

MILL TEST CERTIFICATE FOR CSA PORTLAND CEMENT TYPE HS

Production for Week Ending 2008:	6-Jul	13-Jul	20-Jul	27-Jul	3-Aug	10-Aug	17-Aug	24-Aug	31-Aug	7-Sep	14-Sep	21-Sep	
<u>CHEMICAL ANALYSIS</u>													
SiO ₂	%	20.9	20.8	20.4	20.5	20.6	21.0	20.7	21.1	21.1	21.1	20.9	21.1
Al ₂ O ₃	%	3.9	3.9	3.8	3.9	3.9	4.0	3.8	3.8	3.9	3.8	3.8	4.0
Fe ₂ O ₃	%	4.4	4.4	4.3	4.3	4.4	4.5	4.5	4.5	4.5	4.5	4.6	4.5
CaO	%	62.7	63.3	62.9	62.9	62.5	62.7	62.9	63.2	63.2	63.1	63.3	63.0
MgO	%	3.35	3.11	3.45	3.21	3.19	3.11	2.88	2.90	2.93	2.91	2.88	3.02
SO ₃	%	2.04	2.08	2.10	2.03	2.10	2.06	2.15	2.03	2.16	2.04	2.02	1.98
Loss on Ignition	%	1.54	1.53	2.07	2.03	1.65	1.47	1.63	1.83	1.62	1.55	1.87	1.40
Na ₂ O	%	0.22	0.23	0.25	0.22	0.23	0.25	0.25	0.25	0.23	0.22	0.21	0.22
K ₂ O	%	0.42	0.44	0.49	0.49	0.47	0.48	0.51	0.50	0.55	0.56	0.58	0.49
Insoluble Residue	%	0.23	0.22	0.29	0.31	0.25	0.28	0.30	0.28	0.23	0.27	0.25	0.19
T. Alk.	%	0.50	0.52	0.57	0.54	0.54	0.56	0.58	0.58	0.59	0.59	0.59	0.54
C ₃ S	%	58	61	63	62	58	57	60	59	58	59	62	57
C ₂ S	%	16	13	11	12	15	17	14	16	17	16	13	18
C ₃ A	%	3.0	2.8	2.9	3.1	3.0	3.0	2.5	2.4	2.6	2.3	2.3	2.9
C ₄ AF	%	13.3	13.5	13.0	13.0	13.5	13.6	13.8	13.8	13.6	13.7	13.8	13.6
<u>PHYSICAL PROPERTIES</u>													
Blaine	m ² /kg	408	412	414	406	411	409	411	413	415	407	409	405
Retained on 45µ sieve	%	4.41	6.01	4.11	7.62	4.70	4.61	5.60	5.37	5.28	4.37	5.28	4.14
Autoclave Expansion	%	0.045	0.040	0.060	0.061	0.052	0.037	0.018	0.027	0.035	0.026	0.032	0.037
Sulphate Expansion	%	0.032	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Vicat Initial Set	min	92	100	77	75	79	83	103	101	93	104	94	87
False Set	%	81	77	96	86	68	60	62	66	81	69	68	70
Air Content	%	8.59	8.28	8.76	9.35	9.39	8.30	8.90	8.95	8.97	8.98	8.99	9.00
3 Day	MPa	19.7	20.9	21.9	21.2	20.8	19.8	20.1	21.0	20.6	21.0	21.5	19.2
7 Day	MPa	25.6	26.4	27.1	26.0	27.2	25.9	25.9	26.6	25.8	25.6	27.4	25.5
28 Day	MPa	35.1	33.9	35.2	36.1	36.6	36.8	33.9	34.5	33.1	34.5		

Manufactured cement conforms to CSA Standard A3001-03.

Date: October 03, 2008

Robin Cowdrey
Robin Cowdrey
Plant Chemist