



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: MARCH 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 % | 2,66 | ≤ 5,0 |
| SiO ₂ % | 19,48 | |
| Al ₂ O ₃ % | 5,57 | |
| Fe ₂ O ₃ % | 2,33 | |
| CaO % | 63,01 | |
| MgO % | 1,89 | |
| Na ₂ O % | 0,17 | |
| K ₂ O % | 1,08 | |
| Insoluble Residue % | 0,51 | ≤ 5,0 |
| Sulphates (SO ₃) % | 3,29 | ≤ 4,0 |
| Chlorides % | 0,01 | ≤ 0,10 |
| Physical and Mechanical Characteristics | | |
| Normal Consistency Water % | 28,6 | |
| Initial Setting Time min | 160 | ≥ 60 |
| Final Setting Time min | 210 | |
| Soundness (Le Chatelier) mm | 0,5 | ≤ 10 |
| Specific Surface (Blaine) cm ² /g | 3690 | |
| Compressive Strength at 2 days MPa | 32,1 | ≥ 20,0 |
| Compressive Strength at 28 days MPa | 56,8 | 42,5-62,5 |
| Other Characteristics | | |
| Na ₂ O equiv. % | 0,88 | |
| Bogue Composition (mineral phases) * | | |
| C ₃ S % | 52,8 | |
| C ₂ S % | 20,8 | |
| C ₃ A % | 12,4 | |
| C ₄ AF % | 7,4 | |

* Corresponding to clinker composition

R-25-4-52/5-Z

Quality Manager

Barrio la Estación, s/n.
39410 Mataporquera (Cantabria)
Tel. 942 770 058
Fax 942 770 243
info@alfainforma.com



GRUPO CEMENTOS PORTLAND VALDERRIVAS