Specialized Thin Film Protective Metal Coatings and Dry Film Lubricants

KG Industries
204 Mustang Cove
Taylor, TX 76574
Phone 512-352-3245
Fax 512-352-3308
Rev: B-62719

2400/2500 Series Protective Film Technical Data Sheet

The 2400 and 2500 Series Gun Kote are hard, abrasion resistant coatings which meets or exceeds all military and aerospace specifications for protective thin film coatings. With a dry film thickness between 10 and 18 microns the 2400 series is an excellent choice for tight tolerance projects. Gun Kote has a pencil hardness of 9H, will provide a 180-degree bend without fracturing and exhibits excellent impact resistance, lubricity (meets military dry firing specifications), heat dissipation, chemical resistance, corrosion protection, durability, scratch resistance and will not attract dirt or dust. Most importantly, KG will formulate the 2400 to meet specific customer needs.

Marketed under the trademark **Gun-Kote since 1969,** the 2400 series has proven to be an outstanding general-purpose coating for use in the sporting goods, construction, general light to heavy industrial markets. Gun-Kote can also be custom formulated to meet specific needs for extra lubricity, corrosion, hardness or durability. Our 2500 Series is more of an aesthetic/effect coating.

The 2404F Flat Dark Earth color was formulated at the request of the Naval Surface Warfare Center - CRANE and specified for use on the original SOCOM Weapons (SPR's) being deployed for Afghanistan. The Federal 595 Color Code for the 2404F is FS 33446 Desert Tan.

Coverage: 700 to 1000 square feet per gallon depending on thickness.

Thickness: Optimal = .0003 to .0004 +- .0001

Pre-Treatment (General):

Stainless Steel:	Grit blast (all blasting should be done using aluminum oxide 120 mesh at 40 to 60 pounds of pressure.)
Alloy Steel:	Sandblast and phosphate or sandblast only.
Aluminum:	Alodine or anodize if possible, if not possible use grit blast at lower pressures between 10 to 20 psi to matte the surface but not remove the anodizing.
Nickel Or Chrome Plating:	Grit blast (If plating peels it is poor plating and must be taken completely down to bare metal.)

Some parts may need to be placed into an oven to leach the oil from mated parts. After leaching oils, or if you're working with new parts they should be stripped and cleaned of any oil or grease (use KG-3 Solvent Degreaser (KG-3, Acetone or MEK these solvents do not leave a residue). Do not use break cleaners. After sandblasting, repeat cleaning/degreasing to remove all residue from the surface and from any holes that may have trapped the blast material. Note: Warming the parts after degreasing is an important step. Solvents cause the part to get cold. Warm parts make Gun Kote easier to spray and leaves a better finish.

Thinning: If thinning is required use MEK or Acetone in small amounts. Gun-Kote is formulated and packaged ready to spray.

Clean Up: MEK or Acetone.

Curing: Generally the coating will be fully cured after one hour. Bake temperature is normaly curing temperature is 300 to 325F. Timing starts after part has reached curing temperature, about ½ hour. Most colors will dry to the touch within a few minutes.

NOTE: BE SURE MOLDED FRAMES/STOCKS CAN TAKE 325 BEFORE SUBJECTING THEM TO 325F. CALLING THE MANUFACTURE IS THE BEST INSURANCE. IF MOLDED FRAMES CANNOT TAKE 325 USE KG-180 ADDITIVE. If part is that sensitive use KG-180 to lower the curing temp.

Gun-Kote cured at higher temperatures (350 to 375 or higher) for 90 minutes will cause the coating to become slightly harder. Some loss of gloss may occur at high cure temperatures and colors that contain yellow may turn at higher cure temps.

Exceptions: some colors will get darker or turn the tint of the color when cured at 325. The most common colors are red, yellow and white. Any color that has yellow in it is also subject to color changes. If you find that the color you sprayed has gone through a color change simply fog over the existing coating and re-bake at a lower temperature.

Curing at Low Temps: See KG-180 Tech Data Sheet. Generally, KG-180 allows the coating to be cured at 175/185F to alleviate any damage to a heat sensitive part such as scopes.

Colors: See Color Chart.

