



## **KOPR-KOTE®**

### **DRILL COLLAR & TOOL JOINT COMPOUND**

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Experience the power of Kopr-Kote, a highly trusted and proven copper-based drilling compound tailored for drill collars, tool joints, and drill strings. This advanced, lead-free formulation incorporates copper flake, graphite, and additional natural additives with extreme pressure and antiwear properties. Kopr-Kote's unique solids package is meticulously crafted to counteract excessive circumferential makeup by enhancing the coefficient of friction when subjected to compressive forces. As stress levels rise, so does the friction factor, effectively restricting downhole makeup. This ensures the preservation of joint efficiency, enabling seamless mating of joint shoulder faces without any standoff or deformation.

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### APPLICATIONS

Oilfield threads on:

- Drill collars
- Tool joints
- Drill Strings

For optimum performance on API drill string connections, Kopr-Kote should be utilized with the thread recommended torque by multiplying the torque value by 1.15 or by contacting the drill pipe and connection manufacturer. Friction factors for Kopr-Kote were developed using full scale API tool joint connections. For a 1.0 friction factor use Kopr EXT FF 1.0. Premium drill string connections such as HI-TORQUE® (HT), eXtreme® Torque (XT®) and XT-M™ connections, etc., utilize make-up torques based upon thread compound friction factors of 1.0. Therefore, use the torque provided by the premium connection manufacturer. Adjusting make-up torque based on thread compound friction factor may still be advised.

### BENEFITS

- Contains no lead or zinc
- Extreme-pressure additives provide protection against seizing and galling and allow consistent makeup
- Aluminum-complex grease base protects against rust and corrosion
- Unequaled resistance to makeup downhole
- Sticks to wet joints
- Available in Arctic grade
- Approved by NAM/Shell for under-balanced drilling applications
- Not classified as a marine pollutant - DOT Approval CA2004080025

For invert or high-pH muds, use Jet-Lube® EXTREME®. NCS-30® ECF™ is the ideal choice for wear protection with wedge-type thread connections. For friction factor 1.0 use Jet-Lube KOPR EXT FF 1.0.

### TYPICAL CHARACTERISTICS

Thickener	Complex soap
Fluid Type	Petroleum
Dropping Point, (ASTM D-2265)	450°F (232°C)
Specific Gravity	1.15
Density (lb/gal)	9.6
Oil Separation (ASTM D-6184) WT. % LOSS @ 212°F (100°C)	<3.0
Flash Point (ASTM D-92)	>430°F (221°C)
NLGI Grade	1
Penetration @77°F (ASTM D-217)	310 - 330
Copper Strip Corrosion (ASTM D-4048)	1A, typical
4-Ball (ASTM D-2596)	800, typical
Weld Point, kgf	
Friction Factor, * (Relative to API RP 5A3 Annex I)	1.15
Environmental Rating UK	CEFAS OCNS Group B
Service Rating	0°F (-18°C) to 450°F (232°C)