



Syncon® R&O Oil (ISO VG 100-680)

Syncon R&O Oil (ISO VG 100-680) is a premium quality, synthetic, rust and oxidation (R&O)-inhibited circulating oil developed for use in circulating systems, lightly loaded enclosed gear drives and other industrial equipment operating under severe-service conditions or at extreme temperatures. It is particularly recommended for use in applications where operating conditions may be unfavorable or too severe for conventional mineral oil-based circulating oils.

Syncon R&O Oil is formulated with synthetic polyalphaolefin (PAO) base oils and select additives to provide excellent protection against rust, corrosion and deposit formation. It has outstanding oxidation resistance and thermal stability at high temperatures to minimize sludge and varnish formation, and provide long service life. It protects system components against rust, corrosion and wear. It has excellent low-temperature properties for use over a wide temperature range, and is resistant to excessive foam buildup that can interfere with proper lubrication.

Syncon R&O Oil It is compatible with mineral oil-based lubricants, but mixing should be avoided for optimum performance benefits.

Applications

- Plain and rolling-element bearings operating at very high or very low temperatures, and sealed-for-life bearings
- Lightly to moderately loaded enclosed industrial gear drives that do not require a compounded or extreme-pressure (EP) gear lubricant
- Circulating systems of paper machine dryer sections and calender stacks
- Industrial blowers
- Industrial worm gear drives with bronze-on-steel gears
- Reciprocating air compressors where the manufacturer specifies a PAO-based lubricant (ISO VG 100 or 150, typically)
- Lubrication of the upper cylinders of gas compressors handling natural gas or process gas (ISO VG 150 or 220, typically)
- Industrial equipment operating over a wide temperature range where an inhibited mineral oil is recommended

Features/Benefits

- Outstanding resistance to thermal breakdown at high temperatures
- Outstanding oxidation resistance to minimize sludge and varnish formation

**Synthetic
PAO-Based
Rust & Oxidation-
Inhibited
Circulating Oil for
Gears & Bearings**

CONTACT INFORMATION

**Phillips66
Lubricants.com**

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1-800-368-7128

Technical Hotline:
1-877-445-9198

International
Customer Service:
1-832-765-2500

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- Protects against wear
- Protects against rust and corrosion
- Good water-separating properties
- Good foam resistance
- Excellent low-temperature fluidity
- Extended service intervals compared with mineral oil-based lubricants
- Compatible with mineral oil-based lubricants⁽¹⁾

⁽¹⁾ **Note:** For optimum performance, the mineral oil lubricant should be drained before using Syncon R&O Oil. Mixing the two products can reduce the effectiveness and performance advantages normally gained by using Syncon® R&O Oil.

Note: For information on compatibility with seals, paints and plastics, please call our Technical Support Hotline.

Syncon® R&O Oil (ISO VG 100-220)

Typical Properties

ISO Grade	100	150	220
AGMA Grade	3 EP	4 EP	5 EP
Specific Gravity @ 60°F	0.861	0.866	0.871
Density, lbs/gal @ 60°F	7.17	7.21	7.25
Color, ASTM D1500	1.0	1.0	1.0
Flash Point (COC), °C (°F)	266 (511)	243 (469)	266 (511)
Pour Point, °C (°F)	-43 (-45)	-44 (-47)	-45 (-49)
Viscosity,			
cSt @ 40°C	99.1	149	231
cSt @ 100°C	14.4	19.8	27.6
SUS @ 100°F	508	766	1,194
SUS @ 210°F	77.0	99.9	135
Viscosity Index	150	153	155
Acid Number, ASTM D974, mg KOH/g	1.50	1.50	1.50
Copper Corrosion, ASTM D130	1a	1a	1a
Foam Test, ASTM D892, Seq. I, ml	0/0	0/0	0/0
Four-Ball Wear, ASTM D4172, Scar Diameter, mm	0.40	0.40	0.40
FZG Scuffing Test, ASTM D5182, Failure Load Stage	12	12	12
Oxidation Stability, RPVOT, ASTM D2272, minutes	1,200	1,200	1,200
Rust Test, ASTM D665 A&B	Pass	Pass	Pass

Typical properties are average values only and do not constitute a specification. Minor variations that do not affect product performance are to be expected during normal manufacture, and at different blending locations. Product formulations are subject to change without notification.

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Syncon® R&O Oil (ISO VG 320-680)

Typical Properties			
ISO Grade	320	460	680
AGMA Grade	6 EP	7 EP	8 EP
Specific Gravity @ 60°F	0.875	0.882	0.882
Density, lbs/gal @ 60°F	7.29	7.34	7.34
Color, ASTM D1500	1.0	1.0	1.0
Flash Point (COC), °C (°F)	255 (491)	243 (469)	266 (511)
Pour Point, °C (°F)	-48 (-54)	-48 (-54)	-43 (-45)
Viscosity,			
cSt @ 40°C	341	480	728
cSt @ 100°C	37.2	48.3	67.5
SUS @ 100°F	1,769	2,500	3,804
SUS @ 210°F	180	233	326
Viscosity Index	157	159	166
Acid Number, ASTM D974, mg KOH/g	1.50	1.50	1.50
Copper Corrosion, ASTM D130	1a	1a	1a
Foam Test, ASTM D892, Seq. I, ml	0/0	0/0	0/0
Four-Ball Wear, ASTM D4172, Scar Diameter, mm	0.40	0.40	0.40
FZG Scuffing Test, ASTM D5182, Failure Load Stage	12	12	12
Oxidation Stability, RPVOT, ASTM D2272, minutes	1,200	1,200	1,200
Rust Test, ASTM D665 A&B	Pass	Pass	Pass

Health and Safety Information

For recommendations on safe handling and use of this product, please refer to the Material Safety Data Sheet via <http://w3apps.phillips66.com/NetMSDS>.

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