

## 2009 Supreme Arctic, Medium, Heavy and Extra Heavy

Supreme is a premium grade, extreme pressure, para-synthetic, multi-purpose open gear lubricant designed for use on open gears in mining equipment shovels, draglines, excavators, stackers and reclaimers. It can also be used in the lubrication of sleeve type bushings and slow moving, heavily loaded bearings, shovel dipper sticks, circle rails and rollers, ball mills and slow-moving wire ropes.

Supreme is compounded from a select blend of petroleum, resins and polymeric synthetic base fluids. Supreme forms an adhesive film that resists “squeeze out” and “sling out” and “fling off” which allows the product to cling tenaciously to gears that are in a vertical orientation. Supreme contains a synergistic blend of anti-wear and extreme pressure additives, antioxidants, corrosion inhibitors, molybdenum disulfide and other solid lubricants. This formulation provides the following benefits:

- Excellent anti-wear and extreme pressure protection providing exceptional load carrying capabilities to heavily loaded open gears, bearings and bushings.
- Extended component life and reduced contact temperatures.
- Maintains its adhesive characteristic ensuring a durable protective coating on metal surfaces, creating a high resistance to water and the adhesion to dust and dirt.
- Excellent resistance to rain, snow, moisture and water wash-out.
- Minimization of cold contact metal welding.
- Remains soft and pliable to prevent hardening or build-up in gear tooth roots and reduce lubricant consumption.
- Drains freely from the gear guards.
- Excellent resistance to corrosion and protection of bronze and brass components.

Supreme meets the P&H Material Specifications 520 and 464 and Bucyrus specification SD4713. This lubricant can be applied either manually or using heavy-duty automatic lubrication systems.

Grade	Meets Bucyrus June 14, 2011 update for Shovel Hoist Gears for ambient (in house machinery room) specified temperature range of	Actual safe Operating Temperature Range for each grade
Arctic	NO	-40° to +10°C (-40° to +50°F)
Medium	NO	-26° to +40°C (-15° to + 104°)
Heavy	YES, +10° to +35°C (+50° to +95°F)	+2° to +121° (+35° to 250°F)
Extra Heavy	YES, +25° to +50°C (+77° to +122°F)	+2° to +121° (+35° to 250°F)

## Typical Properties

Grade	Arctic	Medium	Heavy	Extra Heavy
Consistency	Viscous	NLGI 000	NLGI 0	NLGI 0-1
Base Oil Viscosity @ 40°C, cSt (ASTM D445)	912.12	2772.66	3946.93	6714.63
Specific Gravity @ 15.5°C (60°F)	0.96	0.98	0.97	0.97
Flash Point °C (°F) Pensky Martens Closed Cup (ASTM D92)	70°C (158°F)	73°C (163°F)		
Flash Point °C (°F) Cleveland Open Cup (ASTM D93)			140°C (285°F)	140°C (285°F)
Four Ball E.P. (ASTM D2596) (base product without diluent)				
Weld Point, kg	>800	>800	>800	>800
Load Wear Index	142.7	149.1	143.4	152.4
Four Ball Wear (ASTM D2266) Scar diameter, mm	0.65	0.58	0.63	0.65
FZG Load Stage Failure DIN 51354	+13	+13	+13	+13
Rust Test (ASTM D1743)	Pass	Pass	Pass	Pass
Copper Strip Corrosion (ASTM D130) @ 100°C for 3 hours	1B	1B	1B	1B
Lincoln Ventmeter				
kPa (Psi) @ 10°C (50°F)	--	--	1792.64 (260)	1840.9 (267)
kPa (Psi) @ -1°C (30°F)	--	--	4757.38 (690)	3861.06 (560)
kPa (Psi) @ -12°C (10°F)	--	482.63 (70)	---	--
kPa (Psi) @ -18°C (0°F)	413.68 (60)	2206.32 (320)	---	--
kPa (Psi) @ -28°C (-20°F)	2620 (380)	4688.43(680)	---	--
kPa (Psi) @ -40°C (-40°F)	4205.8(610)	--	---	--