PRODUCT DATA SHEET: CERAM-KOTE 2000TL

Description: CeRam-Kote 2000TL is a thin-film, spray-applied and air-dried ceramic novalac epoxy coating system engineered to provide excellent **acid immersion service** protection to all metals, fiberglass reinforced plastics, concrete and plastic substrata. CeRam-Kote 2000TL is highly cross-linked to provide superior chemical resistance. The product may be force-cured with heat for enhanced performance in extremely harsh environments. CeRam-Kote 2000TL is available in three colors: white, grey and tan.

Suggested Uses:

- Internals in Tanks
- Harsh Chemical Environments
- Secondary Containment
- Clarifiers
- Non-UV Areas
- Internals in Vessels and Piping*
- Internals in Valves
- Fuel Tanks
- Internals of Frac Tanks (specifically designed for acid-hauling tanks)
- Hydrocarbon Service
- Blow Out Preventers
- Petrochemical Environments
- Wastewater Treatment Clarifiers
- Wastewater Treatment Pumps
- Wastewater Treatment Lift Stations
- Brine Tanks
- Non-potable water tanks

TECHNICAL DATA

Finish:	Semi-gloss
Colors:	Select colors available (white, tan, gray are stock)
Volume Solids:	80% +/- 2%
Weight Solids:	90% +/- 2%
VOC:	<197 g/l : 1.64 lb/gal
Dry Film Thickness:	8 – 12 mils (200 – 300 microns)
Coats:	1 or 2
Theoretical Coverage:	321 ft^2/gal / 8 m^2/l (at 4 mils / 100 microns) 160 ft^2/gal / 4 m^2/l (at 8 mils / 200 microns)
Abrasion Resistance:	40 mg loss (ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load)
Adhesion:	>2,000 psi (ASTM D4541)
Direct Impact Resistance:	40 in. lbs. (ASTM D2794)
Salt Fog Resistance:	1000 hrs, no blistering, cracking, softening, or delaminating (ASTM B117)
Temperature resistance:	Minimal prep: Continuous (dry) = 200°F / 93°C Continuous (immersion) = 100°F / 38°C Recommended prep (NACE-2): Continuous (dry) = 250°F / 121°C Continuous (immersion) = 150°F / 65°C
Water resistance:	Excellent
Corrosion resistance:	Excellent
Solvent resistance:	Excellent
Chemical resistance:	Excellent Contact distributor for specific information
Cure Time:	A two-pass film of 8-10 mils DFT (200-250 microns) air dries to a dry touch finish within five (5) hours at 72°F (22.2°C) and dries to a 70% cure in fourteen (14) hours. Cure times lengthen at lower temperatures and shorten at higher temperatures. The coating should be fully cured before placing into service.
Surface Preparation:	Bonding strength depends on proper preparation of the surface to be protected for long-term performance of the product. The substrate should be free of oil, grease and salt/chloride contamination. Specifications call for a white metal (NACE 1, SSPC-SP5, Swedish Standards SA-3) finish with a 2.0-2.5 mil (50 - 62.5 microns) anchor profile. Surface preparation should be no less than a near white metal (NACE 2, SSPC-SP10, Swedish Standards SA 2 ½) finish. Cleanliness is the most important step to produce a coated surface that will perform and last. Call Freecom, Inc. for surface preparation recommendations of materials such as aluminum, brass, plastic, fiberglass and/or concrete.

Mixing:

CeRam-Kote 2000TL contains a high loading of ceramic particles which must be placed into full suspension with the epoxy resin prior to application. CeRam-Kote 2000TL is packaged in two cans, Part A (base) and Part B (curing agent). Shake Part A (base) with a Cyclone air-powered shaker or mix Part A with a paddle mixer until all ceramic powders are suspended in the resin. Time required to place ceramics into suspension varies according to temperature and length of material storage time. At 72°F (22.2°C), generally a four (4) to six (6) minute shake will place the ceramic powders into suspension. **Regardless of time needed, shake all ceramic material into suspension prior to proceeding.** Failure to properly mix will keep CeRam-Kote 2000TL from performing or curing properly. Check the can to assure all solids are in suspension prior to proceeding to the mixing step.

