

CERAMIC PARTICLE LOADING

The CeRam-Kote 54® **patented** coating technology, **ceramic particle loading**, results from Freecom's unique ability developed over nineteen years and the trial of hundreds of formulas. Ceramic particle loading is the addition of a complex series of ceramic particles into a resin solution which causes the resin solution to out-perform its basic chemistry.

In addition to improving the chemical performance of resin systems, ceramic particle loading significantly enhances the dynamic mechanical performance of the resin system.

Total performance characteristics of CeRam-Kote 54®, both chemical and mechanical, are significantly better than liquid epoxy, fusion-bond epoxy and other high performance coating systems.

CeRam-Kote 54® protects by binding ceramic particles to a unique resin system, thus creating an **encapsulating ceramic shell**. Each ceramic particle is resin coated and becomes tightly packed in the cured film.



The *FLEXIBLE* Ceramic

ENCAPSULATING CERAMIC SHELL

The **compact density** of the cured film of CeRam-Kote 54® yields dynamic intangible benefits such as:

- **high surface lubricity** producing a lower drag coefficient on a variety of surfaces, and
- extraordinary **sliding abrasion** resistance providing protection against the forces of erosion/corrosion and abrasion.

TOUGH BARRIER COATING

CeRam-Kote 54® is a **tough barrier coating** for total immersion service that is compatible with antifouling bottom coatings.

CeRam-Kote 54®'s **direct-to-substrate** one-coat, two-pass system translates to increased production efficiency and significantly reduced down-time, essential in industry today.

CeRam-Kote 54® is formulated for atmospheric corrosion service as well as for immersion service in very harsh environments. CeRam-Kote 54® currently protects expensive and critical equipment in industries serving Oil and Gas, Offshore, Marine, Petrochemical and Industrial Markets with proven documented results. Applications have expanded into the Food and Beverage, Paper and Pulp, Wastewater Treatment, Electrical Power, Transportation and Mining Industries.

Extremely high adhesion to virtually any substrate combined with extraordinary mechanical properties, make CeRam-Kote 54® a superior protective coating where high abrasion and severe corrosion problems exist.

Note: More detailed information is available in the Summary Test Data or is available upon request.

PHYSICAL PROPERTIES – TEST DATA	
Adhesion (ASTM D4541, elcometer pull-off)	>3,680 psi (25.37 MPa)
Abrasion Resistance (ASTM D 4060, Tabor Test 1,000 cycles, CS 17 wheel, 1kg)	27 milligrams loss
Surface Roughness (Profilometer value)	20 Ra
Flexibility (ASTM D 522)	15% elongation
Impact Resistance - Direct (ASTM D 2794)	50 inch-pounds
Impact Resistance - Reverse (ASTM D 2794)	13 inch-pounds
Impact Resistance - Direct (ASTM G 14)	97 inch-pounds
Static Coefficient of Friction (ASTM D 4518)	0.152 mean static friction value
Dielectric Strength (ASTM D 149)	>1,750 volts/mil (>68 volts/micron)
Salt Spray (ISO 7253)	6,000 hours
Cyclic Corrosion (ASTM D5894)	Pass
Fire Rating Over Steel (ASTM E84-91a)	Smoke Density– Class 1 Flame Spread– Class 1
Chemical Testing (ASTM G 20 – modified to 30 days at 75°F/23.9°C) HCL in H ₂ O: pH of 2.9 HF in H ₂ O: pH of 2.9 H ₂ SO ₄ in H ₂ O: pH of 2.1 NaCl (10%) + H ₂ SO ₄ : pH of 2.9 NaCl (10%) in H ₂ O	No Change No Change No Change No Change No Change
VOC (Volatile Organic Compounds)	1.63 lb/gal (196 g/lit) (calculated value)