

PROTECTIVE COATING SOLUTIONS FOR EVERY INDUSTRY







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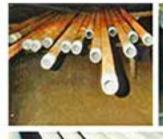
All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and/the following is made in lieu of all warranties, expressed or implied, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE: Seller's and Manufacturer's only obligation shall be to replace such quantity of the product proven to be defective. Before using, user shall determine the suitability of the product for its intended use and user assumes all risk and liability whatsoever in connection therewith. NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.







CERAM-KOTE PCF...
THE DOWNHOLE COATING
SYSTEMS DEVELOPED TO
EXTEND THE USEFUL LIFE
OF YOUR TUBING, CASING
AND DRILL PIPE.













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Mechanical Properties of CeRam-Kote PCF compared to the competition:

Aspect of Coating Performance	Test Specification	Results Competitive Fusion Bond Epoxies (FBE)	Results CeRam-Kote PCF	Results CeRam- Kote PCF Compared to FBE
Adhesion Ad	ASTM D4541	8.65 MPa (1254 psi)	>15.2 MPa (>2200 psi)	> 75% Improvement
Impact Resistance	ASTM G14			106% Improvement
Abrasion	ASTM D4060	85 mg loss/ 1000 cycles 40.3 mg loss/ 1000 cycles 110% Improvement		110% Improvement





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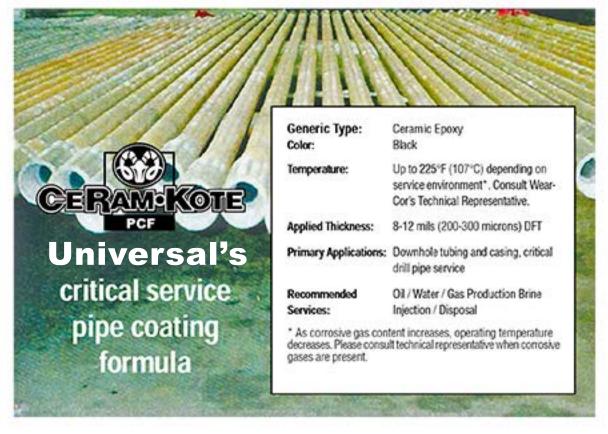
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CeRam-Kote PCF is a thin-film, spray applied ceramic epoxy coating engineered to provide excellent chemical resistance and corrosion protection to Oil Country Tubular Goods. CeRam-Kote PCF is a highly modified novalac epoxy resin system that has been heavily loaded with a unique package of ceramic particles enhancing its ability to perform well in a variety of aggressive environments. The formula is highly cross-linked to provide chemical resistance.

ACIDIZING FLUIDS

If well fluids are not hot and stimulation fluids are charged through the coated tubing in a short period of time, there is generally little effect if the fluids are flushed completely through the tubulars. However, some organic acids and solvents may have a detrimental effect on certain organic coating systems, especially as temperatures increase. If stimulation fluids are left in the tubing, they can reach formation temperature and cause accelerated attack on the coating. A Wear-Cor Technical Representative should be consulted when acidizing is contemplated.

Successful Autoclave Test Results:

Temperature	Pressure	Test Condition	Time Period
200° F (93° C)	8,000 psi	8% NaCl in tap water Toluene/Kerosene @ 1:1 15% Carbon Dioxide Gas 85% Methane Gas	18 hrs
300° F (149° C)	5,000 psi	Synthetic Seawater 50/50 Kerosene/Toluene Methane Gas	24 hrs
194° F (90° C)	5,000 psi	0 psi Synthetic Seawater 50/50 Kerosene/ Toluene 95% Methane Gas 5% Carbon Dioxide Gas	
194° F (90° C)	5,000 psi	Synthetic Seawater 50/50 Kerosene/Toluene Methane Gas	24 hrs
140° F (60° C)	600 psi	1% NaCl/Distilled Water Toluene/Kerosene @ 1:1 1% Hydrogen Sulfide 1% Carbon Dioxide Gas 2% Compressed Air 95% Methane Gas	
122° F (50° C)	5,000 psi	Brine Water (NACE Standard) 100% Nitrogen	5-1 hr cycles

Only licensed CeRam-Kote pipe coating facilities are authorized to apply CeRam-Kote 54® TZS for the I.D. coating of applications.



