



Central Plains Cement Company

Cement Mill Test Report

Month of Issue: February 2018

Plant:	Tulsa, OK
Product:	Portland Cement Type I/II LA
Silos:	3, 6, 10, 14
Manufactured:	January 2018

ASTM C 150-16 and AASHTO M 85-16 Standard Requirements

CHEMICAL ANALYSIS			PHYSICAL ANALYSIS		
Item	Spec limit	Test Result	Item	Spec limit	Test Result
Rapid Method, X-Ray (C 114)			Air content of mortar (%) (C 185)	12 max	5
SiO ₂ (%)	---	20.0	Blaine Fineness (m ² /kg) (C 204)	260 - 430	416
Al ₂ O ₃ (%)	6.0 max	5.0	-325 (%) (C 430)	---	95.6
Fe ₂ O ₃ (%)	6.0 max	3.5	Autoclave expansion (%) (C 151)	-0.2 min 0.80 max	0.09
CaO (%)	---	63.0	Compressive strength (PSI) (C 109)		
MgO (%)	6.0 max	1.9	1 day	---	2130
SO ₃ (%)	3.0 max *	3.0	3 days	1740 min	3540
Loss on ignition (%)	3.0 max	1.9	7 days	2760 min	4360
Insoluble residue (%)	0.75 max	0.4	28 days (Reflects previous month's data)	---	5780
CO ₂ (%)	---	0.7	Time of setting (minutes)		
Limestone (%)	5.0 max	1.7	Vicat Initial (C 191)	45 - 375	108
CaCO ₃ in Limestone (%)	70 min	89	Heat of Hydration (KJ/Kg, [cal/g]) (C 186)		
Inorganic Process Addition	5.0 max	---	7 days (for information only)	---	368 (88.0)
Adjusted Potential Phase Composition (C 150)					
C ₃ S (%)	---	55			
C ₂ S (%)	---	15			
C ₃ A (%)	8 max	7			
C ₄ AF (%)	---	11			
C ₃ S+4.75*C ₃ A (%)	100 max	90			

ASTM C 150-09 and AASHTO M 85-09 Optional Chemical Requirements:

NaEq (%)	0.60 Max	0.51
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* Cement with SO₃ > 3.0 complies with ASTM C1038-14

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C 150-16 & AASHTO M 85-16 STANDARD SPECIFICATIONS FOR TYPE I AND TYPE II (LOW ALKALI) CEMENT.

Certified By:

John Tierney

February 13, 2018

Central Plains Cement Co. LLC - Tulsa Plant

2609 North 145th East Ave
Tulsa, OK 74012
918-437-3902



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Additional ASTM C 150-16 and AASHTO M 85-16 Standard data

Limestone Addition - Additional Data

Item	Test Result
SiO ₂ (%)	8.0
Al ₂ O ₃ (%)	0.8
Fe ₂ O ₃ (%)	0.5
CaO (%)	48.5
SO ₃ (%)	0.3
CO ₂ (%)	38.9

Base Cement Phase Composition

Item	Test Result
C ₃ S (%)	56
C ₂ S (%)	15
C ₃ A (%)	7
C ₄ AF (%)	11

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