

# Technical Bulletin 1.06

## CONPRO SHIELD MX

### ADVANCED SILICONE TECHNOLOGY

Conpro Shield MX contains siloxane groups that react with the substrate and polymerize to form a long-lasting hydrophobic (water-hating) structure.

### COLD WEATHER APPLICATION

Conpro Shield MX can be applied even when the surface/ambient temperature falls below 40°F, 1-hour after application. This works because after initial evaporation, the emulsion releases the active ingredients, siloxane "oils". The active ingredients will continue to penetrate and polymerize as soon as the temperature rises above 40° F. The surface must be protected from driving rain, sleet, hail etc., during the curing cycle. Think of the surface as hibernating during the cold cycle and awakening as the temperature rises.

### RECOATABILITY

Conpro Shield MX may be recoated at any time. The MX siloxane blend, when released from its dispersion, is oleophilic (oil-loving), and will penetrate into the surface capillaries. The initial application of MX over MX may result in beading, as though the material is not penetrating. This is normal, continue application until all areas have been treated.

### CLEAN UP

Cleaning window glass, hardware, etc., is simple with Conpro Shield MX. Clean with mild detergent and water. The Conpro Shield MX will remain easily cleanable for at least 72 hours after application. Conpro Shield MX, while alkaline, will not etch clear glass. Conpro Shield MX, if left for an extended time, may need to be removed mechanically.

### MIXING

Conpro Shield MX must be thoroughly mixed before using, as the emulsion will migrate to the top, leaving water on the bottom. Conpro Shield MX mixes easily and is usable for 24 hours after mixing.

### FREEZING

**Do not allow Conpro Shield MX to freeze, as this will destroy the product.**

Freezing will break the emulsion. A 1/16 inch, or thicker, layer of clear liquid on the top of the pail is indicative of freezing. The material cannot be recovered by mixing.

### HOW THE CONPRO SHIELD MX SYSTEM WORKS

#### Emulsion 101

What is an emulsion?

The Condensed Chemical Dictionary defines an emulsion as a stable mixture of two or more immiscible liquids held in suspension by small amounts of substances called emulsifiers.

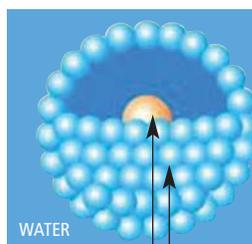
#### Common examples include:

- Homogenized milk = milk fat (cream), water, and carbohydrate (lactose, etc.). Milk has all the ingredients needed to make an emulsion. Milk is simply mixed under high shear (homogenized) to make the emulsion.
- Gravy = a common example of an emulsion made by adding "chemicals" to the mixture. Meat drippings (fat/oil) and water don't mix; but when a carbohydrate (corn starch or flour) is added under boiling conditions, a stable emulsion (gravy) is formed.

Conpro Shield MX is an emulsion. Siloxane (oil), water and surfactant are mixed in a tightly controlled process to produce an emulsion of small particles called micelles.

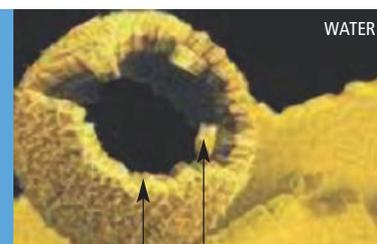
**How Conpro Shield MX works in the field can be best explained in the following illustrations:**

INTACT MICELLE



WATER  
CORE OF ACTIVES  
SURFACTANT LAYER

RUPTURED MICELLE



WATER  
CORE OF ACTIVES RELEASED  
RUPTURED SURFACTANT LAYER

- The core of actives (siloxane oils) is incompatible and will react with water. The surfactant layer allows these materials to co-exist by physically separating them.

After application of Conproco Shield MX the drying (evaporation and absorption) of water begins. As the drying proceeds, the surfactant layer ruptures, releasing the actives to penetrate the substrate and polymerize.

The freeze/thaw sensitivity of Conpro Shield MX can be explained by the illustration on the right. The intact micelles are squeezed and ruptured by expanding ice crystals. This releases the siloxane oils, which migrate to the top of the emulsion as a clear liquid. This liquid cannot be mixed back into the emulsion.