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PRESS RELEASE



The Importance of Selecting Non-Set-Accelerating Corrosion Inhibitor Admixtures for Hot-Weather Concreting

As temperatures climb in the Northern Hemisphere, [Cortec® Corporation](#) encourages contractors and specifying engineers to weigh the importance of selecting non-set-accelerating corrosion inhibitor admixtures for their summer concreting projects. Options such as [MCI®-2005](#) and [MCI®-2005 NS](#) make it possible to survive peak construction season without exacerbating the negative effects of hot temperatures on concrete workability.



Hot Weather Challenges for Calcium Nitrite Admixtures

Cortec® [MCI®](#) Technical Sales and Product Manager, Ashraf Hasania, explains, “During hot seasons, elevated temperatures accelerate cement hydration and increase the rate of heat generation within the mix. This leads to the high possibility of shrinkage and thermal cracking, along with loss of workability and finishing time, ultimately reducing overall durability. Adding calcium nitrites to the mix only amplifies these problems due to the

inherent accelerating properties of calcium nitrite, making managing the mix much more challenging.”

How to Minimize Corrosion Inhibitor Set-Acceleration During Heat Waves

In contrast to calcium nitrite inhibitors (CNI), MCI® (Migrating Corrosion Inhibitor™) admixtures do not accelerate—and in some cases even delay—concrete set time, making it easier for contractors to work with the mix and minimize negative side effects of set acceleration.



Avoiding Cold Joints in Luxury Condo Parking Garage

One example of the advantages of MCI® admixtures comes from a luxury condo project in Toronto. As the contractor started pouring the parking garage, temperatures hovered around 100 °F (38 °C). The use of CNI to protect reinforcing steel from corrosion accelerated the set time so much that cold joints began to form, creating potential weak points for the future. At the suggestion of [Form & Build Supply](#), they decided to switch to MCI®-2005 NS, an MCI® admixture that would not accelerate set time. This allowed them to remove set retarders (used to counterbalance calcium nitrite) and finish the garage with no further early set problems.*



Excellent PT Mix Experience at Midwestern Parking Garage

In another case, a post-tension (PT) parking ramp being constructed for a multi-use facility in the US Midwest required corrosion inhibitors for protection against the corrosive effects of frequent freeze-thaw cycles and the use of deicing salts in the region. A recent bad experience with CNI prompted the contractor to try MCI®-2005 NS as an alternative. Still, the contractor was hesitant to start the pour in the middle of a heat

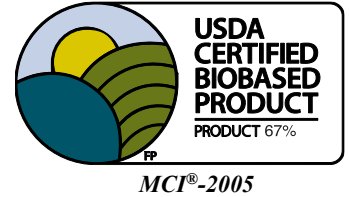
wave with a heat index of 100 °F (38 °C) at 9:30 in the morning. Reassured that they could follow their normal procedures for hot weather pours, the contractor added 2 ounces (59 mL) of set retarder along with other materials typically used to combat hot weather set acceleration. They soon found that the MCI®-containing mix was much easier to work with than CNI. An 8-inch (20 cm) slump and significantly more bleed water than past CNI mixes promised good finishing and less plastic shrinkage cracking. The whole experience left the general superintendent declaring that it was the best PT mix he had ever worked with and he never wanted to go back to the previous corrosion inhibitor.**

How MCI® Concrete Admixtures Work

MCI® admixtures are considered “mixed” corrosion inhibitors because they adsorb on reinforcing steel to form a protective molecular layer that inhibits both anodic and cathodic corrosion reactions. [MCI®-2005 NS](#) is a “normal set”



version of MCI[®] that can be added at the ready-mix plant or mixed into the batch onsite at a rate of 1.5 pints per cubic yard (1 L/m³), independent of the expected chloride threshold rate. MCI[®]-2005 is similar but dosed at a fixed rate of 1 pint per cubic yard (0.6 L/m³). It offers set-retarding effects and contains 67% USDA certified biobased content for those interested in enhanced sustainability.



Getting Ready for Hot Weather Pours

When it comes to applying corrosion inhibiting admixtures in hot weather, normal set or set-retarding admixtures that work independently of expected chloride levels offer a clear advantage over set-accelerating admixtures like CNI. To learn more about specifying non-set-accelerating corrosion inhibitors into your summer concrete mix, contact the Cortec[®] MCI[®] team for support:

<https://www.cortecmci.com/contact-us/>.

*See Cortec[®] Case History #711 (<http://www.corteccasehistories.com/>).

**See Cortec[®] Case History #734 (<http://www.corteccasehistories.com/>), as well as <https://www.youtube.com/watch?v=64R3nlreU0A> and <https://www.youtube.com/watch?v=WfdW4NHJFY> for finishing videos.

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