

## TYPICAL CEMENT CERTIFICATE

Portland Cement type

**ProBase**

Physical tests

Chemical analysis (%)

Time of Set Vicat (minutes)

*Initial*..... 120  
*Final*..... 245

Fineness

*Specific surface (Blaine) (m<sup>2</sup>/kg)*..... 386  
*Retained on 45 µm sieve (%)*..... 4

False set (%)

*final penetration (%)*..... 67

Autoclave

*expansion (%)*..... 0.12  
*Air content (%)*..... 7

Compressive strength (MPa [psi])

*3 days*..... 26.2 [3800]  
*7 days*..... 30.7 [4450]  
*28 days*..... 37.5 [5440]

Expansion of mortar bars

*at 14 days (%)*..... 0.014

*SiO<sub>2</sub>*..... 19.1  
*Al<sub>2</sub>O<sub>3</sub>*..... 4.9  
*Fe<sub>2</sub>O<sub>3</sub>*..... 3.7  
*CaO*..... 60.5  
*Free calcium oxide*..... 1.4  
*MgO*..... 2.6  
*SO<sub>3</sub>*..... 3.8  
*Loss on ignition*..... 1.9  
*Insoluble residue*..... 0.4  
**Alkalies**  
*(Na<sub>2</sub>O equivalent)*..... 0.92  
*Carbon dioxide (CO<sub>2</sub>)*..... 1.7  
*Limestone*..... 4.5  
*Calcium carbonate(CaCO<sub>3</sub>) in limestone*..... 84

Mineralogical Composition (Potential)

*C<sub>3</sub>S*..... 48  
*C<sub>2</sub>S*..... 17  
*C<sub>3</sub>A*..... 7  
*C<sub>4</sub>AF*..... 11  
*Sum C<sub>3</sub>S + 4.75 C<sub>3</sub>A*..... 79

*We hereby certify that the cement delivered complies with the ASTM Standard C 150 and AASHTO M 85 current requirements.*

*For any information regarding this certificate, please contact our technical service at (418) 329-2100, ext. 3276.*

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 Chemist Engineer*