



# TECHNICAL DATA

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## #221 MOLY ULTRA EP

Moly Ultra EP is a versatile, multi-purpose extreme pressure aluminum complex base grease that is specially formulated for use in all types of heavy-duty automotive, construction, mining, farming and industrial equipment and electric motor applications that are being used under the most adverse conditions of excessive pressure, high shock loading, extreme hot and cold temperatures, and moisture.

Moly Ultra EP is compounded from the finest select high viscosity index solvent refined severely hydrofinished 100% pure paraffin base oils available. Blended into these 100% pure paraffin base oils are an aluminum complex base thickener and selected additives. This formulation provides Moly Ultra EP with the following outstanding performance features.

1. Excellent pumpability characteristics for use in centralized lube systems.
2. Excellent resistance to water washout and water spray off.
3. Excellent shear and mechanical stability.
4. Excellent anti-wear and extreme pressure load carrying properties.
5. 100% reversibility. This property allows Moly Ultra EP to have the ability to retain its grease-like consistency and remain in the bearings during periods of heat, high shock loading, extreme pressure, and severe mechanical action.
6. Excellent rust and oxidation inhibiting characteristics.
7. Excellent resistance to oxidation.
8. A high dropping point.

Incorporated into this blend of high viscosity index paraffin base stocks, aluminum complex thickener and selected additives is molybdenum disulfide. The molybdenum disulfide provides Moly Ultra EP with the ability to act as a "back-stop" lubricant, when the grease base is either destroyed or wiped away due to unexpected loads, start-up or other conditions which exceed the capabilities of the grease base's fluid film lubrication. This "backstop" is created by molybdenum disulfide's natural affinity for metal surfaces. The molybdenum disulfide plates to the metal surface to form a long lasting solid lubricant film. This solid lubricant film will withstand pressures up to 500,000 pounds per square inch, giving the metal surfaces of the bearings the protection they need during periods of high speed, high shock loads and extreme pressure.

This solid lubricant film also helps to reduce friction. This reduction in friction results in reduced wear and a reduction in contact area temperature. This in turn leads to increased bearing life, less downtime and extended lubrication cycles.

Moly Ultra EP also has excellent adhesive properties. These excellent adhesive properties provide the Moly Ultra EP with the ability to resist washout, pound out, splatter or squeeze out even under the heaviest load or vibrations.

Moly Ultra EP can be applied either manually or by a heavy-duty automatic lube system. Moly Ultra EP #1 has an operating temperature of -10°F to 350°F. Moly EP #2 has an operating temperature of 0°F to 350°F.

Continued on Next Page

TD-221 (Rev.12/2009)

Moly Ultra EP meets and exceeds the following specifications and manufacturer's requirements: US Steel 346, 352, 355, 370 371 specifications, Caterpillar MPGM, Caterpillar's 3% Moly Specification, Komatsu, MIL-G-234C, Case-IH 251H, John Deere, New Holland, Ford M1693A, General Motors, Chrysler, P&H 472B, 472C and 472D, Federal Specification VV-G-632A, MIL-G-4343C, MIL-23549C, DOD-G-24508A(Navy), DOD-G-85733(AS), JIS K2220, DIN 515825, SKF, Fag, INA, Torrington, Timken, Rexnord Link-Belt Bearing Division, NSK, Koyo, NTN Bearing, and Roller Bearing Company of America .

### TYPICAL PROPERTIES

<b>NLGI Grade</b>	<b>1</b>	<b>2</b>
Type Thickeners	Aluminum Complex	Aluminum Complex
Dropping Point °F/°C (ASTM D-2265)	500°/260°	500°/260°
Worked Penetration, 60 strokes 77°F/25°C (ASTM D-217)	310-340	280-295
Roll Stability Test (ASTM D-1831) % Consistency Change	16	13.8
Rust Inhibition Test (ASTM D-1743) Rating	1,1,1	1,1,1
Oxidation Stability (ASTM D-942) Psi loss at 100 hr.	2	2
Water Washout Test (ASTM D-1264) % Loss 175°F/79°C*	4.2%	4.2%
Water Spray Off (ASTM D-4049) % Loss	27	22
Pressure Oil Separation Test, US Steel Method Grams of Oil separation	2	1.8
Timken EP Test (ASTM D-2509) Failure Load, lbs.	60	60
Four Ball EP Test (ASTM D-2596) Load Wear Index (kg) Weld Point (kg)	41.8 315	45.1 315
Four Ball Wear Test (ASTM D-2266) Scar Diameter	0.6 mm	0.6 mm
Falex Continuous Load (ASTM D-3233) Failure, lbs.	1500	1750
Wheel Bearing Leakage Tendency Test (ASTM-1263) Leakage, grams* Deposits*	1 No deposits	.6 No deposits
Evaporation Loss (ASTM D-2595) % Loss 22 hrs. @ 250°F	0.4	0.4
Pressure Oil Separation (ASTM D-1742) % Wt. Loss	2	1.5
Lincoln Ventmeter Psi @ 100°F Psi @ 30°F Psi @ 0°F Psi @ -10°F Psi @ -20°F	100 400 1325 1800 ----	175 525 1800 ---- ----

### BASE OIL PROPERTIES

Viscosity SUS 100°F (ASTM D-445)	1300	1300
Viscosity cSt 40°C (ASTM D-445)	244.96	244.96
Viscosity cSt 100°C (ASTM D-445)	19.71	19.71
Viscosity Index (ASTM D-2270)	105	105
Flash Point °F/°C (ASTM D-92)	530°/276.7°	530°/276.7°
Fire Point °F/°C (ASTM D-92)	570°/298.8°	570°/304.4°