Mechanical Properties Comparison

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*Operating temperature is dependent upon the exact operating conditions of the environment. Please contact Wear-Cor for recommendations.

of CeRam-Kote PCF and CeRam-Kote 54® TZS





Adhesion (ASTM 4541)	>2200 PSI	>2200 PSI
Pass Autoclave	YES	NO
Abrasion (ASTM D4060)	40.3 mg loss	27 mg loss
Impact Resistance (ASTM G14)	118 in. lbs	90 in. lbs.
Static Coefficient of Friction	0.187	0.152
Distilled Water Immersion (ASTM D870-87) 122°F (50°C) 149°F (65°F)	Pass Pass	Pass Pass
Acid Immersion-15% HCI in Distilled Water (by volume) for 24 hours at 122°F (50°C)	Pass	Pass
Flexibility at 75°F (23.9°C)	1.05°/pd	2.1°/pd
Operating Temperature*	225°F (107°C)	150°F (65.5°)
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CeRam-Kote 54® TZS is a thin-film, spray applied ceramic epoxy coating engineered primarily to provide external abrasion resistance and corrosion protection. CeRam-Kote 54® TZS is a highly modified epoxy resin system that has been heavily loaded with a unique package of ceramic particles enhancing its ability to perform well in a variety of abrasive environments.

ACIDIZING FLUIDS

If well fluids are not hot and stimulation fluids are charged through the coated tubing in a short period of time, there is generally little effect if the fluids are flushed completely through the tubulars.

However, some organic acids and solvents may have a detrimental effect on certain organic coating systems, especially as temperatures increase. If stimulation fluids are left in the tubing, they can reach formation temperature and cause accelerated attack on the coating. A Wear-Cor Technical Representative should be consulted when acidizing is contemplated. Temperature: (depending on service environment)

Application	Operating Temp.	Conditions
External Coating	150° F (65.5° C)	Depending on service environment
Sucker Rods	150° F (65.5° C)	Depending on service environment
Drilling Riser Pipe (Choke & Kill Line and Mud Boost Line)	250° F (121° C)	While circulating
Blast Joints	150° F (65.5° C)	Not applicable
Drill Pipe	450° F (232° C)	While circulating

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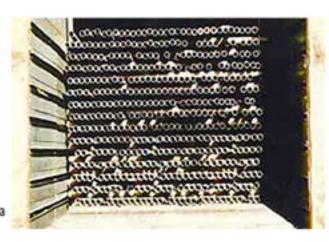
The CeRam-Kote PCF pipe coating formula offers better chemical resistance and withstands higher operating temperatures than CeRam-Kote 54® TZS.



The CeRam-Kote 54® TZS pipe coating formula provides abrasion resistance and corrosion protection, primarily to the externals of Oil Country Tubular Goods.

INTERNAL PIPE COATING at Freecom's Big Spring Operation







1. Trucking

Upon arrival, the load is visually inspected for damage such as load shift, chain and boomers, bowing of pipe, missing thread protectors. Pyramiding of pipe can cause thread damage. These loads are 100% visually inspected before acceptance.

2. Coupling Removal

Using a power long unit, couplings are removed from the pipe.

Quality Control:

The pipe and couplings are inspected for any abnormalities such as thread damage, crimping and body irregularities.

3. Burn-Out

Pipe is thermal cleaned at 750°F (398.8°C) in order to remove hydrocarbons, oil, grease, pipe dope, paraffin and old coatings. This process also helps release tightly adhered mill scale prior to internal blasting.

Quality Control:

The pipe is inspected for any API abnormalities, i. e., thread damage, crimping, upset area irregularities, rod wear, crooked or bent joints.

4. End-Cutting

The upset area, bullet nose and two to three (2-3) threads of the pipe are blast-cleaned to a NACE-1 (SSPC-SP5, Swedish SA-3) to remove all contamination. The remaining threads are protected from blasting.



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Quality Control:

The pipe is inspected for any damage to the threads, crooked or bent joints, crimped joints, and upset area irregularities (severe corrosion, rod cut or ends not properly prepared).

5. I.D. Blasting

The internal surface of the pipe is blast cleaned with garnet to a NACE-1 (SSPC-SP5, Swedish SA-3), or no less than a NACE-2 (SSPC-SP10, Swedish SA-2-1/2) finish with an anchor profile of 2 to 2-1/2 mils (50 to 62.5 microns). The upset area, bullet nose, and threads, as well as the pipe inside diameter are inspected to assure all contamination is removed.

