



PRODUCT DATA SHEET: CERAM-KOTE 54®

Description: CeRam-Kote 54® is a ceramic polymer coating engineered to provide excellent abrasion and corrosion protection in **critical service environments** for all metals, fiberglass reinforced plastics, concrete and plastic substrates. CeRam-Kote 54®'s highly modified resin system has been heavily loaded with a unique package of ceramic particles to enhance performance in extremely aggressive environments. The product may be force-cured for enhanced performance in extremely harsh environments. Stock colors are off-white, gray, black, and tan.

Suggested Uses:

General Industry	Cooling Tower Fan Blades, Loading Ramps, Heavy Wear Areas on Equipment, Pump Casings & Impellers, Valves Internal and External
Marine	Hulls, Bilge Areas, Rudders, Engine Rooms and Water Jet Intake Tubes
Energy	Turbine Blades, Lock & Dam Gates, Pump Casing & Impellers, Wind Generator Blades, Trash Racks
Entertainment	Water Ride Substrates
Food Service	Internals in Hoppers, Most Service Areas of Equipment
Pulp and Paper	Critical Service Areas of Equipment
Transportation	Bridges (splash zones), Interior on Trailers (Salt Hauling, Asphalt and Fertilizer)
Oil and Petrochemical	Rotary Tables, Pump Casings & Impellers, Valves, Manifolds
Offshore Oil	Platform Splash Zone, Decks (heavy wear areas), Equipment, Skids, Heliports, Sub-sea Wellheads, Riser Pipes, Riser Guide Tubes
Wastewater*	Lifts Stations, Trash Racks, Pump Casings & Impellers (*Note: Ceram-Kote's current recommended formula for wastewater applications is CeRam-Kote 2000).

TECHNICAL DATA

Volume Solids:	CeRam-Kote 54® 80% +/- 2%
VOC:	1.63 lb/gal (196 g/liter) less water
Number of Coats:	One Coat, two passes (each pass 4½-6 mils, 112½-150 microns)
Dry Film Thickness:	CeRam-Kote 54® should be applied holiday-free at a minimum of 8 mils (200 microns) with a maximum thickness of 15 mils (375 microns).
Cure Time:	A two-pass film of 7-10 mils DFT (175-250 microns) air dries to a touch-dry finish within three (3) hours at 72°F (22.2°C) and dries to a 70% cure in twelve (12) hours. Cure times lengthen at lower temperatures and shorten at higher temperatures. If the coating is to be exposed to a critical service environment, coating should be fully cured before placing into service.
Surface Preparation:	Coating performance is proportional to the degree of surface preparation. Abrasive cleaning is the most effective and economical method. <u>Iron & Steel</u> – Remove all loose rust, dirt, moisture, grease and soluble salts from surface. Power-tool clean (SSPC-SP3) or hand-tool clean (SSPC-SP2). For more severe environments, dry abrasive blast (SSPC-SP7). Water blasting is also acceptable to SSPC-D-Vis-WJ-3-H. For immersion service, dry abrasive blast SSPC-SP10 and achieve a 2-mil (50 micron) anchor profile. Prime any bare steel within 8 hours or before flash rusting occurs. <u>Aluminum</u> – Remove all oil, grease, dirt, oxide, soluble salts, and other foreign material by solvent cleaning per SSPC-SP1. Power-tool clean (SSPC-SP3) or hand-tool clean (SSPC-SP2). For more severe environments, dry abrasive blast (SSPC-SP7). Water blasting is also acceptable to SSPC-D-Vis-WJ-3-H. For immersion service, dry abrasive blast SSPC-SP10 and achieve a 2-mil (50 micron) anchor profile. Prime any bare steel within 8 hours or before flash rusting occurs.

Surface Preparation (cont'd)

Galvanized Steel – Allow to weather a minimum of six months prior to coating. Remove all oil, grease, dirt, oxide, soluble salts, and other foreign material by solvent cleaning per SSPC-SP1 (recommended solvent is VM&P Naptha). When weathering is not possible or the surface has been treated with chromates or silicates, first solvent clean per SSPC-SP1 and apply a test patch. Allow CeRam-Kote® 54 SST to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments.

Fiberglass & Composites - When preparing old or previously used fiberglass or plastic material, it is important to clean the substrate to ensure all contaminants are removed before abrading. Ceram-Kote recommends hot water pressure washing (at least 3,000 psi) using trisodium phosphate or detergent. Allow to dry. Rough up or abrade with 40-grit to 80-grit sandpaper. If fiberglass is previously coated with Ceram-Kote, abrade with 100-grit sandpaper (as in section 6.0). For new fiberglass, clean and wipe all surfaces with Acetone or Methyl Ethyl Ketone (MEK) prior to profiling to remove mold release agents, wax and contamination prior to abrading. Fiberglass and composite materials must have a water content of less than 5%.

Mixing Ratio:

Twelve (12) parts of Part A to one (1) part of Part B by volume
Twenty and one-half (20.5) parts of Part A to one (1) part of Part B by weight

Mixing:

CeRam-Kote 54® contains a high loading of ceramic particles which must be placed into full suspension with the resin prior to application. CeRam-Kote 54® is packaged in two cans, Part A (resin and ceramics) and Part B (curing agent). Shake Part A (coating) 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 54® 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 (coating) and Part B (curing agent) and **stir** until both parts are thoroughly mixed: **QUART CAN OR SINGLE LITER MIXING:** (*when mixing quart or single liter cans only, pour Part A into Part B. Use this procedure for quarts or single liters only due to the small amount of curing agent in the Part B can.*) Stirring time is temperature dependent, but a two (2) to four (4) minute stir at 72°F (22.2°C) should thoroughly mix the components. However, caution must be used to prevent heat buildup. No induction time is needed before application.

Pot Life & Shelf Life:

Pot life for CeRam-Kote 54® at 72°F (22.2°C) is approximately four (4) to six (6) hours. 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. Preferred storage/usage is a dry enclosed area under 85°F (29°C) /used within two (2) years.

Thinning:

Adjust viscosity with small amounts of MEK, Acetone, or Toluene. We recommend thinning to a maximum of 15% by volume.

Application:

Recommended application equipment (equivalent equipment may be substituted):

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 = 1/2" lambs wool
Reduction = Not recommended

Damp or oil contaminated surfaces should always be brushed, rolled or spray and backroll applied, working the paint film into contamination.

All other surfaces - spray apply for best results using conventional, airless, 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. After thoroughly mixing CeRam-Kote® 54, strain it with a standard paint strainer and pour CeRam-Kote® 54 into the spray equipment.

***Performance Tips:** Stripe coat all crevices, welds and sharp angles to prevent early failure in these areas. When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. Whenever possible, cross spray at a right angle. Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions and excessive film build. Excessive reduction of material can affect film build, appearance, and adhesion. In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with CeRam-Kote® Thinner 1 or CeRam-Kote® Thinner 3. Do not apply the material beyond recommended pot life. Do not mix previously catalyzed material with new.*

- Climate:** Use CeRam-Kote 54® 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 five degrees Fahrenheit (three degrees Celsius) above the dew point and holding or when relative humidity is greater than 85%. Moisture will inhibit the catalyst reaction and CeRam-Kote 54® will not cure or perform properly.
- Holiday Detection:** CeRam-Kote 54® 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 Razor 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 Acetone, MEK or Isopropanol (99% pure) and then re-apply CeRam-Kote 54®. 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 Acetone, MEK or Isopropanol (99% pure) 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.

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