

**ASTM C672 - Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
 Comparison of Samples with and without Waterproofing Product and Curing Compound**

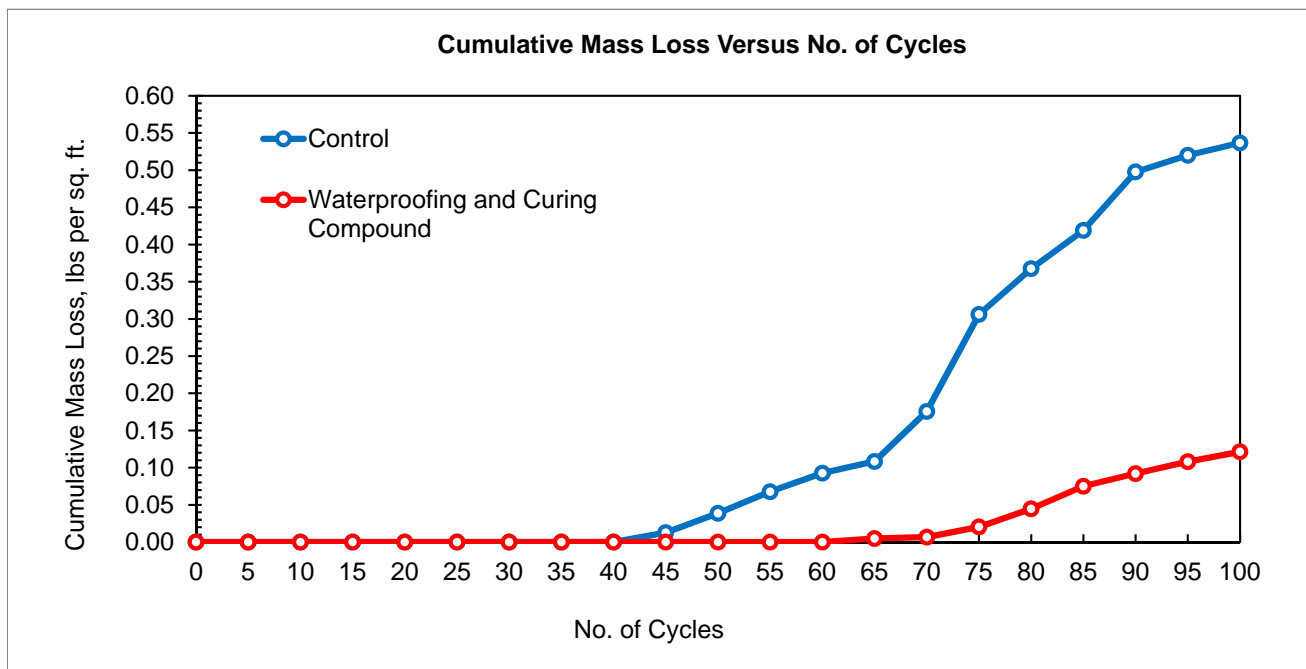


Figure 1. Samples with waterproofing product and curing compound after 100 cycles of freezing and thawing



Figure 2. Control samples without waterproofing product and curing compound after 100 cycles of freezing and thawing



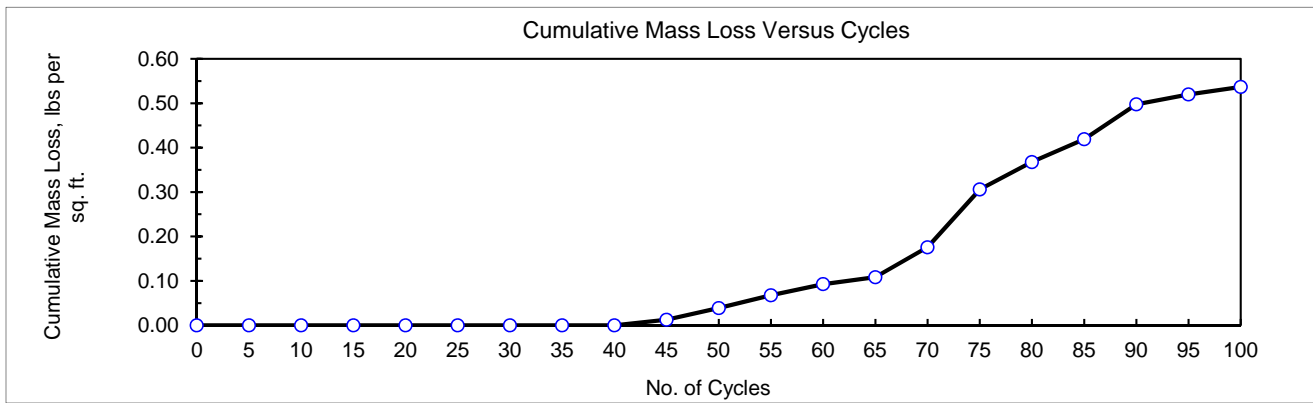
Client: International Chem-Crete Co.
 Project: PO A17061601

