



CEMENTOS ALFA, S.A,

Plant: MATAPORQUERA

ER Certificate: ER-0572/1998



QUALITY ANALYSIS CERTIFICATE - CEMENT

TYPICAL RESULTS

Cement Type: CEM I 52,5 R ma (EN 197-1)

PERIOD: JULY 2014

CE: 0099/CPR/A33/0831

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 % | 1,87 | ≤ 5,0 |
| SiO ₂ % | 20,04 | |
| Al ₂ O ₃ % | 4,42 | |
| Fe ₂ O ₃ % | 3,26 | |
| CaO % | 63,86 | |
| MgO % | 1,42 | |
| Na ₂ O % | 0,17 | |
| K ₂ O % | 0,78 | |
| Insoluble Residue % | 0,48 | ≤ 5,0 |
| Sulphates (SO ₃) % | 3,36 | ≤ 4,0 |
| Chlorides % | 0,00 | ≤ 0,10 |
| Physical and Mechanical Characteristics | | |
| Normal Consistency Water % | 31,0 | |
| Initial Setting Time min | 155 | ≥ 45 |
| Final Setting Time min | 195 | |
| Soundness (Le Chatelier) mm | 0,5 | ≤ 10 |
| Specific Surface (Blaine) cm ² /g | 4970 | |
| Compressive Strength at 2 days MPa | 40,6 | ≥ 30,0 |
| Compressive Strength at 28 days MPa | 68,2 | ≥ 52,5 |
| Other Characteristics | | |
| Na ₂ O equiv. % | 0,69 | ≤ 0,75 |
| Bogue Composition (mineral phases) | | |
| C ₃ S % | 62,9 | |
| C ₂ S % | 15,3 | |
| C ₃ A % | 6,3 | |
| C ₄ AF % | 10,0 | |

R-25-4-52/5-Z

Quality Manager

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