

SCALING RESISTANCE OF CONCRETE SURFACES EXPOSED TO DEICING CHEMICALS LS-412

APPARATUS

- 1. Freezing Equipment, a cabinet \_\_\_\_\_ or room \_\_\_\_\_ of sufficient size? ..... \_\_\_\_\_  
and capable of lowering temperature of specimens to  $-18 \pm 2^\circ\text{C}$  within 16 to 18 hours?..... \_\_\_\_\_  
and capable of maintaining temperature with full load of samples?..... \_\_\_\_\_
- 2. Thawing Room, a cabinet \_\_\_\_\_ or room \_\_\_\_\_, maintains air temperature of  $23 \pm 2^\circ\text{C}$ ? ..... \_\_\_\_\_  
and a relative humidity of  $50 \pm 5\%$ ? ..... \_\_\_\_\_
- 3. Scales, conforms to requirements of CSA A23.2-2C? ..... \_\_\_\_\_
- 4. Balance, having minimum capacity of 5000 g and an accuracy of 0.1 g?..... \_\_\_\_\_
- 5. Concrete Mixer, conforms to the requirements of CSA A23.2-2C?..... \_\_\_\_\_
- 6. Slump Cone and Air Meter, conforms to the requirements of CSA A23.2-5C, 4C (or 7C)? ..... \_\_\_\_\_
- 7. Moulds, 300 x 300 x 75 mm in inside dimensions with collar for dyke,  
and conforming to ASTM C192? ..... \_\_\_\_\_
- 8. Drying Oven, capable of maintaining a temperature of  $105 \pm 2^\circ\text{C}$ ?..... \_\_\_\_\_
- 9. Salt Solution, deicing solution is 3% solution of sodium chloride? ..... \_\_\_\_\_

SPECIMENS

- 1. Proportioning, all materials and characteristics of mix appropriate for purpose of test? ..... \_\_\_\_\_
- 2. Mixing, in accordance with CSA A23.2 – 2C?..... \_\_\_\_\_
- 3. Testing Plastic Concrete, in accordance with CSA A23.2 – 4C, 5C, (or 7C)?..... \_\_\_\_\_
- 4. Specimens, prepared in duplicate for each test condition?..... \_\_\_\_\_
- 5. Laboratory Cast Specimens, cured at  $23 \pm 2^\circ\text{C}$  and 95% R.H.? ..... \_\_\_\_\_
- 6. *Covered with 350 x 350 polyethelene cover mounted on plywood frame? .....* \_\_\_\_\_  
Demolded at 20 to 24 hours and returned to moist storage for 14 days? ..... \_\_\_\_\_  
Removed and stored in air at  $23 \pm 2^\circ\text{C}$  and  $50 \pm 5\%$  R.H. for 14 days?..... \_\_\_\_\_
- 7. Dyke, made of material that will not affect test results, is sealed, and does not leak salt  
solution on surface? ..... \_\_\_\_\_
- 8. Specimens from Hardened Concrete dyked as above? ..... \_\_\_\_\_

**Note:** Recent positive inspection documents by CSA may be accepted by the inspector as proof of the laboratory's ability to mold test samples.

Comments:

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PROCEDURE

- 1. At age 28 d, specimens are covered with 6 mm of deicing solution? ..... \_\_\_\_\_
- 2. Freeze-Thaw Cycle: Specimens are exposed to 16 to 18 h at  $-18 \pm 2^{\circ}\text{C}$ , ..... \_\_\_\_\_ followed  
by 6 to 8 h at  $23 \pm 2^{\circ}\text{C}$  and  $50 \pm 5\%$  R.H? (equals 1 cycle) ..... \_\_\_\_\_
- 3. Specimens supported on slats to allow free air movement? ..... \_\_\_\_\_
- 4. Salt solution topped up as necessary to maintain depth of 6 mm? ..... \_\_\_\_\_
- 5. After each 5 cycles, mass of flaked off material determined, to nearest  $0.01 \text{ kg/m}^2$ ? ..... \_\_\_\_\_
- 6. Surface covered with new solution for next set of cycles? ..... \_\_\_\_\_
- 7. Test continued for 50 cycles (unless otherwise instructed)? ..... \_\_\_\_\_
- 8. Test report includes: a) mix or specimen identification information? ..... \_\_\_\_\_  
b) area of surface exposed to scaling (each slab)? ..... \_\_\_\_\_  
c) cumulative mass loss after each 5 cycles (each slab)? ..... \_\_\_\_\_  
d) ..... photographs of each slab at 0, 10, 25 and 50 cycles  
and if the test  
is extended, at the completion of the test? ..... \_\_\_\_\_