



Specialized Thin Film
Protective Metal Coatings
and Dry Film Lubricants

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KG Gear Kote Dry Film Lubricant
Technical Data Sheet

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Gear Kote is a proven thin thermally cured solid film lubricant. Gear Kote meets or exceeds military specifications (Mil-L-46010 Dry Film Lube and Mil-L-8937). Gear Kote will provide a thin/lubricating film that will reduce friction, prevent galling and seizing, aid in heat dissipation and will protect base metal from corrosion. The appearance of Gear Kote is charcoal gray and upon burnishing will take on a sheen. The primary solid used for lubrication is Molybdenum Disulfide known to withstand pressures in excess of 400,000 PSI. bonded by a modified phenolic which provide the means to secure the lubricating solid to the base material.

COVERAGE: 200 to 250 square feet per gallon

THICKNESS: Maximum = .0003 to .0005 +/- .0001. If dealing with extremely tight tolerances allow for build-up of coating.

SOLIDS

CONTENT: Gear Kote can be provided thinned, ready to spray (10% solids) or in concentrate (40% Solids)

PRE TREATMENT:

Stainless Steel: Grit blast (all blasting should be done using aluminum oxide 120 mesh at 40 pounds of pressure.)

Alloy Steel: Sandblast and phosphate or sandblast only.

Aluminum: Alodine or anodize if possible, if not possible use lighter

Nickel Or

Chrome Plating: Grit blast (If plating peels it is poor plating.)

Parts are first stripped and cleaned of any oil or grease (use KG-3 Solvent Degreaser recommended)

After sandblasting repeat cleaning to remove all residues from surface and hole that may have trapped any aluminum or blast material.

THINNING: If thinning is required use MEK or Ethel Alcohol in small amounts. Gear Kote is formulated and packaged ready to spray.

CLEAN UP: MEK or Acetone.

CURING: Coating should be allowed to flash dry at ambient temperature for one half hour (30 min) prior to curing. Coating will be fully cured after one hour. Bake temperature is 325F. Timing starts after part has reached the 325F degrees. Coating will dry to the touch within a few minutes.

COLOR: Sheen Blue/Black in appearance after burnishing.

APPLICATION: Preheat parts to be coated to about 120 degrees F. When handling parts, use a pair of clean white latex gloves to insure you do not leave any fingerprints, which will affect the bonding of the material to the metal. Using a good quality air gun or airbrush, spray in light fog passes, 8 to 10 inches away from the part you are coating. Spray from four to five different directions to assure complete coverage. The ideal coating thickness is .0003 to .0004 of an inch, which should not cause any problems to close tolerance fits. After application coating should be allowed to flash dry at ambient temperature for one half hour (30 min) prior to placing in oven for curing.

Types of Spray

Guns: **DeVilbiss, Binks** and or **Badger** touch up guns with medium to fine tips. Any other gun similar.

Fan control should be set as substrate dictates and material flow control at about $\frac{3}{4}$ to 1 full turn. You must experiment with the material control and fan control for best results

If coating is not to your satisfaction at this time, it can be removed with Acetone, Alcohol or MEK. To re-coat simply repeat the process.

After allowing the coating to dry, hang parts in an air-circulating oven and bake for at least 1 hour at 325 degrees F. Bake time starts when parts reach the required temperature.

As a final step the coating can be burnished to a blue/black sheen with 0000 Steel Wool.

Technical General: Good corrosion protection at 100-hour salt spray test, 5% salt.

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

Outstanding temperature variation (over 500 degrees F and as low as -300 degrees F).

Outstanding lubrication qualities.

APPLICABLE DOCUMENTS:

ASTM D-870-54 DI	Water immersion
FTM 151A	Accelerated salt spray (fog)
ASTM: F22	Hydrophobic surface films by water break test
MIL-PRF-46010 F	Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting
AS5272C	Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting

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

GEAR KOTE USES:

1. Pistons, to eliminate friction and to provide better lubricity when used with oil. Gear Kote is a very good heat barrier when used on pistons and domes. This product will also shed carbon. A combination of coated pistons and piston walls will result in reduced damage from piston rock at bottom dead center. Race engines have shown piston life improvement of over three times normal.
2. Valve Spring and Retainers, to reduce guide wear. Provide heat barrier on face of valves, and shed carbon. Improve air and fluid flow. Reduce wear and heat on springs thereby increasing valve life and increases performance.
3. Rod and Main Bearings, to provide a protective lubricant between mating parts. Always a lubricant in place.
4. Crankshaft, Cams, Lifters, and Push Rods, to provide a protective lubricant in the event of momentary loss of oil and provide protective lubricant.
5. Transmission and Rear End Gears, to reduce friction and gaining more power to the wheels. Easier shifting and less wear on components. Lighter weight oils can be used with protected parts leading to further performance gains.
6. Gun and Rifle parts, to coat internal slides, trigger mechanisms leading to smoother pulls and permanent lubrication.
7. Gearboxes of electric motors that drive conveyor lines resulting in less amps to drive motors which will result in less electricity used.
8. Drill bits to reduce friction provide lubricity and increase production life. One Manufacture of aircraft used Gear Kote on drill bits and went from 8 holes per bit to **40**. (Note: Not all cutting tools will perform as well due to the type of material being cut.)
9. Trigger mechanisms, clip springs and pistol barrels for firearms.
10. Marine Propellers to minimize cavitations.

FLUID RESISTANCE

Mil-G-5572	Aviation gasoline, Grade 115/145	24 Hours
Mil-H-5506	Hydraulic Fluid	24 hours
Mil-J-5624	Jet Fuel, JP-4	24 hours
Mil-L-6082	Lubrication Oil	24 hours
Mil-H-8446	Hydraulic Fluid, Non-petroleum	24 hours
Mil-R-81294	Remover paint, Epoxy System	24 hours
Trichloroethylene		24 hours
Dow Corning DC-550		24 hours

Nitric Acid		24 hours
Hydrochloric Acid		24 hours
Hydrogen Peroxide		24 hours
Ammonia Hydroxide		48 hours
Sodium Hydroxide	NaOH	1 hours
Sulfuric Acid	H2SO4 3%	1 hours
Sulfuric Acid	H2SO4 30%	1 hours
Sodium Bisulphate	NaHS 3%	30 days
Alkaline Cleaner, Highly Chelated	(ANN-RO #101) @ 212 degrees F	2 hours