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**MADISON CHEMICAL
INDUSTRIES INC.**

InfoTech Bulletin #7

**NanoShield™
Ceramic Reinforcement**

**Ceramic Modified
Epoxy and Polyurethane Coatings**

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Madison Chemical Industries Inc.

“The World Leader For Infrastructural Coatings”®

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What is Ceramic Modified or Ceramic-Reinforced Technology?

Ceramic is one of the hardest, most durable substances known to man. In 2000, Madison developed a process whereby extremely fine ceramic nano-spheres could be incorporated into the formulation of many of our products on a special-order basis. The name of this additive is Madison NanoShield. Our production techniques disperse NanoShield so completely and invisibly that these "Ceramic Modified" or "CM" variations can be applied as easily as the standard non-fortified version of a particular product. This technology has now been adopted in the automobile industry. For example, Mercedes Benz has introduced what they call a "nano-particle" polyurethane clear coat on their new lines, claiming that the new paint is three times tougher than the non-reinforced version.

Why Use Ceramic Modified/Reinforced Coatings?

In many applications, an increase in abrasion resistance can dramatically increase the life expectancy of a coating: pipe coatings and linings, tank linings and floor coatings are a few examples. The improvement in physical properties is particularly noticeable in the newer water-dispersible formulations and in epoxies, which tend not to be as abrasion resistant as polyurethanes. But even traditional high solids and solvent free polyurethanes will show increases of 50 to 300% in abrasion resistance.

What Madison Coatings are Ceramic Modified?

Madison is capable of applying this technology to almost all of our coatings and linings. Ask your rep or refer to the Madison price list for details.

Is NanoShield™ Standard In Any Madison Products?

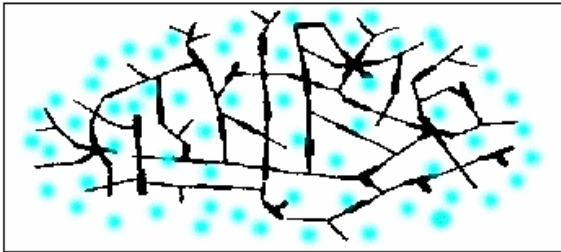
A growing list of Madison formulations now contain NanoShield as a standard ingredient. For example GemThane Cottage Coat, the product used to manufacture GemThane Polymer-Coated Prefinished Wood Siding contains about 10% NanoShield in its formulation, thus giving it more than 10 times the abrasion resistance of its competitors. GemThane OverCote, used as an exterior coating on buildings of virtually any kind, also contains NanoShield.

Does Ceramic Modification or “CM” Technology Affect Other Characteristics?

No. In fact some properties such as impact resistance are actually better than the same product without CM fortification. The nano-spheres are so fine that we can even use them in our clear aliphatic topcoats, a great benefit in the area of “mission critical” maintenance, such as handrails, store fronts and floors.

How Does It Work?

The ceramic nano-spheres (see dots in drawing at right) reinforce the physical integrity of the coating matrix (illustrated by the black lines) by being locked in as the coating “cross-links” during the curing process.



How Do I Obtain More Information?

We would be delighted to answer all of your questions regarding our CM products, reinforced with NanoShield Ceramic Reinforcements and help you with all of your coating and lining needs. Please contact Madison at 905-878-8863 or email sales@madisonchemical.com.

NOTE: “Madison” “Ceramic Modified” “NanoShield”, “GemThane”, “Cottage Coat” and “OverCote” are exclusive trade marks of Madison Chemical Industries Inc.

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