



Premium R&O Oil

DESCRIPTION: Powers-All Premium R&O Oils are industrial rust and oxidation (R&O) inhibited multipurpose lubricating oils, formulated from high-quality base oils and a proven additive system. These high performance turbine grade lubricants can be used as compressor oils, non-EP gear oils, general purpose circulating or bearing oils, and as non-anti-wear hydraulic oils for appropriate applications.

BENEFITS: Powers-All Premium R&O Oils provide outstanding water separating performance, minimizing emulsions when coming into contact with water and other contaminants. They prevent oxidation to minimize sludge and varnish formations, and have good anti-foam characteristics. These products insure rust and corrosion protection in severe operating conditions while promoting fluid life and reduce system maintenance.

Applications: Powers-All Premium R&O Oils are used in a wide variety of industrial applications including steam turbines, air compressors, electric motors, gear reducers, spindle bearings, machine tools, sleeve bearings, heat transfer operations, and hydraulic circulating systems where EP or anti-wear type product is not required.

These products meet the applicable requirements of:

- Denison HF-1
- General Electric GEK-32568
- MIL-L - 17672D
- Cincinnati Machine P-38, P-54, P-55, P57
- DIN 51524 Part 1
- Solar Turbines ES9-224
- ASTM D 4304 Type I (ISO 32, 46, 68 & 100)

Follow equipment manufacturer recommendations for appropriate viscosity grade.

**Note: Values shown below are typical only and do not constitute a specification. Minor variations in product are to be expected in normal manufacturing. Always confirm with the original manufacturer's recommendation for proper equipment operating requirements.*

12/18



**40 South Fifth Street Waterbury CT 06708
247 Northampton Street Easthampton MA 01027**

PRODUCT INFORMATION



Typical Properties:

Powers-All Premium R&O Oils

ISO Viscosity Grade		32	46	68	100
Product Code	Test Method	PA334202	PA334204	PA334206	PA334208
API Gravity, 60°F	ASTM D-4052	33.0	32.3	31.6	30.7
Viscosity, cSt @ 40°C	ASTM D-445	32	46	68	100
Viscosity, cSt @ 100°C	ASTM D-445	5.5	6.8	8.8	11.3
Viscosity Index	ASTM D-2270	108	101	102	99
Color	ASTM D-1500	L1.0	L1.0	L1.0	L1.5
Foam Test	ASTM D-892	Pass	Pass	Pass	Pass
Pour Point, °F (°C)	ASTM D-5949	-33 (-36)	-22 (-30)	-27 (-33)	-22 (-30)
Flash Point, COC, °F (°C)	ASTM D-92	395 (202)	395 (202)	442 (228)	490 (254)
Rust Test, A&B	ASTM D-665	Pass	Pass	Pass	Pass
Oxidation Stability, hours	ASTM D-943	+4,000	+4,000	+3,500	2,000
U.S. & European R & O Spec's:					
Denison HF-1		YES	YES	YES	YES
DIN 51524 Part 1		YES	YES	YES	YES
Cincinnati Machine		P-38	P-55	P-54	N/A
MIL-L-17672D		YES	YES	YES	N/A
General Electric GEK-32568		YES	N/A	N/A	N/A
Solar Turbines ES9-224		YES	N/A	N/A	N/A

N/A – specification not applicable to the viscosity grade

Powers-All Premium R&O Oils

ISO Viscosity Grade		150	220	320	460
Product Code	Test Method	PA334214	PA334217	PA334221	PA334223
API Gravity, 60°F	ASTM D-4052	29.7	28.7	27.9	27.3
Viscosity, cSt @ 40°C	ASTM D-445	150	220	320	460
Viscosity, cSt @ 100°C	ASTM D-445	15.4	19.0	24.1	30.3
Viscosity Index	ASTM D-2270	104	98	96	95
Color	ASTM D-1500	L2.0	L2.5	L3.0	4.0
Foam Test	ASTM D-892	Pass	Pass	Pass	Pass
Pour Point, °F (°C)	ASTM D-5949	-5(-21)	0 (-18)	10 (-12)	15 (-9)
Flash Point, COC, °F (°C)	ASTM D-92	505 (263)	530 (276)	535 (279)	580 (304)
Rust Test, A&B	ASTM D-665	Pass	Pass	Pass	Pass
Oxidation Stability, hours	ASTM D-943	1,500	1,000	1,000	1,000
U.S. & European R & O Spec's:					
Denison HF-1		YES	YES	YES	YES
DIN 51524 Part 1		YES	YES	YES	YES
Cincinnati Machine		P-57	N/A	N/A	N/A
MIL-L-17672D		YES	YES	YES	N/A
General Electric GEK-32568		YES	N/A	N/A	N/A
Solar Turbines ES9-224		YES	N/A	N/A	N/A

N/A – specification not applicable to the viscosity grade



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