



600 S. Cherry Street, Suite 1000, Glendale, CO 80246
 Customer Service: (800) CALL GCC / (800) 225-5422

MATERIAL CERTIFICATION REPORT

Plant: Pueblo
Address: 3372 Lime Road
 Pueblo, CO 81004
Contact: Anne Miller
Phone: (719) 647-6830

Cement Type: ASTM C595 IL(10) HS
 ASTM C1157 GU HS
Date Issued: 11-Sep-24
Production Period: 1-Aug-24
 To: 31-Aug-24
Lot Number: 2024-08

GCC PUEBLO IS AN AASHTO R-18 AND ISO 9001 CERTIFIED FACILITY

STANDARD REQUIREMENTS ASTM C595/AASHTO M 240/ASTM C1157

CHEMICAL			
Item	ASTM Test Method	ASTM C595 IL Spec. Limit	Test Result
SiO ₂	C114	A	19.5
Al ₂ O ₃ (%)	C114	A	3.8
Fe ₂ O ₃ (%)	C114	A	3.7
CaO (%)	C114	A	62.4
MgO (%)	C114	A	0.8
SO ₃ (%)	C114	3.0 max ^B	3.3
Loss On Ignition (%) ^C	C114	10.0 max	5.0
Equivalent Alkalis of Portland Cement (%) ^F	C114	A	0.57

PHYSICAL				
Item	ASTM Test Method	ASTM C595 IL Spec. Limit	ASTM C1157 Spec. Limit	Test Result
Blaine Fineness (m ² /kg)	C204	A	A	457
Fineness 45 μm (No. 325) Sieve (% retained)	C430	A	A	1.5
Density (g/cm ³)	C188	A	A	3.09
Air Content of Mortar (volume %)	C185	12 max	12 max	10
Time of Initial Setting / Vicat (minutes)	C191	45 min / 420 max	45 min / 420 max	123
Compressive Strength				
3 Days, MPa (psi)	C109	13.0 (1890) min	13.0 (1890) min	30.2 (4380)
7 Days, MPa (psi)	C109	20.0 (2900) min	20.0 (2900) min	35.3 (5110)
28 Days, MPa (psi) ^D	C109	25.0 (3620) min	28.0 (4060) min	42.4 (6150)
Mortar Bar Expansion C1038 (%)	C1038	0.020 max	0.020 max	0.001

PHYSICAL OPTIONAL				
Item	ASTM Test Method	ASTM C595 Spec. Limit	ASTM C1157 Spec. Limit	Test Result
Early Stiffening, Final Penetration (%)	C451	A	50 min	54

REQUIREMENTS OF LIMESTONE FOR USE IN BLENDED CEMENTS

LIMESTONE			
Item	ASTM Test Method	ASTM C595 Spec. Limit	Test Result
CaCO ₃ in Limestone (%)	C150	70 min	87

PHYSICAL REQUIREMENTS FOR SPECIAL PROPERTIES ASTM C595/ASTM C1157

SPECIAL PHYSICAL REQUIREMENTS				
Item	ASTM Test Method	High Sulfate Resistance (HS)	Moderate Heat of Hydration (MH)	Test Result
Sulfate Resistance ^E				
Expansion at 180 Days (%)	C1012	0.05 max	A	0.03
Heat of Hydration				
3 Days, kJ/kg (cal/g)	C1702	A	335 (80) max	310 (74)

^A Not applicable

^B It is permissible to exceed the specification limit provided that ASTM C1038 Mortar Bar Expansion does not exceed 0.020 % at 14 days.

^C This alternative analysis has been qualified in accordance with ASTM C114 and meets requirements of Table 1

^D Test result of prior month

^E ASTM C1012 Sulfate Resistance Testing has been performed at CTLGroup, an AASHTO R-18 certified facility.

^F A cement meeting high sulfate (HS) resistance also meets the specification of moderate sulfate (MS) resistance.

^F NEq of Portland Cement at 95% Confidence Level: Minimum: 0.56% Maximum: 0.58%

GCC cement is warranted to conform at the time of shipment with current ASTM C595/AASHTO M 240/ASTM C1157. No other warranty is made or implied. Having no control over the use of its cements, GCC does not guarantee finished work. GCC is not responsible for any additives not stated in this Material Certification Report.