CTL Project No: 391442
 CTL Project Mgr.: Joni L. Jones
 Analyst: W. Demharter, C. Arboleda
 Approved: Joni L. Jones
 Date Analyzed: From 2-Aug-16 to 12-Dec-16
 Date Reported: December 21, 2016

Contact: Radi Al-Rashed
 Submitter: Radi Al-Rashed
 Date Received: June 6, 2016

ASTM C672 - Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals - CONTROL SAMPLES (no products)

Cycle	Cumulative Mass Loss, lbs per sq. ft.				ASTM C672 Visual Scale Rating			
	Control A	Control B	Control C	Ave	Control A	Control B	Control C	Ave
0	0.00	0.00	0.00	0.00	0	0	0	0
5	0.00	0.00	0.00	0.00	0	0	0	0
10	0.00	0.00	0.00	0.00	0	0	0	0
15	0.00	0.00	0.00	0.00	0	0	0	0
20	0.00	0.00	0.00	0.00	0	0	0	0
25	0.00	0.00	0.00	0.00	0	0	0	0
30	0.00	0.00	0.00	0.00	0	0	0	0
35	0.00	0.00	0.00	0.00	0	0	0	0
40	0.00	0.00	0.00	0.00	0	0	0	0
45	0.01	0.02	0.01	0.01	1	1	1	1
50	0.03	0.05	0.04	0.04	2	2	2	2
55	0.06	0.07	0.07	0.07	3	3	3	3
60	0.08	0.10	0.10	0.09	4	4	4	4
65	0.10	0.12	0.11	0.11	4	4	4	4
70	0.21	0.16	0.15	0.18	5	4	4	5
75	0.42	0.26	0.24	0.31	5	4	4	5
80	0.49	0.31	0.30	0.37	5	4	4	5
85	0.57	0.35	0.34	0.42	5	4	4	5
90	0.67	0.42	0.41	0.50	5	4	4	5
95	0.70	0.43	0.43	0.52	5	4	4	5
100	0.73	0.44	0.44	0.54	5	4	4	5



- Notes:
1. 4% CaCl₂ was used as the deicer solution.
 2. Concrete was proportioned, fabricated, and cured in accordance with ASTM C672.
 3. Visual observations indicate severe scaling after 100 cycles.

Concrete Mix Proportions

Cement	563 pcy
Gravel	1921 pcy
Sand	1287 pcy
Water	274 pcy
AEA	none

- Rating / Condition of Surface
- 0 - none or negligible scaling
 - 1 - very slight scaling (1/8 in. depth max, no coarse aggregate visible)
 - 2 - slight to moderate scaling
 - 3 - moderate scaling (some coarse aggregate visible)
 - 4 - moderate to severe scaling
 - 5 - severe scaling (coarse aggregate visible over entire surface)

Fresh Properties

Slump	5.5-in.
Air Content	2.4%
Unit Weight	150.6
Yield per batch	2.984 ft ³
Relative Yield	0.995
w/c	0.486

