



<h2>Cement Mill Test Report</h2>	
<h3>Month of Issue: August-10</h3>	
<b>Plant:</b>	Ravena, New York
<b>Product:</b>	Portland Cement Type I/II(MH)
<b>Manufactured:</b>	July-10

**ASTM C 150-09 and AASHTO M 85-09 Standard Requirements**

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
<b>Rapid Method, X-Ray (C 114)</b>					
SiO2 (%)	--	19.7	Air content of mortar (%) (C 185)	12 max	8.0
Al2O3 (%)	6.0 max	4.7	Blaine Fineness (m2/kg) (C 204)	280-420**	389
Fe2O3 (%)	6.0 max	3.0	-325 (%) (C 430)	--	92.9
CaO (%)	--	62.1	Autoclave expansion (%) (C 151)	0.80 max	0.04
MgO (%)	6.0 max	3.7	<b>Compressive strength Mpa (PSI) (C 109)</b>		
SO3 (%)	3.0 max *	2.9	3 days	12.0 (1740) min	24.5 ( 3550 )
<b>NaEq (%)</b>	<b>—</b>	<b>0.59</b>	7 days	19.0 (2760) min	31.0 ( 4500 )
Loss on ignition (%)	3.0 max	2.29	28 days (Previous Month)		42.0 ( 6090 )
Insoluble residue (%)	0.75 max	0.57	Time of setting (minutes)		
Cement CO2 (%)	--	1.05	Vicat Initial (C 191)	45 - 375	130
Limestone (%)	5.0 max	2.68	Heat of Hydration (cal/g) (C 186)***		
CaCO3 in Limestone (%)	70 min	89.1	7 days (for information only)	--	82.0
<b>Adjusted Potential Phase Composition (C 150)</b>					
C3S (%)	--	54.1			
C3A (%)	8 max	7.4			
C3S+4.75*C3A (%)	100 max	89.1			
Optimum SO3 (%) (C 563)		2.90			
Expansion in Water (%) (C 1038)	0.020 max	0.010			

\* May exceed 3.0% SO3 maximum based on our C1038 results of <0.02% expansion at 14 days. Data available upon request.

\*\*The max Blaine does not apply if the Sum of C3S + 4.75\*C3A is less than or equal to 90

\*\*\* Current Production run not available - most recent provided

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements for Type I-II(MH) portland cement as specified in the American Society of Testing and Materials (ASTM) Specification C 150-09 and the American Association of State Highway and Transportation Officials (AASHTO) Specification M 85-09.

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