Quality Control:

The pipe is inspected a second time for any abnormalities to the threads, upset area or pipe body. Anchor profile readings are taken at random three times during an eight hour shift to assure the proper working mix of garnet.

6. Pre-Heating

The pipe is automatically conveyed to the thermostatically controlled infrared oven where it is heated to a consistent metal temperature of 120° F (48.9°C), plus or minus (+/-) 5°F (3°C)

7. I.D. Coating

After exiting the pre-heat oven, coating is applied to the pipe in two coats to achieve a total Dry Film Thickness (DFT) of eight (8) to twelve (12) mils (200-300 microns).

Quality Control:

After each coat is applied, a wet film thickness is taken at random and the coating is also inspected for uniformity. The pipe is inspected for any damage to the threads, upset area, irregularities, or pipe body.





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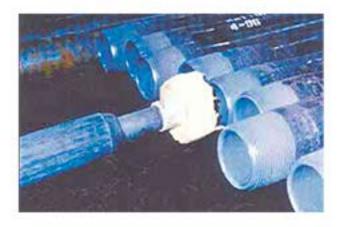
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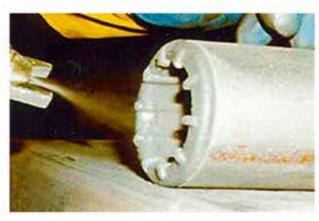
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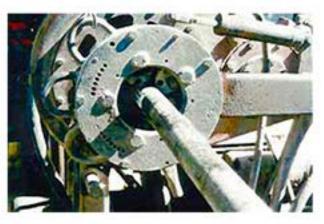
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8. Quality Control

The coating D.F.T. thickness is measured at both ends of every joint of pipe. Each joint of pipe is visually examined for coating defects. The pipe is inspected for any damage to the threads, upset area irregularities, or pipe body.

9. Holiday and Drifting Inspection

Pipe is inspected for holidays using a Tinker-Razor model M-1, 67-1/2 volt wet sponge spark tester with 80,000 ohms resistance. Pipe is drifted as per API specifications to 20 mils (500 microns) under API bare drift (10 mils or 250 microns per side).

Quality Control:

The pipe is inspected for any damage to the threads, upset area irregularities, or pipe body. Any pipe not meeting holiday and drift specifications are reworked until the pipe joint passes inspection or is deemed Non-Suitable for Coating (NSC).

10. Coupling Coating

Couplings are blast-cleaned to a NACE-1 (SSPC-SP5, Swedish Standards SA-3) white metal finish. Coating is applied to the 'J' area one inch each side of the center line of the coupling and special masks are used to prevent overspray.

Quality Control:

Each coupling is inspected before coating for excessive corrosion damage. Coating is applied in two passes from both directions to cover the peaks and roots of the threads. Each coupling is visually inspected for any coating defects.

11. Coupling Installation

Coated couplings are reinstalled on the same order of pipe that was received. Closed pin and box protectors are installed before shipping.

Quality Control:

Every joint has the coupling installed within API recommended make-up torque specifications. A final inspection of each joint takes place at this station for any crooked, bent or crimped joints.





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QUESTIONS AND ANSWERS

The following questions and answers deal primarily with the use of CeRam-Kote coatings on Oil Country Tubular Goods for the Oil Industry.

1. How does CeRam-Kote perform on used pipe?

Liquid, spray-applied CeRam-Kote coatings flow into pits, depressions and holes. The thin-film application of CeRam-Kote of 8 -12 mils (200-300 microns) provides holiday-free coverage on used pipe. Other conventional pipe coatings (both liquid thin-film epoxy phenolics and fusion bonded powder epoxies) have considerable difficulty in achieving holiday-free coverage on the rough metal surfaces typically found in used pipe.

Wear-Cor does not recommend CeRam-Kote for down-hole service on any tubing graded less than yellow band (0-15%) wall loss. Wear-Cor does not recommend CeRam-Kote for any service on any pipe graded less than blue band (16-30%) wall loss.

What is reverse impact? Does reverse impact affect CeRam-Kote 54®?

