POW'R-KOTE®

PREMIUM NONMETALLIC, EXTREME-SERVICE TOOL JOINT COMPOUND

DESCRIPTION

JET-LUBE's new generation, PREMIUM drill collar and tool joint compound, **POW'R-KOTE®**, is formulated from a patented blend of nonmetallic, environmentally acceptable ingredients.

- Highly recommended for large diameter drill collars
- **POW'R-KOTE** not only meets, but exceeds industry performance and environmental compliance standards.
- **POW'R-KOTE** is recommended for the most extreme drilling conditions, including geothermal wells, high angle holes, extended reach, sidetrack reentry and horizontal drilling applications.
- **POW'R-KOTE** is especially effective in helping prevent excessive circumferential make-up.
- Formulated with a patented blend of high tech polymers, graphite and other additives.
- Inhibitors to protect against rust and corrosion.
- Brushable over a wide temperature range.
- **Available in Arctic, Thermal and Specialty grades.**
- California Code of Regulations, Title 22 compliant.

This premium product utilizes sophisticated, high strength polymers as well as graphite and other naturally occurring, extreme pressure and anti-wear additives in a synergistic blend that locks together under high loads to resist galling and seizure. The exceptional film strength is measured by the 1000 kgf weld point in the ASTM D-2596 4-Ball E.P. test. The additives package is blended into **JET-LUBE's** high temperature, aluminum complex base grease that is fortified with antioxidants and rust and corrosion inhibitors to provide long lasting performance in a wide range of conditions.

POW'R-KOTE has been designed to utilize the makeup charts in API RP7G by multiplying the torque by 1.15. In the more severe drilling situations such as higher speeds, higher penetration rates, deviated holes or harder formations, drill collars should be made up 25% over the listed RP7G values.

APPLICATIONS

POW'R-KOTE is recommended for the entire drill string in standard and severe drilling conditions. **POW'R-KOTE** can be manufactured using a biodegradable base grease or the **Extreme** base for use in ecologically sensitive applications or with difficult invert of high pH muds.

PRODUCT CHARACTERISTICS

Thickener	Aluminum Complex
Fluid Type	Petroleum
Dropping Point (ASTM D-566)	450°F (232°C)
Specific Gravity	1.1
Density (lb/gal)	9.16
Oil Separation	<3.0
Wt. % Loss @ 212°F (100°C)	
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
Shell 4-Ball (ASTM D-2596)	
Weld Point, kgf	1000
Friction Factor	1.15 (standard service)
(Relative to API RP 7G)	1.25 (severe service)

PACKAGING

Code No.	Container Size	Shipping Wt.
15723	1 gal.	10 lb.
15713	2½ gal.	26 lb.
15715	5 gal.	50 lb.
15724	15 gal.	147 lb.
15729	50 gal.	489 lb.

LIMITED WARRANTY

Jet-Lube, Inc. makes the Limited Express Warranty that at the date of delivery, this product shall be free from defects in Jet-Lube, Inc. materials and workmanship.

This Limited Express Warranty is expressly in lieu of any other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose, and of any other obligation on the part of Jet-Lube, Inc.

The sole remedy for breach of the Limited Express Warranty shall be the refund of the purchase price. All other liability is negated and disclaimed, and Jet-Lube, Inc. shall not be liable for incidental or consequential damages.

CORPORATE LOCATIONS

Houston, Texas–World Headquarters

Maidenhead, England **Edmonton, Canada**

JET-LUBE, INC.
MATERIAL SAFETY DATA SHEET

I

Product Name: **POW'R-KOTE®**
Chemical Family: Petroleum based lubricating grease
Use: Tool joint and drill collar compound/anti-seize (MIL-PRF-907E)/ jacking lubricant

Supplier: ReinhardOil.dk Aps
Address: Hellleruplund Alle 8
DK-2900 Hellerup **Phone:** +45 70 26 70 07
Emergency Phone: +45 21 82 59 60 **Fax:** +45 70 26 70 47

II

Hazardous Components	CAS No.	Wt%	OSHA PEL	ACGIH TLV	Other Limits of Exposure
Petroleum oil	64742627/64742525	40-60	Oil mist TWA-5mg/M^3	N/A	STEL: N/A
Nonhazardous Blend	7620771/7782425 12003382/14807966 1317653/1317335	40-60	UN	UN	STEL: UN

III

Main Hazards–Health Effects
Eyes: May cause irritation. **Inhalation:** Viscous nature may block breathing passages if inhaled. **Ingestion:** May cause diarrhea.
Skin: For hypersensitive persons, may irritate the skin after prolonged periods of contact.

IV

Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help. **Inhalation:** Clear air passage. If respiratory difficulty continues, seek medical help. **Ingestion:** Wash out mouth immediately. Consult physician. **Skin:** Wash thoroughly with hand cleanser, followed by soap & water. Contaminated clothing should be dry cleaned before reuse.