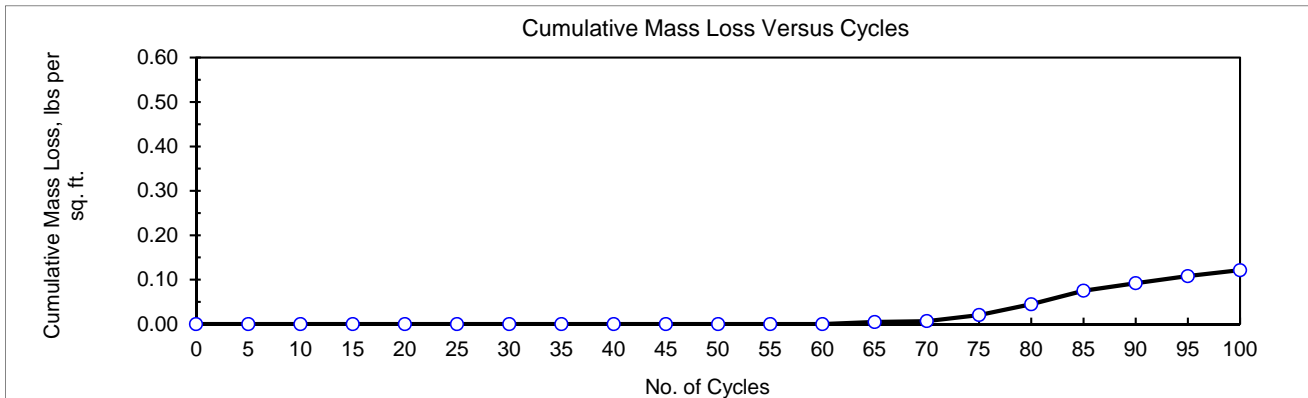
Client: International Chem-Crete Co.
 Project: PO A17061601

Contact: Radi Al-Rashed
 Submitter: Radi Al-Rashed
 Date Received: June 6, 2016

CTL Project No: 391442
 CTL Project Mgr.: Joni L. Jones
 Analyst: W. Demharter, C. Arboleda
 Approved: Joni L. Jones
 Date Analyzed: From 2-Aug-16 to 12-Dec-16
 Date Reported: December 21, 2016

**ASTM C672 - Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals -
 Samples with Waterproofing Product and Curing Compound** ^{Note 3}

Cycle	Cumulative Mass Loss, lbs per sq. ft.				Visual Scale Rating			
	Test A	Test B	Test C	Ave	Test A	Test B	Test C	Ave
0	0.00	0.00	0.00	0.00	0	0	0	0
5	0.00	0.00	0.00	0.00	0	0	0	0
10	0.00	0.00	0.00	0.00	0	0	0	0
15	0.00	0.00	0.00	0.00	0	0	0	0
20	0.00	0.00	0.00	0.00	0	0	0	0
25	0.00	0.00	0.00	0.00	0	0	0	0
30	0.00	0.00	0.00	0.00	0	0	0	0
35	0.00	0.00	0.00	0.00	0	0	0	0
40	0.00	0.00	0.00	0.00	0	0	0	0
45	0.00	0.00	0.00	0.00	0	0	0	0
50	0.00	0.00	0.00	0.00	0	0	0	0
55	0.00	0.00	0.00	0.00	0	0	0	0
60	0.00	0.00	0.00	0.00	0	0	0	0
65	0.00	0.01	0.01	0.00	0	0	0	0
70	0.01	0.01	0.01	0.01	1	1	0	1
75	0.03	0.03	0.01	0.02	2	2	0	2
80	0.07	0.06	0.01	0.04	2	2	0	2
85	0.11	0.11	0.01	0.08	3	2	0	3
90	0.15	0.13	0.01	0.09	3	2	0	3
95	0.17	0.15	0.01	0.11	3	3	0	3
100	0.19	0.16	0.01	0.12	3	3	1	3



Notes:

- 4% CaCl₂ was used as the deicer solution.
- Concrete was proportioned, fabricated, and cured in accordance with ASTM C672.
- As requested, the water-based Crystallization Waterproofing product (Chem-Crete Pavix CCC100®) and Water Based White Pigmented Wax-based Curing Compound (DOT Curing Agent) were applied to the surface of each sample.
- Visual observations indicate moderate to severe surface scaling after 100 cycles.

Mix Proportions

Cement	563 pcy
Gravel	1921 pcy
Sand	1287 pcy
Water	274 pcy
AEA	none

Rating / Condition of Surface

- 0 - none or negligible scaling
- 1 - very slight scaling (1/8 in. depth max, no coarse aggregate visible)
- 2 - slight to moderate scaling
- 3 - moderate scaling (some coarse aggregate visible)
- 4 - moderate to severe scaling
- 5 - severe scaling (coarse aggregate visible over entire surface)

Fresh Properties

Slump	5.5-in.
Air Content	2.4%
Unit Weight	150.6
Yield per batch	2.984 ft ³
Relative Yield	0.995
w/c	0.486