## aalborgportland

## AALBORG WHITE ${ }^{\circledR}$ cement made in Denmark

AALBORG WHITE ${ }^{\circledR}$ cement has the CE-mark and is marked as CEM I 52,5R-SR5 and certified by Bureau Veritas Certification with the certificate no. 0615-CPR-9806. The cement and clinker are produced by Aalborg Portland A/S in Aalborg, Denmark.

| Essential characteristics | Standard | Unit | Typical value ${ }^{1)}$ | Confirmed Value | Requirements in EN 197-1:2011 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Physical properties |  |  |  |  |  |
| 1 day strength | EN196-1 | MPa | 19-25 |  |  |
| 2 days strength | EN196-1 | MPa | 36-44 |  | $\geq 30$ |
| 7 days strength | EN196-1 | MPa | 54-66 |  |  |
| 28 days strength | EN196-1 | MPa | 65-75 |  | $\geq 52.5$ |
| Initial setting time | EN196-3 | min | 130-170 |  | $\geq 45$ |
| Standard Consistency | EN196-3 | \% | 30 |  |  |
| Soundness | EN196-3 | mm | 0.5 |  | $\leq 10$ |
| Fineness | EN196-6 | $\mathrm{m}^{2} / \mathrm{kg}$ | 400 |  |  |
| Reflection | DIN 5033 | \% | 87 |  |  |
| Hunter L |  |  | 93 |  |  |
| Hunter A |  |  | -1.7 |  |  |
| Hunter B |  |  | 3.9 |  |  |
| Absolute density |  | $\mathrm{kg} / \mathrm{m}^{3}$ | 3100 |  |  |
| Bulk density |  | $\mathrm{kg} / \mathrm{m}^{3}$ | 1070 |  |  |
| Heat of hydration | EN 196-9 | kJ/kg | 350 |  |  |
| Chemical properties |  |  |  |  |  |
| $\mathrm{C}_{3} \mathrm{~A}$ via Bogue | ASTM C150 | \% | 5 |  | $\leq 5$ |
| $\mathrm{SO}_{3}$ | EN196-2 | \% | 2.5 |  | $\leq 3.5$ |
| MgO | EN196-2 | \% | 0.7 |  |  |
| Alkalies as $\mathrm{Na}_{2} \mathrm{O}$ | EN196-2 | \% | 0.2 | $\leq 0.4$ |  |
| $\mathrm{Cl}^{-}$ | EN196-2 | \% | 0.02 | $\leq 0.04$ | $\leq 0.10$ |
| Loss on ignition | EN196-2 | \% | 2.9 |  | $\leq 5.0$ |
| Insoluble residue | EN196-2 | \% | 0.1 |  | $\leq 5.0$ |
| Water soluble $\mathrm{Cr}^{6+}$ | EN196-10 | $\mathrm{mg} / \mathrm{kg}$ | $\leq 2$ |  |  |
| Cement composition |  |  |  |  |  |
| Main constituents - Clinker |  | \% ${ }^{2)}$ | 96 |  | $\geq 95$ |
| Minor constituents |  | \% ${ }^{2)}$ | 4 |  | $\leq 5$ |
| Grinding aid (TEA) |  | \% | 0.02 |  | $\leq 0.2$ |
| Calcium Sulphate |  | \% | 4 |  |  |
| 1) For properties where there is a specified range, the probability that a value falls outside is less than $5 \%$ <br> 2) Percentage based on the sum of main and minor constituents |  |  |  |  |  |

