



## Cortec® MCI® empowers concrete bridge repairs to last longer

The need for concrete repairs is unfortunately a fact of life, the root cause usually being corroded reinforcement that cracks and pushes away the concrete cover. In order to make repairs last as long as possible, it is important to protect against future corrosion by incorporating effective corrosion inhibiting technologies into the new concrete, grout, or repair mortars being utilized on the project. Cortec® MCI® offers long-lasting corrosion protection and extension in service life of structures. Two excellent ways to incorporate this technology are with MCI®-2006 NS and MCI® Mini Grenades.

MCI®-2006 NS and MCI® Mini Grenades contain Migrating Corrosion Inhibitors that extend the service life of concrete repairs by adsorbing as a protective molecular layer on embedded steel reinforcement. MCI® Technology delays time to corrosion and reduces corrosion rates once started. As an ambidextrous, or “mixed,” inhibitor, MCI® protects against both anodic and cathodic corrosion reactions. In repairs, this helps minimize the risk of the ring anode effect in which newly patched areas could spark a chain reaction of corrosion damage in adjacent concrete.

MCI®-2006 NS is the admixture of choice for larger repairs where a significant quantity of concrete will be used. MCI®-2006 NS can be pre-blended with bagged concrete mortars, or it can be added to the concrete mix at the ready-mix plant or onsite in the mix truck or into portable mixers. MCI®-2006 NS does

not significantly affect concrete properties, meeting the physical property requirements of ASTM C1582. It also shows excellent corrosion inhibition capabilities, significantly reducing corrosion in ASTM G109 testing.

MCI® Mini Grenades are ideal for smaller applications such as hand mixing into bagged mortars or grouts onsite. MCI® Mini Grenades contain MCI®-2006 NS powder, pre-measured into water-soluble pouches about the size of a quarter. These pouches provide a convenient way to add the proper amount of MCI® corrosion protection into bagged materials. MCI® Mini Grenades dissolve easily in batch water, allowing the Migrating Corrosion Inhibitor™ to disperse throughout the mortar or grout.

MCI®-2006 NS and MCI® Mini Grenades are recommended for concrete repair on a variety of structures:

- All reinforced, precast, prestressed, or post-tensioned structures
- Steel-reinforced concrete bridges, highways, and streets exposed to corrosive environments (carbonation, deicing salts, atmospheric attack, marine conditions)
- Parking decks, ramps, and garages
- Concrete piers, piles, pillars, pipes, and utility poles

MCI®-2006 NS and MCI® Mini Grenades have been used in a wide variety of repairs over the last decades. In 2003, MCI® Mini Grenades were approved by AL-DOT for use in post-

tensioning repairs on the Cochrane Bridge (Alabama, USA). Besides providing excellent corrosion protection, the pouches were easy to mix and did not affect the flow of the DYNA Grout used to fill voids in the grout cover of some cable strands.

In 2008, MCI®-2006 NS was used in repair grout and mortar for restoration of a nuclear power plant water reactor that was deteriorating from corrosion-induced damage from low concrete cover, high humidity, and high temperatures. A combination of MCI®-2006 NS and MCI® Mini Grenades were added to repair mortars used to fix spalling concrete on a 70-plus year-old house in Iceland in 2010. In addition to use of these materials on many other occasions, one more interesting application of MCI®-2006 NS was for repair work on an Olympic-sized swimming pool in Israel between 2016-2020.

As these examples demonstrate, MCI®-2006 NS and MCI® Mini Grenades are highly versatile and provide an unobtrusive way to inhibit corrosion and maximize the effectiveness of concrete repairs. These materials are available directly to contractors in the concrete repair business, as well as to building material suppliers interested in private-labelling these repair-enhancing technologies in their own formulations.

For more information on Migrating Corrosion Inhibitor™ additives for concrete grout and repair mortars please visit:

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