



TEXAS-LEHIGH CEMENT COMPANY



Evaluation tests for:

TLC API Class H Well Cement - Buda, Texas Plant

Typical Performance Data: Grind # 180701 Prod date: 1 - 31 July, 2018 Silo No. 2,6, 8,15

Chemical Analysis%(ASTM C114)

<u>SiO2</u>	<u>Al2O3</u>	<u>Fe2O3</u>	<u>CaO</u>	<u>MgO</u>	<u>SO3</u>	<u>LOI</u>	<u>Na2O</u>	<u>K2O</u>	<u>Na2O Equiv.</u>	<u>Insol. Residue</u>
21.5	3.5	6.0	63.5	1.3	2.9	1.0	0.1	0.5	0.46	0.08
API Spec., max., %				6.0	3.0	3.0			0.75	0.75

Calculated Compounds%(API Spec. 10A, Table 1)

	<u>C3S</u>	<u>C2S</u>	<u>C3A</u>	<u>[C4AF+ 2(C3A)]</u>
	54	21	0	18
API Spec. 10A	48% - 65%		3% Max.	24% Max.

Physical Parameters

<u>Fineness</u>				API Spec.
Blaine-m2/kg(ASTM C204)	<u>256</u>		% Free Fluid @ 38% H2O	<u>4.4</u> 5.9% Max.
-325%(ASTM C430)	<u>79.0</u>		% Free Lime	<u>0.23</u>

Thickening Time and Compressive Strength (38% H2O - neat slurry)

API Schedule	Depth ft.	Bottom Hole Circulation Temp	H2O
5-Csg	8000	125 Deg F	4.29 gal/sk

<u>Consistency (Bc)</u>				<u>Thickening Time (Minutes)</u>		<u>Compressive Strength (PSI)</u>	
<u>Initial</u>	<u>15 min.</u>	<u>30 min.</u>	<u>60 min.</u>	<u>70 Bc.</u>	<u>100 Bc.</u>	<u>100° F</u>	<u>140° F</u>
7	8	10	20	87	99	710	1870

API Spec.	30 Bc max. in 15-30 min. stirring period	90 minute min. 120 minute max.	300 PSI min. 1500 PSI min.
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The above Class H cement meets all API specifications for API Class H (HSR)

All well cement tests are performed according to API Spec. 10A

V Gonzalez-Torres

QC Manager

Phone: Lab (512) 295-9241 or 9243, Sales (512) 295-9202, Shipping (512) 295-9222, Fax (512) 295-2431

PO Box 610, Buda, Texas 78610 : 701 Cement Plant Road