



TECHNICAL DATA

102 Barton Street, St. Louis, Missouri 63104

In-State (314) 865-4100/Out of State 800-325-9962/Fax (314) 865-4107 <http://www.schaefferoil.com>

#127 MOLY ROCK DRILL OIL ISO 32 through 320*

Moly Rock Drill Oil is a premium quality anti-wear, extreme pressure, emulsifiable, low fog generating oil that is primarily formulated to meet the lubrication requirements of pneumatically operated rock drills, drifters, jackhammers, sinkers and other air operated percussion tools and pneumatic equipment used in underground, surface mining, contractor and other industrial applications. Moly Rock Drill Oil is also suitable for use in percussive and rotary type tools.

Moly Rock Drill Oil is blended from the finest high viscosity index, solvent refined, severely hydro-finished 100% paraffin base oils available. Into these paraffin base oils are blended a balanced additive system that provides excellent chemical stability and excellent protection against wear and corrosion. Moly Rock Drill Oil also contains an optimum balance of adhesive agents and emulsifiers that allow the Moly Rock Drill Oil to tenaciously adhere to and cling to the metal surfaces of the rock drill especially during atomization in the presence of moisture laden air. This further allows the Moly Rock Drill Oil to form a wash-off resistant lubricant coating that protects against wear and the corrosive effects of wet environments even during high speed and high temperature operating conditions.

Moly Rock Drill Oil atomizes readily in air line lubricators to insure effective lubricant distribution and rapid metal-wetting of all of the parts, especially closely fitted working parts of the equipment in order to maintain a continuous oil film that prevents wear and the build-up of frictional heat. This property in combination with the Moly Rock Drill Oil's extreme pressure and anti-wear additives protects the equipment against rapid wear during heavy shock loading conditions thus resulting in longer equipment life.

To further prevent wear especially during heavy shock loading conditions which is typical of rock drill service, molybdenum disulfide is further blended into the Moly Rock Drill Oil. The molybdenum disulfide provides a solid boundary lubrication film by plating itself to the metal surfaces of the moving parts of the rock drill. Once plated, molybdenum disulfide forms an indestructible long lasting solid lubricant film that is capable of withstanding pressures up to 500,000 psi. This solid lubricant film once plated to the moving parts of the rock drill will reduce friction, vibration and wear, thus extending equipment life.

The Moly film also provides a smooth finish surface on all of the moving surfaces of the rock drill. This smooth finish minimizes the action of cold welding and vibration, which can occur during start up after the rock drill has been standing idle and during periods of high shock loading.

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(TD-127 Rev 09/2009)

Features and Benefits

Moly Rock Drill Oil provides the following performance features and benefits which assures long equipment life and minimal maintenance costs:

Features	Advantage and Potential Benefits
Excellent Thermal, Oxidative and Chemical Stability	Reduced sludge and deposit formation Prevention of the formation of gummy deposits Improved valve operation
Excellent Load Carrying and Anti-Wear Protection	Reduced component wear Keeps metal surfaces from galling and welding Withstands heavy shock loads Minimization of frictional heat Lower operating temperature Elimination of erratic operation for smoother and more efficient operation Prolonged equipment life Less equipment downtime Reduced maintenance costs
High Viscosity Index	Provides very good lubrication at both high and low temperatures
Very Good Adhesive Properties	Protects the metal surfaces from corrosion especially during high moisture conditions. Provides a tenacious lubricant film under all operating conditions in order to protect the system from wear.
Reliability in wet conditions	Provides a tenacious film that clings to lubricated parts Resist being washed away by trace water that may be present in the compressed air Emulsification of water and increased oil absorption on the working surfaces
Protection in Wet Environments	Effective lubrication in the presence of water Increased protection of critical parts from rust and corrosion in the presence of water Longer tool and drill life Increased performance

Moly Rock Drill meets and exceeds all of the specifications of Atlas Copco, Gardner-Denver, Ingersoll-Rand, Sullivan and other pneumatic tool manufacturers.

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TYPICAL PROPERTIES

ISO Grade	32	46	68	100	150	220	320
Specific Gravity @ 60°F/15°C	0.85	0.85	0.861	0.91	0.88	0.879	0.872
Viscosity 40°C (ASTM D-445)	29.00-36.00	44.50-47.50	67.00-73.50	92.50-110	146-152.50	205-231	300-351.50
Viscosity 100°C (ASTM D-445)	5.5-6.0	6.0-7.5	8.5-8.80	10.50-12.00	14.00-15.50	17.50-19.50	23.00-26.00
Viscosity Index (ASTM D-2270)	95	100	95	95	100	95	100
Flash Point °F/°C (ASTM D-92)	420°/215°	420°/215°	435°/224°	480°/249°	490°/254°	510°/265°	510°/265°
Fire Point °F/°C (ASTM D-92)	460°/235°	460°/235°	435°/243°	510°/265°	540°/282°	550°/288°	550°/288°
Pour Point °F/°C (ASTM D-97)	-20°/-29°	-15°/-26°	-5°/-21°	0°/-18°	10°/-12°	15°/-9°	20°/-7°
Copper Strip Corrosion Test (ASTM D-130)	1a	1a	1a	1a	1a	1a	1a
Four Ball E.P. Test (ASTM D-2783)							
Weld Point kg	250	250	315	315	315	315	400
Four Ball Wear Test (ASTM D-4172)							
Scar diameter, mm	0.45	0.45	0.45	0.4	0.4	0.35	0.35

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Typical Properties Continued

ISO Grade	32	46	68	100	150	220	320
Timken EP Test (ASTM D-2782) OK Load, lbs	45	45	55	55	55	60	60
Rust Test (ASTM D-665)							
Procedure A (Distilled Water)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Procedure B (Salt Water)	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Gardner Denver Film Strength Test							
PSI:							
Ground Bearing	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Chrome Plated Bearing	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Sanitized Bearing	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Pin Wear, mm:							
Ground Bearing	.017	.017	.017	.017	.017	.017	.017
Chrome Plated Bearing	.013	.013	.013	.013	.013	.013	.013
Sanitized Bearing	.013	.013	.013	.013	.013	.013	.013

* #127 Moly Rock Drill Oil ISO 320 is a special fill item