

# MIGRATORY CORROSION INHIBITOR (MCI®) PRODUCTS FOR CONCRETE



## MCI Fiber Grenades®

Patent Pending



### PRODUCT DESCRIPTION

MCI Fiber Grenades consist of both fiber and powders containing Migrating Corrosion Inhibitors packaged in water-soluble PVA bags. A MCI Fiber Grenade is very convenient to use. One 1.25 lb (0.56 kg) bag per 1/2 cubic yard or one 1.7 lb (0.8 kg) MCI Metric Grenade bag per 1/2 cubic meter provides excellent protection to steel reinforcement.

The bag dissolves easily when in contact with water in the concrete mix. After approximately 2 minutes of mixing, the bag will completely dissolve and the MCI compounds will disperse in the mix.

The MCIs protect reinforcing steel, galvanized steel and other metals embedded in concrete from corrosion induced by carbonation, chloride and atmospheric attack. When incorporated into the concrete mix, the MCIs form a corrosion inhibiting protective layer on metals. When used with repair mortars and grouts, MCIs will migrate toward the rebars, providing effective corrosion protection.

The polypropylene based fibers in MCI Fiber Grenades add mechanical and corrosion inhibiting benefits. Shrinkage cracking decreased 66%, while the

residual strength doubled when compared to concrete alone. The MCI Fiber Grenades also add extra long corrosion protection because the MCI is released more slowly. MCI Fiber Grenades provide corrosion protection from atmosphere and chloride attack, as well as from carbonation.

### WHERE TO USE

MCI Fiber Grenades are recommended for:

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

### ADVANTAGES

- Offers engineers, owners, contractors, DOTs and government agencies a time proven corrosion inhibiting technology that will extend the life of reinforced concrete structures
- Protects against the harmful effects of corrosion even in the densest concrete
- Shrinkage cracking reduction of 66%
- Does not affect the air entrainment, compressive strength or the set time of concrete mix
- Required dosage is not affected by chloride concentration
- Does not contain calcium nitrite
- Non-flammable and environmentally friendly
- Lab and field tested
- Concentrated for cost effectiveness on all projects
- Will migrate to adjacent areas to protect surrounding metals



## APPLICATION

MCI Fiber Grenades can be added to concrete at the ready-mix plant, directly to the ready-mix truck drum or to portable mixers. Mix concrete thoroughly for at least 5-10 minutes at a rate of at least 15 rpm after PVA bag is dissolved to disperse the MCI.

For best results at the batch plant, add the MCI Fiber Grenade to the water before the addition of the cement powder. If on the job site, add the MCI Grenade in the portable mix along with the water prior to the addition of the cement, sand or aggregate. Allow the bag and the powder to dissolve prior to addition of the other components.

## DOSAGE

Add to concrete mix, repair mortar or grout at one bag 1.25 lb (0.6kg) per 1/2 cubic yard or one metric bag 1.7 lb (0.8 kg) per 1/2 cubic meter.

## PACKAGING

MCI Grenades are packaged 20 bags per box. Regular bag is approximately 10" x 14" (25.4cm x 35.6cm). Metric bag is approximately 12" x 14" (30.5cm x 35.6cm). Please specify if you need metric bags.

## TYPICAL PROPERTIES

Appearance White to off-white powder packed in a PVA bag  
Shelf Life 12 months in a sealed box

TEST RESULTS	CONTROL	MCI® FIBERS
Impact Strength, First Crack	7 blows	12 blows
Ultimate Failure	10 blows	17 blows
Modulus of Elasticity	5.26 E +06	5.71 E +06
Residual Strength	54 psi	120 psi
Compressive Strength, 7day	5120 psi	5390 psi
Compressive Strength, 28 day	7000 psi	7090 psi
Flexural Strength, 7 day	610 psi	940 psi
Flexural Strength, 28 day	890 psi	1120 psi
Splitting Tensile Strength	363 psi	441 psi

Toughness Index  $I_5=4.8$ ,  $I_{10}=7.7$ ,  $I_{30}=24.8$

## FOR INDUSTRIAL USE ONLY

**KEEP OUT OF REACH OF CHILDREN**

**KEEP CONTAINER TIGHTLY CLOSED**

**NOT FOR INTERNAL CONSUMPTION**

**CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION**

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