Application: When handling any part, use a pair of powder free, clean, latex gloves to insure you do not leave any fingerprints. Fingerprints will affect the bonding of the material to the metal. Using a touch-up or airbrush spray gun, spray in light fog passes, 4 to 8 inches away from the part you are coating. Spray from four to five different directions and angles to assure complete coverage. Be sure you use just enough air pressure to atomize the material. Too much air pressure will cause a rough finish (Dry Spray).

The ideal coating thickness is .0003 to .0004 of an inch, which should not cause any problems to close tolerance fits.

Flat Finishes: After curing, while part is still warm, use a cheap aerosol oil and saturate the part. This simple "trick" will minimize burnishing marks which are common with flat finishes.

Flats vs. Satin

Finishes: The 2400 Series Gun-Kote does come in flat and satins. The 2500 Series are formulated to be more of a satin finish. Thin Film Technology does allow the user to vary the sheen by how much material is laid down.

Page 3

Spraying Gun Kote Heavy/Wet will increase the gloss factor. Spraying the coating with less material flow will tend to result in a flatter finish.

To help achieve flat finishes preheat the part to about 100 to 120 degrees F. Hold the spray gun 4 to 6 inches away from the part and spray with the material flow control to as little as possible. The downside of spraying too light will result in Dry Spray. Dry Spray is a sandy like feeling. Correcting Dry Spray though is easy. Using 0000 Steel Wool and lightly rubbing the finish will smooth the coating out.

To obtain a satin finish spray the part at room temperature, hold the spray gun closer to the part and adjust the material flow. Experimenting with these two techniques and practicing will save time and reduce frustration.

When to use a Base Coat: On some of the more transparent colors such as Yellow, Pink, or Blaze Orange and colors in the 2500 Series such 2520 Light Green or 2519 Rose Red, it is best to shoot a base coat of white, silver or black to get the best result from the coating or to achieve a certain look.

Types of Spray Guns: All types of Automotive touch up guns, Air Brushes of any make work well with Gun Kote. You must experiment with the material control and fan control though to get the best results for thickness and sheen. Practicing on glass will help to learn how Gun Kote "behaves" and also provide the difference between spraying Gun Kote and spraying other coatings.

Technical General: Outstanding corrosion protection up to 1000 salt spray tests at 5% salt. Tests performed for Armscor by the South African Navel Logistics Dept. showed **Gun-Kote** withstanding an equivalent of a 7-year exposure. (Tests were performed on Aluminum in a salt spray chamber with 50/50 on/off time at 35 degrees C.)

Gun Kote meets or exceeds Military requirements to:

"Resistant to Chemicals" such as, Aviation Gasoline, Grade 115/145, Jet Fuel, JP-4,

Lubrication Oil, Hydraulic Fluid - Non-petroleum,

Paint Remover, Epoxy Systemlene, Nitric Acid, Hydrochloric Acid, Hydrogen Peroxide, Ammonia Hydroxide, Sodium Hydroxide NaOH, Sulfuric Acid H2SO4 3%, Sodium Bisulphide, NaHS 3% and; Alkaline Cleaner, Highly Chelated (ANN-RO #101).
Outstanding heat dissipating qualities.

Outstanding temperature variation (stable at 400-450, 700-800F intermittent) and as low as -300 degrees F.

2400 Series has outstanding lubrication qualities and can be formulated to meet most release specifications.

Applicable Documents:

ASTM D-1654-61	Corrosion Protection
ASTM D-870-54 DI	Water immersion
FTM 151A	Accelerated salt spray (fog)
ASTM D3363	Pencil hardness >9H
ASTM G85	Annex 4 (salt spray w/ addition of Sulfur Dioxide (SO2) gas injected directly into the salt) – this is basically \ASTM B117, but supercharged… and with horns!
ASTM D3359	Adhesion

Removal: To remove coating prior to curing use MEK or Acetone, after curing grit blast with 120-grit aluminum oxide.

Uses:

1. Exterior of weapons (including magazines) of all types from handguns to G5 and G6 heavy artillery and bomb casings.
2. Engine blocks and heads to dissipate heat and to protect from corrosion while helping to transfer heat and coolant.
3. Transmission cases and rear end housings to transfer heat from housings.
4. Radiators, Oil and Transmission Coolers, to dissipate heat.
5. Brake Calipers
6. Outboard Motors
7. Motorcycles including external and internal motor parts
8. Boat Cleats and other marine hardware
9. Etc, Etc.

Use your Imagination!