Combine Part A (base) and Part B (curing agent) and ***stir*** again until both parts are thoroughly mixed.

Mixing Ratio: 5:1 by volume, 9:1 by weight

Pot Life & Shelf Life:

Pot life for CeRam-Kote 2000TL at 72°F (22.2°C) is approximately one (1) hour. Colder temperatures will increase the pot life and warmer temperatures will decrease the pot life. Keep cans out of direct sunlight to prevent heat buildup. CeRam-Kote 2000TL has an indefinite shelf life. Preferred storage/usage is a dry enclosed area under 85°F (29°C) /used within two (2) years. However, if stored more than two years above 85°F (29°C), call Freecom Technical Support prior to use.

Thinning:

Adjust viscosity with small amounts of MEK or Acetone. Use caution when adjusting the viscosity. A little goes a long way. Only a small portion of the total solution is epoxy resin and the resin is the only ingredient that can be thinned. Thinning dilutes the high solids of CeRam-Kote 2000TL, creates excessive overspray and can cause some color changes in bright colors.

Application:

Airless Spray:
Pressure = 2,800 – 3,000 psi
Hose = 3/8" ID
Tip = 0.021" to 0.027"
Filter = 30 mesh
Reduction = as needed up to 10% by volume
Reduction = as needed up to 15% by volume

Conventional Spray:
Gun = Binks 2001 or similar
Fluid Nozzle = 68 (2.8 mm orifice size)
Air Nozzle = 68PB
Atomization Pressure = 40 psi
Fluid Pressure = 30 psi

Brush:
Natural bristle
Reduction = Not recommended

Roller:
Cover = ½" lambs wool
Reduction = Not recommended

Spray apply for best results using conventional, airless, HVLP or cup gun. **The air source must be dry.** The compressed air source should be outfitted with air dryers as needed to supply moisture-free air. Use pressure feed equipment such as high volume, low pressure equipment or conventional equipment. Airless: use reversible carbide tip with orifice size of 0.019-0.021 inches. If applying with roller, use short nap, such as ¼" (.244 mm).

After thoroughly stirring CeRam-Kote 2000TL, strain it with a standard paint strainer and pour CeRam-Kote 2000TL into the spray equipment.

Apply a first pass of six (6) to eight (8) mils (150 - 200 microns) WFT and allow sufficient time for solvent to flash off. At 72°F (22.2°C), 30-40 minutes is sufficient. Apply a second pass of six (6) to eight (8) mils (150 - 200 microns) for a total DFT of ten (10) to fifteen (15) mils (250 - 375 microns). Cure time is temperature dependent.

Apply additional mils without incurring runs or sags if the finished product requires thicker coverage. Whenever possible, apply second coat in a cross-coat method.

Climate:

Use CeRam-Kote 2000TL only if the substrate temperature and ambient air temperature is above 40°F (4.4°C). No coating should be permitted when substrate is wet from rain or dew, when surfaces are less than 5°F (3°C) above the dew point and holding or when relative humidity is greater than 85%. Moisture will inhibit the catalyst reaction and CeRam-Kote 2000TL will not cure or perform properly.

Holiday Detection:

CeRam-Kote 2000TL is classified as a thin-film coating and should be tested for defects and holidays using a 67½ volt, wet sponge spark detector set at 80,000 ohms resistance, such as a Tinker and Rasor model M-1.

Repairs:

If application of the coating is less than seventy-two (72) hours old and has not been exposed to contamination, repair by wiping with MEK and then re-apply CeRam-Kote 2000TL. If contaminated or more than 72 hours old, first sand with appropriate grit sandpaper, then repeat repair process.

Cleanup:

Purge and clean spray equipment within thirty (30) minutes of the final spray. Flush equipment with MEK until solvent sprays clear. Disassemble and clean equipment to manufacturer's recommendations. Material left in spray equipment will solidify and damage equipment. Use precautionary measure applicable to any catalyzed material.

Safety:

See individual product label for safety and health data. A Material Safety Data Sheet is available upon request.

10/2/06