Reverse impact physically deforms a coated object (pipe, Q-Panel, etc.) from the uncoated side, (i.e., coat one side of a Q-Panel with CeRam-Kote, then strike the sample from the uncoated side and observe the reverse impact damage on the coated side). This process may stretch the metal beyond its yield point, and/or bend the metal beyond its ability to hold its original form. If the metal is deformed beyond its yield point, reverse impact may cause CeRam-Kote to craze or crack.

3. Are there any special handling requirements for CeRam-Kote coated tubular goods?

Any coated tubing should be handled with care to prevent unnecessary damage to pipe, during both transport and installation. CeRam-Kote will survive normal handling conditions in well servicing and pipe installations. Wear-Cor recommends the use of stabbing guides for all pipe installations.

Special care should be taken when making-up or breaking-out tubing. Do not over-torque tongs past API specs. This may cause "reverse impact" damage to coating. Thin-wall tubing is especially susceptible (2 1/16" and 2 3/8" OD).

4. What are other oil field applications for CeRam-Kote coatings?

Anywhere there are corrosion or abrasion problems, CeRam-Kote products may be used to extend the useful life of equipment. A few oil field applications for CeRam-Kote are listed below:

- Tubulars
- Pup joints, couplings, subs and cross-overs
- Pumps, valves and valve parts
- Tanks and vessels
- Manifolds
- Flow lines, fabricated pipe and fittings
- Fire tubes and heater treaters





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QUESTIONS AND ANSWERS...continued

5. Is CeRam-Kote suitable for drill pipe protection?

Drill pipe requires a tough, flexible, corrosion resistant, scale resistant, abrasion resistant and chemical resistant coating system. CeRam-Kote's performance characteristics include resistance to wire-line and tool damage. CeRam-Kote out-performs other conventional liquid or powder drill pipe coatings.

CeRam-Kote, due to its dense surface, effectively prevents the build-up of normally occurring radioactive material (N.O.R.M.) on drill pipe which can occur during the drilling process. If N.O.R.M. builds up on the inside of drill pipe, it must be removed and disposed of as hazardous material,

6. What sizes, weights and grades of pipe are effectively coated at Freecom's Big Spring facility?

Freecom's Big Spring Pipe Coating Facility can internally coat pipe of all grades, with J-55 being the most common in the Permian Basin. The Big Spring facility can coat internally 2-1/16°, 2-3/8°, 2-7/8°, 3-1/2° and 4-1/2°, with weights up to 12.75 lb. effectively. The Big Spring facility also can internally coat lengths up to and including Range II (34 ft.).

Larger pipe, such as manifolds and headers can be coated in Freecom's custom shop, also located in the Big Spring facility. Please contact a Wear-Cor representative with specific requirements.

7. What are the differences in White, Yellow, Blue, Green and Red band pipe?

White band = Class 1 : 0 body-wall loss (Like-new pipe)

Yellow band = Class 2 : 0-15% body-wall reduction (85% minimum remaining)

Blue band = Class : 16-30% body-wall reduction (70% minimum remaining)

Green band = Class : 31-50% body-wall reduction (50% minimum remaining)

Red band = Class 5 : 50% + body-wall reduction (less than 50% remaining)

- . One red band highlights defects detected on the pin or box end (thread and/or coupling damage).
- . One green band appears on each side of restriction.
- One green band applied next to the body-wall indicates a drift restriction.

8. How are pipe threads protected during the coating process?

Pipe threads are protected with plastic or composite protectors. Premium threaded tubing and casing require special protectors made in accordance with the manufacturer's specifications.

9. What part of the 8RD coupling is coated?

The J-section of the coupling or one (1) inch in each direction from the centerline is coated.





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QUESTIONS AND ANSWERS...continued

10. How is pipe externally coated?

Pipe to be coated externally with CeRam-Kote is Blasted to a NACE-1 (white metal), no less than NACE-2 (near white metal) finish with a 2 - 2-1/2 mils anchor profile. An air-sprayed application using conventional spray equipment is applied in two passes to achieve a 8 -12 mil (200-300 micron) coating thickness. The coating application is performed inside a closed facility.

11. What procedure does Wear-Cor recommend when stimulation fluids are charged through CeRam-Kote coated tubing?

If the well fluids are not hot and stimulation fluids are charged through the coated tubing in a short period of time, there is generally little effect if the fluids are flushed completely through the tubular.

However, some organic acids and solvents may have a detrimental effect on certain organic coating systems, especially as temperatures increase. If stimulation fluids are left in the tubing, they can reach formation temperature and cause accelerated attack on the coating. A Wear-Cor representative should be consulted prior to stimulation.

