TEF KOTE™

Competitive Advantage through High Release, and Corrosion Resistance

TEF KOTE™ is a new coating for Paintearth that is known around the world for its non-stick capability and chemical resistance in industrial applications. This coating has a variety of uses and has several types that can be tailored to meet your specific demands, from corrosion to high release, and even thread protection. We will work with you to find the right coating that suits your needs.

Friction Reduction

TEF KOTE™ has one of the lowest known coefficients of friction possible (as low as 0.02 at 400,000psi). This excellent characteristic reduces wear of metal surfaces and extends service life by creating a new thin smooth surface.

Corrosion Protection

TEF KOTE™ can also be adapted for corrosion protection. This is one of the most common uses for this coating, due to it being almost completely chemical inert, and having survived several chemical tests including 15% H_2S (Hydrogen Sulfide).

High Release & Lubricant Film

TEF KOTE™ is highly recommended due to its non-stick surface for reducing adhesion as well as lubricating wear points preventing seizing of moving components.

Wide Temperature Range

TEF KOTE™ can withstand temperatures from -250°C (-420°F) to 315°C (600°F). It is exceptionally resistant to weather, sunlight (UV), and salt water.

Electric Submersible Pumps or ESP's are one application where **TEF KOTE™** is in service in North America. When Coal Bed Methane or CBM fields are produced they also produce scale and asphaltenes that attack and build on the surface of the ESP's. To combat this problem **TEF KOTE™** (PTFE) was applied to the pump stages dramatically improving the surface finish of the cast product and also providing a non-stick surface that reduces the scale build up, thus improving product service life.

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Technical Information

1. **PTFE (polytetrafluoroethylene)**
   Generally used as a nonstick coating, but it also has an intermittent working temperature up to 316°C/600°F. It has an exceptionally low coefficient of friction, good abrasion resistance, and good chemical resistance.

2. **FEP (fluorinated ethylene propylene copolymer)**
   This type provides a nonporous film that is has an excellent chemical resistance, low friction, excellent nonstick properties. The maximum operating temperature is 204°C/400°F with an intermittent working temperature of 232°C/450°F.

3. **PFA (perfluoroalkoxy)**
   Similar to FEP this excellent nonstick coating provides the nonporous film with an intermittent working temperature of 288°C/550°F. It also exhibits greater toughness than PTFE or FEP, making this an excellent candidate for a variety of uses, particularly for chemical resistance.

4. **ETFE**
   This coating displays excellent chemical resistance and can operate intermittently at 199°C/390°F. This coating is the toughest of the fluoropolymers and can be applied in film builds up to 1000 micrometers or 40mils.

Coating Selection Guide

Required Property	*Better*	*Best*
Chemical Resistance	PTFE or ETFE	FEP or PFA
Corrosion Resistance	PTFE or ETFE	FEP or PFA
Abrasion Resistance	PTFE or FEP	ETFE or PFA
Heat Resistance	PFA	PTFE
High Release	PFA	FEP or PTFE

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Typical Properties of Fluoropolymers

	Properties	*PTFE*	*FEP*	*PFA*	*ETFE*
Physical	Thickness Range	.8 to 2 mil	1 to 6 mil	.7 to 1.5 mil	1 to 40 mil
	Tensile Strength (10^3 psi)	2.00	3.10	4.15	6.55
	Rockwell R Hardness	58	45	60	50
	Shore D Hardness	60	55	60	75
Thermal	Melting Point (°C)	330	285	310	270
	Operating Temperature				
	Continuous	260	204	260	150
	Intermittent	316	232	288	199
Chemical	Water Absorption (% in 24hr)	<0.01	<0.01	<0.03	<0.02
	15% Hydrochloric	Very Good	Excellent	Excellent	Very Good
	25% Sulfuric	Very Good	Excellent	Excellent	Very Good
	Toluene	Excellent	Excellent	Excellent	Excellent
	Xylene	Excellent	Excellent	Excellent	Excellent

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