



## ACCELERATING ADMIXTURES FOR CONCRETE

## FREEZE-RESISTANT CONCRETE

FREEZE RESISTANT  
CONCRETE APPLICATIONS

- Freezer floors
- Exterior concrete
- Interior concrete exposed to freeze/thaw during placements
- Metal deck placements
- Commercial/Industrial concrete
- Retail facilities
- Residential concrete

RELEVANT  
ACI/ASTM DOCUMENTS

ACI 306R Guide "Cold Weather Concreting"

ASTM C1622/C1622M Standard Specification for Cold-Weather Admixture Systems

## WHAT IS FREEZE-RESISTANT CONCRETE?

Freeze-resistant concrete is a system designed to allow the placement of quality concrete in extremely inclement weather. This cost-effective use of a high quality concrete mix incorporates some of our non-chloride accelerating admixtures. Freeze-resistant concrete is not anti-freeze; however, when placed properly within the guidelines set forward here, concrete will resist the ravages of freezing weather. Remember, not all non-chloride containing accelerators can make freeze-resistant concrete. When running a freeze-resistant concrete project, Euclid Chemical recommends the use of **ACCELGUARD 90** or **ACCELGUARD G3**.

## WHEN SHOULD FREEZE-RESISTANT CONCRETE BE USED?

Freeze-resistant concrete should be used when the ambient temperature is at or below 32 °F (0 °C) at the location of concrete placement.

## WHY SHOULD YOU USE IT?

Historically, severe weather has caused ready mix-concrete plants and trucks to sit idle waiting for better weather. Freeze-resistant concrete allows a producer and contractor to maintain a proper construction and delivery schedules even in instances where ACI 306 is not practical. In certain instances, freeze-resistant concrete may result in increased profits for both parties as well.

## FREEZE-RESISTANT CONCRETE PROCEDURES

- Do not place on frozen forms or subgrade.
- Minimum cement content is 564 lb/yd<sup>3</sup> (335 kg/m<sup>3</sup>).
- Concrete must have 6% air entrainment after placement.
- Maximum slump is 6 in (15 cm).
- Do not add any jobsite water.
- No pozzolans such as fly ash, GGBFS or GGBF slag.
- Travel time to the jobsite from the concrete plant should not exceed 30 minutes.
- Delay service of freeze-resistant concrete for minimum of 7 days.
- Protect concrete surface from additional moisture during placement and finishing.
- Have adequate personnel to prepare, place and finish concrete.

## WHAT CAN HAPPEN IF THESE PROCEDURES ARE NOT FOLLOWED?

- Lower freeze/thaw durability
- Lower compressive strengths
- Improper strength development
- Possible thermal cracking
- Shortened lifespan or service life of the structure