



## ATZ PRODUCTION & INTERNATIONAL EXPORT

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### CERTIFICATE OF ANALYSIS Portland Composite Cement CEM I 52.5N Conforming to EN 197-1:2011

| Physical properties   | Unit               | Specification | Typical Test Results | Test Method |
|---|--------------------|---------------|----------------------|-------------|
| Blaine  | Cm <sup>2</sup> /g | ≥ 3200        | 4120                 | EN 196-6    |
| Soundness ( Expansion)  | mm                 | Max 10        | 6.7                  | EN 196-3    |
| <b>Compressive Strength</b>   |                    |               |                      |             |
| 2 days  | Mpa                | Min 22.0      | 24.4                 | EN 196-1    |
| 7 days  |                    | -             | 48.7                 |             |
| 28 days   |                    | Min 53.5      | ≥ 56.3               |             |
| <b>Time of setting (Coagulation)</b>                                |                    |               |                      |             |
| Initial set   | Minutes            | Min 45        | 165                  | EN 196-3    |
| Final set   |                    | Max 420       | 205                  |             |
| <b>Retained content on</b>  |                    |               |                      |             |
| + Sieve 45 µm   | %                  | ≤12.0         | 1.8                  | EN 196-6    |
| <b>Chemical properties</b>  |                    |               |                      |             |
| SiO <sub>2</sub>  | %                  | -             | 20.4                 | EN 196-2    |
| Al <sub>2</sub> O <sub>3</sub>                                      | %                  | -             | 5.21                 |             |
| Fe <sub>2</sub> O <sub>3</sub>                                      | %                  | -             | 3.75                 |             |
| CaO   | %                  | -             | 61.52                |             |
| MgO   | %                  | Max 5.00      | 3.27                 |             |
| SO <sub>3</sub>   | %                  | Max 4.00      | 2.15                 |             |
| Loss on Ignition, (LOI)   | %                  | Max 5.0       | 3.87                 |             |
| Loss on Ignition  | %                  | Max 5.0       | 2.15                 |             |
| Na <sub>2</sub> Eq<br>(Na <sub>2</sub> O + 0.658 *K <sub>2</sub> O) | %                  | Max 0.8       | 0.61                 |             |