

# Freeze-Thaw-Tests



## Slab Test

The dimensions of the specimens are 150 x 150 x 50 mm<sup>3</sup>. A 3-mm rubber sheet and a 20 mm thermal insulation is glued to all surfaces except the test surface, which faces upwards. A 3 mm deep layer of the freezing medium like demineralised water or 3 % sodium chloride solution is poured on the test surface. A Slab tester is recommended for the freeze thaw cycles. One cycle runs 24 hours. 56 cycles should be used. After 7, 14, 28 42 and 56 days the scaling of the surface is measured, after the surface has been brushed.

Advantage	Disadvantage
cheap equipment	less precision
	needs fourth time of CDF-test (56 days)
	no information about inner damage
	need much time for specimen handling



## Cube-Test

The dimensions of the specimens are 100 x 100 x 100 mm<sup>3</sup>. Two specimens are immersed completely in the freezing medium in a special container. A CDF-Equipment is recommended for the freeze thaw cycles. One cycle runs 24 hours. 56 cycles should be used. The test surface is spraid and brushed to remove the scaled material.

Advantage	Disadvantage
handling of the specimens is easier	more expensive equipment
information about inner damage possible	less precision
	needs fourth time of CDF-test (56 days)



## CDF-Test (CIF-Test, CF-Test)

The dimensions of the specimens are 150 x 150 x 70 mm<sup>3</sup>. During the test, the test surface faces downwards in the test container. A CDF-Equipment is recommended for the freeze thaw cycles. One cycle runs 12 hours. 28 cycles should be used. The test surface is cleaned in an ultrasonic bath. Afterwards the scaled material is filtered and weighted.

Advantage	Disadvantage
highest precision	more expensive equipment
information about inner damage possible (CIF-Test)	
information about capillary suction	
fastest test, 14 days	