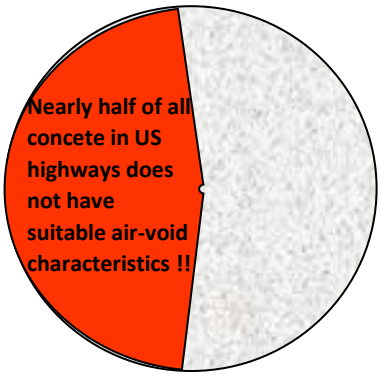
NDTitans in action

Case 12.1 AVA for air-void structure of fresh concrete

Freeze Thaw cracking

Example 1 of Freeze and Thaw cracking of the longitudinal joints of a concrete highway due to an improper air-void system in the presence of wet (saturated) concrete and freeze-thaw cycles.

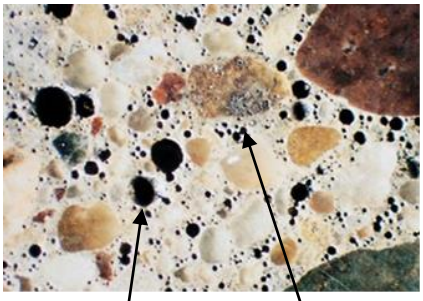
Source: KDOT

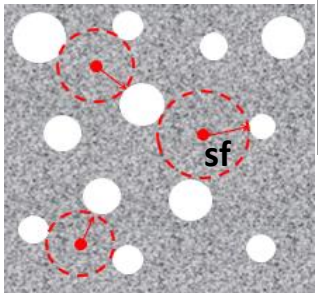


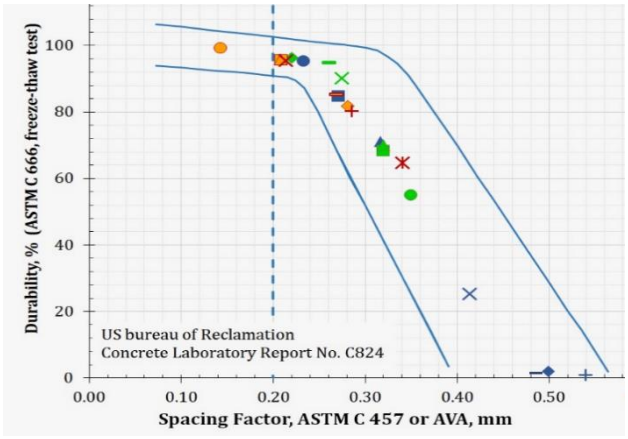
Example 2 of outdoor exposure to Freezing and Thawing after 40 years. Left: Concrete with improper air-void system. Right: concrete with correct air entrainment.

Source: PCA

Requirement: Spacing Factor "sf" < 0.20 mm of entrained air bubbles for freeze-thaw resistance







Relationship between durability (ASTM C 666) and spacing factor (ASTM 457)

Source: KDOT

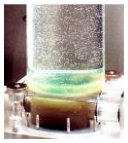
AVA, Air Void Analyzer

Testing of fresh concrete´s air void structure in max 25 minutes, at the ready mix plant or anywhere in the prodction process, not at least of the in- place concrete for QC/QA

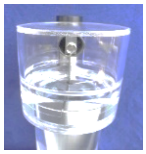
Sampling

Insertion

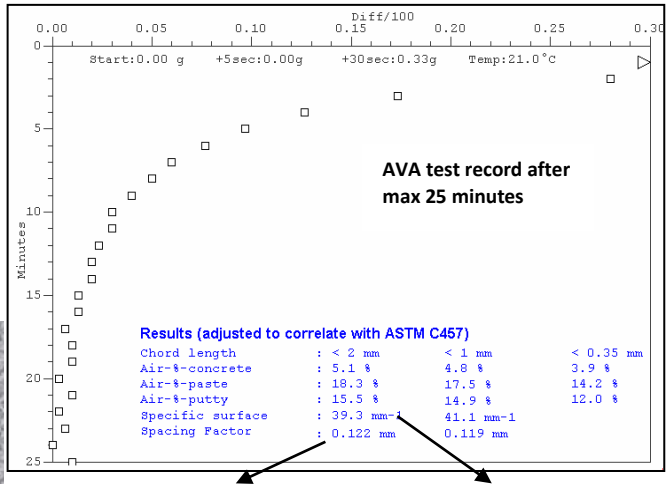
AVA-3000



Stirring



Buoyancy recording



Spacing factor 0.122 mm

Specific surface 39.3 mm^{-1}

Case prepared by **NDTitan Claus Germann Petersen**