



MIGRATING CORROSION INHIBITORS
FROM GREY TO GREEN

03 30 00	Cast in Place Concrete
03 40 00	Precast Concrete
03 70 00	Mass Concrete

MCI[®]-2005 NS

DESCRIPTION

MCI[®]-2005 NS (normal set) is a water-based, organic, corrosion inhibiting admixture for protection of metallic reinforcement in concrete structures.

When incorporated into concrete, MCI[®]-2005 NS forms a protective, monomolecular layer on embedded metals that inhibits corrosion. In new construction, this is quantified by an increase in critical chloride threshold and subsequent reduction in corrosion rates when corrosion does initiate. When used with repair mortars and grouts, MCI[®]-2005 NS not only protects rebar within the patch, it is able to migrate into undisturbed concrete adjacent to the repair, to protect reinforcement already in place. MCI[®]-2005 NS is available with added fragrance (bubble gum) as MCI[®]-2005 NSB.

PACKAGING & STORAGE

Available in 5 gallon (19 L) pails, 55 gallon (208 L) drums, and 275 gallon (1040 L) totes.

To ensure best product performance, store in original packaging, indoors, and out of direct sunlight at 40-100 °F (4-38 °C).

Shelf life: 2 years



HOW IT WORKS

MCI[®]-2005 NS is an organic corrosion inhibitor. It is considered ambiodic (mixed), meaning it protects both anodic and cathodic areas within a corrosion cell. MCI[®]-2005 NS contains a blend of amine salts of carboxylic acids which form a protective layer on embedded reinforcement delaying the onset of corrosion as well as reducing existing corrosion rates.

MCI[®]-2005 NS is effective at enhancing the durability and extending the service life of concrete structures exposed to corrosive environments (carbonation, chlorides, and atmospheric attack).

WHERE TO USE

- Reinforced concrete including precast, pre-stressed, and post-tensioned structures
- Corrosive environments including exposure to deicing salts, saline groundwater, airborne chlorides, and carbonation
- Marine and coastal structures, highways and bridges, parking decks, balconies, pools, concrete tanks, pilings, substructures, piers, pillars, pipes, and utility poles

ADVANTAGES

- Biobased (27%)
- Earns credit towards LEED certification
- Lower toxicity and environmental impact than traditional corrosion inhibiting admixtures such as calcium nitrite
- Low dosage rate with minimal effect on concrete properties (i.e. workability, strength development, air entrainment, etc.)
- Single dosage rate which is independent of expected exposure to chlorides
- Ability to migrate through porous substrates (concrete, masonry, limestone, etc.) by capillary action, vapor diffusion and ionic attraction
- Meets all requirements of ASTM C1582

MCI®-2005 NS

- Certified to meet ANSI/NSF Standard 61 for use on structures holding potable water
- Field and lab tested worldwide
- Complies with CSA S413, Section C1.2, for corrosion inhibiting

ready mix truck using portable dosing equipment. Concrete should be mixed thoroughly before placement.

PHYSICAL PROPERTIES

Appearance	Dark brown liquid
pH	11-12 (1% solution)
Non-Volatile Content	25-30%
Density	9.8-10.2 lb/gal (1.18-1.22 kg/L)
Specific Gravity	1.18-1.22

DOSAGE

Add MCI®-2005 NS to concrete mix at the rate of 1.5 pts/ yd³ (1l/m³).

APPLICATION

MCI®-2005 NS is best added with the mix water into ready mix concrete at the plant. Alternatively, it can be dosed into the

STANDARD TEST RESULTS

Slump	ASTM C143	Neutral
Air Content	ASTM C231	Neutral
Density	ASTM C138	Neutral
Set Time	ASTM C403	Neutral
Flexural Strength	ASTM C78	Neutral
Compressive Strength	ASTM C192	Neutral
Corrosion Properties	ASTM C1582 ASTM G109	Meets requirements
Biobased Content	ASTM D6866	27%
Workability	N/A	No adverse effects when used with pozzolans or other high performance concrete admixtures

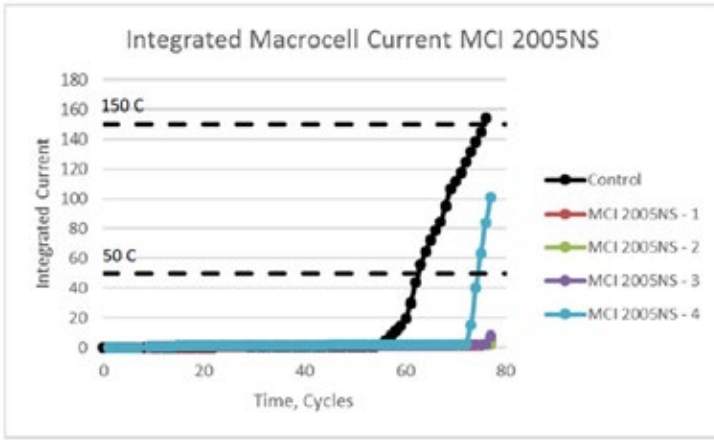
ASTM C1582 PHYSICAL PROPERTY RESULTS

Setting Time					
	Control	MCI®-2005 NS	Relative to Control	ASTM C1582 Requirement	Result
Initial Set (Minutes)	308	318	+10	+/- 210 Min of Control	Meets Requirement
Final Set (Minutes)	406	419	+13	+/- 210 Min of Control	Meets Requirement
Compressive Strength					
3 Day (psi)	3297	3137	95%	Min 80% of Control	Meets Requirement
7 Day (psi)	4080	4087	100%	Min 80% of Control	Meets Requirement
28 Day (psi)	5167	5340	103%	Min 80% of Control	Meets Requirement
6 Month (psi)	6207	6517	105%	Min 80% of Control	Meets Requirement
1 Year (psi)	6463	6773	105%	Min 80% of Control	Meets Requirement
Flexural Strength					
3 Day (psi)	575	591	103%	Min 80% of Control	Meets Requirement
7 Day (psi)	645	654	101%	Min 80% of Control	Meets Requirement
28 Day (psi)	747	767	103%	Min 80% of Control	Meets Requirement
Shrinkage					
Length Change (%)	-0.0245	-0.021	-0.004	Max 0.010 Over Control	Meets Requirement
Durability					
Freeze/Thaw Durability	98.5	97.1	98.6%	RDF 80%	Meets Requirement

ASTM C1582 CORROSION PROPERTIES - ASTM G109 RESULTS

	Control	MCI®-2005 NS	Relative to Control	ASTM C1582 Requirement	Results
Average Integrated Current, C	155	29	n/a	≤ 50C When Control is 150 C	Meets Requirement
Average Area Corroded, in ²	8.93	2.36	29%	≤ 1/3 of Control	Meets Requirement
Critical Chloride Content*, ppm	2861	2898	101%	≥ Critical Control	Meets Requirement

ASTM C1582 RESULTS



CONSIDERATIONS

Concrete properties are always best determined in a trial using the actual mix components. Cortec recommends a trial batch anytime you are using MCI®-2005 NS with new mix components.

Consult with Cortec's Technical Service Department for further guidance if necessary.



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