is also certified under IQNet network.

| TESTS | Results | Specification EN 197-1 |
|------------------------------------------------|---------|------------------------|
| Chemical Characteristics | | |
| Loss on Ignition % | 2,68 | ≤ 5,0 |
| SiO ₂ % | 19,63 | |
| Al ₂ O ₃ % | 5,33 | |
| Fe ₂ O ₃ % | 2,19 | |
| CaO % | 62,95 | |
| MgO % | 1,84 | |
| Na ₂ O % | 0,21 | |
| K ₂ O % | 1,11 | |
| Insoluble Residue % | 0,42 | ≤ 5,0 |
| Sulphates (SO ₃) % | 3,29 | ≤ 4,0 |
| Chlorides % | 0,01 | ≤ 0,10 |
| Physical and Mechanical Characteristics | | |
| Normal Consistency Water % | 29,5 | |
| Initial Setting Time min | 165 | ≥ 60 |
| Final Setting Time min | 225 | |
| Soundness (Le Chatelier) mm | 1,0 | ≤ 10 |
| Specific Surface (Blaine) cm ² /g | 3760 | |
| Compressive Strength at 2 days MPa | 34,4 | ≥ 20,0 |
| Compressive Strength at 28 days MPa | 57,1 | 42,5-62,5 |
| Other Characteristics | | |
| Na ₂ O equiv. % | 0,94 | |
| Bogue Composition (mineral phases) * | | |
| C ₃ S % | 54,5 | |
| C ₂ S % | 19,8 | |
| C ₃ A % | 12,5 | |
| C ₄ AF % | 7,2 | |

* Corresponding to clinker composition

R-25-4-52/5-Z

Quality Manager

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