

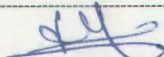
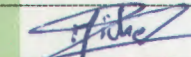
Department: Laboratory (Chemical Lab)

Portland cement P52.5RMS,BTNa according to NL 53:99

Chemical Analysis			Physics Tests		
Tested Elements	Requirements	Results	Test	Requirements	Results
SiO ₂	Min 20.00	20.05	Initial Set (min)	Min 60 min	144
Al ₂ O ₃	Max 6.00	5.12	Final Set (h: min)		
Fe ₂ O ₃	Max 6.00	3.78	False Set %		
CaO		65.20	Air Content %		
MgO	Max 4.00	0.82	Autoclave Expansion		
SO ₃	Max 3.50	2.76	Sulfate Expansion 14 days		
L.O.I.	Max 3.00	0.94	Water Expansion 14 days		
Na ₂ O		0.11	Soundness "Le Chatelier"	Max 10.00	0.50
K ₂ O		0.38	Blaine (cm ² /g)	Min 2800	3740
Na ₂ O + 0.658 x K ₂ O	Max 0.60	0.36	Water Demand		27.00
Free Lime		0.71	Compressive Strength (N/mm ²)	Requirements	Results
Cl ⁻	Max 0.10	0.0051	1 day		
Insoluble Residue	Max 1.00	0.18	2 days	Min 20.00	27.89
Additives			3 days		
C ₃ S (calculated)		65.38	7 days		
C ₂ S (calculated)		8.16	28 days	Min 52.5	65.82
C ₃ A (calculated)	Max 8.00	7.17	Heat of Hydration (l/g)	Max 280	272
C ₄ AF (calculated)		11.50			
LSF (calculated)		97.88			

Remarks

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Chemical Department		Physics Department			
Realized By:	Viviane Yammine	Realized By:	Michel Zakhem	Approved By:	Jean Sassiné
Job Title:	Senior Technician	Job Title:	P&C Forman	Job Title:	Laboratory Manager
Date:	February 2015	Date:	February 2015	Date:	February 2015
Signature:		Signature:		Signature:	