12. What does oxygen do downhole in an injection or disposal well to coated tubing?

Oxygen is not found downhole unless it is introduced from the surface. Oxygen can enter the system in several ways, (i.e., a seal leaking on a triplex pump, hatches left open on storage tanks, leaving a valve open on the backside of tubing). Some operators believe having an oil column above the produced water in a tank will block oxygen. Independent testing by a major oil company has proven it will not. All openings to a tank must be closed and a nitrogen blanket applied to the tank to prevent oxygen from entering the system.

13. How does CeRam-Kote react to paraffin?

Initially, paraffin moves up the well bore in solution. As it passes through cooling zones in the formation, it reaches its cloud-point and falls out of solution as a solid. The smooth dense surface of CeRam-Kote does not allow paraffin to build-up as readily as it does on some coatings and bare pipe.

14. What is the acid resistance of CeRam-Kote?

As a general rule, Wear-Cor does not recommend the use of CeRam-Kote in acid environments unless the temperature is ambient 72°F (22.2°C) or below.

15. Does CeRam-Kote lose flexibility down-hole?

In sour crude (H₂S) and higher temperature environments, CeRam-Kote post-cures and loses some flexibility. With normal aging, CeRam-Kote experiences reduced flexibility; however, enough flexibility remains so that CeRam-Kote is one of the most impact resistant, corrosion and abrasion resistant high performance coatings available.





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QUESTIONS AND ANSWERS...continued

16. Can CeRam-Kote 54® prevent blast joint failures in a rod pumping well?

Absolutely. Many Permian Basin users only use CeRam-Kote in this problem area. CeRam-Kote lined tubing in conjunction with a composite top ring installed on the insert pump has given operators extended run times without tubing failure.

IMPORTANT NOTICE TO PURCHASER

All statements, technical information and recommendations herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and/the following is made in lieu of all warranties, expressed or implied, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE: Seller's and Manufacturer's only obligation shall be to replace such quantity of the product proven to be defective. Before using, user shall determine the suitability of the product for its intended use and user assumes all risk and liability whatsoever in connection therewith. NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT. No statement or recommendation not contained herein shall have any force or effect unless in an agreement signed by officers of seller and manufacturer.

UNIVERSAL COATING INC. PROFILE

The origin of the company stems from the industry's need for a reliable and proven coating solution for today's harsh environmental conditions. Universal Coatings Inc., has been using the various CeRam-Kote® products for a number of years and has had tremendous success in optimizing its clients' profits by combatting the various corrosive and erosive environments it has been chosen for. These applications have been very diversified in that they have been a huge asset in the Oil and Gas, Marine, Pulp and Paper, Mining and Construction industries, to name a few. It was evident that CeRam-Kote® products, formulated to meet the growing need for safe and environmentally-responsible coatings, were not getting the high profile attention they deserve in Canada.

The applications of CeRam-Kote® products are so vast that the distribution rights for western Canada were secured from Freecom, Inc. of Big Spring, Texas in mid-2003 by Universal Coatings' President, Glen Petruk. In 2006 Universal became the Canadian distributor.

Universal Coating Inc. has the expertise and manpower to meet your situations head-on. We welcome your challenges. We have the solutions for whatever your budget demands. Solving your coating, erosion and corrosion problems is our goal.

Today's industry needs a reliable and proven coating solution for today's harsh environmental conditions. CeRam-Kote® products have tremendous success in optimizing its clients profits by combatting the various corrosive and erosive environments it has been chosen for. These applications have been very diversified in that they have been a huge asset in the Oil and Gas, Marine, Pulp and Paper, Mining and Construction industries, to name a few.

We invite you to contact us for more detailed information on the wide variety of applications of our products.





for more information, please contact:

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FAX OR E-MAIL US FOR THE FACTS!

XPRESS TECHNICAL SERVICE

Universal Coating Inc. guarantee quick turn-around on all technical questions on the use of CeRam-Kote products if the questions are faxed or e-mailed to us.

Universal Coating Inc. guarantees to respond to your technical questions within 3 (three) working days. In most cases you will have your answer within 24 hours of receipt of your fax or e-mail at Wear-Cor. If we need to research the questions, a return fax or e-mail will immediately be generated to advise you when you may anticipate a reply.





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