V

Extinguishing Media: Foam, dry powder, Halon®, carbon dioxide, sand, earth & water mist.
Unsuitable Extinguishing Media: Water jet. **Protective Equipment for Fire fighting:** Self-contained breathing apparatus.

VI

Personal Precautions: Wear gloves & protective overalls. **Environmental Precautions:** Do not allow it to enter drains. **Spillage:** Scrape up bulk, then wipe up remainder with cloth. To prevent walking hazard, pick up remaining residue with diatomaceous earth.

VII

Handling: No special handling precautions necessary. **Storage:** Do not store at elevated temperatures.

VIII

Respiratory Protection: None needed. **Hand Protection:** Protective gloves for hypersensitive persons.
Eye Protection: Glasses, if applied to parts in motion. **Body Protection:** Overalls.

IX

Physical State: Semisolid paste **Color:** Opaque Black **Odor:** Petroleum **pH:** Neutral **Boiling Range/Point °F (°C):** <600 (316)
Melting Point °F (°C): 500 (260) **Flash Point (COC) °F (°C):** 430 (221) **Autoignition Temperature °F (°C):** >500 (260)
Explosive Properties: **LEL:** 0.9% **UEL:** 7% **Evaporation Rate (Butyl Acetate):** <0.01 **Partition Coefficient (Log Pow):** N/A
Vapor Pressure (kPa): <0.01 **Percent Volatiles:** Nil **Density (g/cm^3):** 1.10 **Flammability:** Not flammable at ambient temperature.
OAR Value: N/A **Oxidizing Properties:** None **Water Solubility:** Nil **Vapor Density:** >5

X

Stability: Chemically stable under normal conditions. No photoreactive agents. **Conditions to Avoid:** Powerful sources of ignition & extreme temps. **Materials to Avoid:** Strong inorganic & organic acids, oxidizing & copper reactive agents. **Hazardous Decomposition Products:** Burning generates smoke, airborne soot, hydrocarbons & oxides of carbon, sulfur & nitrogen. Residue mainly comprised of soot & mineral oxides.

XI

Acute Toxicity: Not known. **Irritancy–Skin:** Very mild. **Skin Sensitization:** Not known. **Subacute/Sub-chronic Toxicity:** Not known.
Genotoxicity: None known. **Chronic Toxicity:** None known. **California Prop 65:** N/A **Carcinogen:** **NTP:** No **IARC:** No **OSHA:** No
EC Classification (67/548/EEC): No **Allergens:** None known. **LC-50:** 1.98gm/l—actual test data - mysidopsis bahia. **LD-50:** N/A

XII

Possible Effects: In extreme cases, may gernerate oil fractions that could act as a marine pollutant. Occurrences of this nature are highly unlikely. **Behavior:** Relatively well behaved. Bioaccumulation potential nil.
Environmental Fate: Highly unlikely to cause widespread contamination. Nontoxic to marine or land organisms.

XIII

Product Disposal: Do not incinerate. Contact waste disposal company or local authority for advice.
Container Disposal: Pails without liner–see Product Disposal section above. Pails with plastic liner–pail may only be disposed of via standard waste disposal services, recycled or reused. Liner–see Product Disposal section above.

XIV

Not classified as hazardous for transport. **D.O.T.:** Nonhazardous **UN No.:** Nonhazardous **Air Transport (ICAO & IATA):** Nonhazardous
Sea Transport (IMO & IMDG): Nonhazardous **Road & Rail Transport (ADR/RID):** Nonhazardous

XV

Labeling Information: None needed **EC Annex 1 Classification:** Not Applicable. **R Phrases:** R22—harmful if swallowed.
S Phrases: None applicable, as known. **Ozone Depleting Chemicals:** Not applicable. **TSCA:** All components are listed.
WHMIS (Canada): Not controlled. **Canadian DSL:** All components listed. **40 CFR Part 372 (SARA Section 313):** None
SARA 311/312: None **CERCLA:** Nonhazardous **RCRA Hazard Class:** Nonhazardous **TSCA 12B Components:** None

XVI

SDS first issued. SDS data revised. **New Jersey Right To Know:** See Section II

Signature: 
Prepared by: Donald A. Oldiges
Date Issued: August 21, 2008

LEGEND

I. Identification of the substance/preparation and company
II. Composition information on ingredients
III. Hazards identification
IV. First aid measures
V. Fire fighting measures
VI. Accidental release measures
VII. Handling and storage
VIII. Exposure control/personal protection
IX. Physical and chemical properties
X. Stability and reactivity
XI. Toxicological information
XII. Ecological information
XIII. Waste Disposal
XIV. Transport information
XV. Regulatory Information
XVI. Other information

HMIS SYMBOL

HEALTH	1
FLAMMABILITY	1
REACTIVITY	1
PPI	B

NFPA SYMBOL