



### GCC of America

600 S. Cherry Street, Suite 1000, Glendale, CO 80246  
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## MATERIAL CERTIFICATION REPORT OIL WELL API

**Plant:** Odessa  
**Address:** 16501 W. Murphy  
Odessa, TX 79760  
**Contact:** Gustavo Calderon  
**Phone:** (432) 385-2836

**Cement Type:** API Class C - HSR  
**Date Issued:** 5-Mar-19  
**Production Period:** 1-Feb-19  
**To:** 28-Feb-19

### STANDARD REQUIREMENTS API (Spec 10A)

CHEMICAL		
Item	API 10A Spec. Limit	Test Result
MgO (%)	6.0 max	0.8
SO <sub>3</sub> (%)	3.0 max	3.4
Loss On Ignition (%)	3.0 max	2.2
Insoluble Residue (%)	0.75 max	0.56
Equivalent Alkalies (%)	NR	0.23

Potential Phase Composition		
Item	API 10A Spec. Limit	Test Result
C <sub>3</sub> S (%)	NR	60
C <sub>3</sub> A (%)	3 max	2.2
C <sub>4</sub> AF + 2 C <sub>3</sub> A (%)	24 max	19

PHYSICAL		
Item	API 10A Spec. Limit	Test Result
Blaine Fineness (m <sup>2</sup> /kg)	400 min	422

Compressive Strength		
Item	API 10A Spec. Limit	Test Result
8 h, 38 °C (100 °F), MPa (psi)	2.1 (300) min	5.7 (820)
24h, 38 °C (100 °F), MPa (psi)	13.8 (2000) min	15.4 (2240)

Thickening Time, Schedule 4		
Item	API 10A Spec. Limit	Test Result
Maximum Consistency, 15 to 30 min	30 max	6
Thickening Time @ 70 Bc (min)	A	102
Thickening Time @ 100 Bc (min)	90 min	108

NR: No Requirement

<sup>A</sup> Limit not specified. Test results provided for informational purposes only.

GCC of America Cement is warranted to conform at the time of shipment with current API 10A. No other warranty is made or implied. Having no control over the use of its cements, GCC of America does not guarantee finished work.