

ENX Inc.
Acheson Terminal
10798 HWY 60
Acheson, AB T7X 6N5

Report Date: December 15, 2021
Project Number: 19-01608-002
Revision: 0

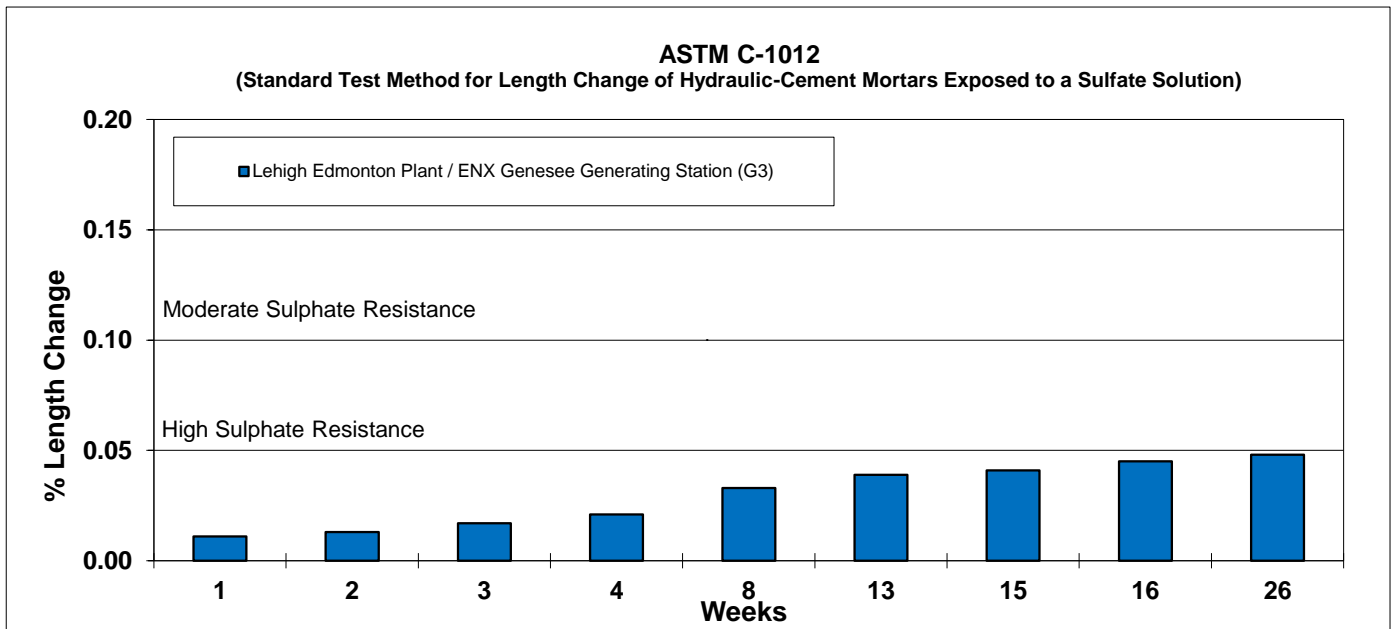
Attention: Mr. Paul Johnson

Cement Type	Lehigh Edmonton Plant, CSA Type GU
Fly Ash Type	ENX Genesee Generating Station (G3), Type F

TEST MIX PROPORTIONS		SPECIFICATIONS	
Cement, CSA Type GU (g)	592	Test Start Date	June 7, 2021
Fly Ash, CSA Type F (g)	148	Compressive Strength (min)	20 MPa (2850 psi)
Standard Graded Sand (g)	2035	For Moderate Sulphate Resistance	Expansion < 0.10% at 6-months
Water (ml)	339	For High Sulphate Resistance	Expansion < 0.05% at 6-months
Water/Cementitious Ratio	0.460		
Flow (%)	113		


SULPHATE EXPANSION TEST RESULTS										
Age	Initial	1 Week	2 Weeks	3 Weeks	4 Weeks	8 Weeks	13 Weeks	15 Weeks	4 Months	6 Months
# Weeks	0	1	2	3	4	8	13	15	16	26
Length Change (%)	-	0.011	0.013	0.017	0.021	0.033	0.039	0.041	0.045	0.048

- (1) Six mortar bars were prepared for the test mix in accordance with the procedures described in ASTM C1012. Mix proportions are reported above.
 (2) The specimens were then stored in sulphate solution at $23.0 \pm 2.0^\circ\text{C}$ ($73.5 \pm 3.5^\circ\text{F}$) for six (6) months.
 (3) Visual condition after taking the 6-month measurement; the samples did not show any signs of bowing, mottling or surface deposits.



- Comments:
- The average expansion for the specimens after six (6) months is 0.049% which is below the maximum expansion limit of 0.05% as per CSA A23.1-19 clause 4.1.1.6. Results show that the proposed combination with 20% fly ash is effective to provide high sulphate resistance.
 - Testing performed in accordance with CSA, ASTM and Concrete Reference Laboratory (CCRL) certification requirements.

Reported by: TM

Reviewed by: 
G. Lecuyer, P. Eng. - Materials Engineer



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