



## Syncon® R&O Oil

Syncon R&O Oil is a premium quality, synthetic, rust and oxidation (R&O)-inhibited circulating oil developed for use in circulating systems, rotary air compressors, 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 is compatible with mineral oil-based lubricants, but mixing should be avoided for optimum performance benefits.

### ***Applications***

- Rotary air compressors where the manufacturer specifies a PAO-based lubricant
- Plain and rolling-element bearings operating at very high or very low temperatures
- 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
- Electric motor bearings
- Industrial worm gear drives with bronze-on-steel gears
- Lubrication of the upper cylinders of gas compressors handling natural gas or process gas (ISO VG 150 or 220, typically)
- Vacuum pumps
- Industrial equipment operating over a wide temperature range where an inhibited mineral oil is recommended

**Synthetic  
PAO-Based  
Rust & Oxidation-  
Inhibited  
Circulating Oil**

### **CONTACT INFORMATION**

**Phillips66  
Lubricants.com**

U.S. Customer  
Service:  
**1-800-368-7128**

Technical Hotline:  
**1-877-445-9198**

International  
Customer Service:  
**1-832-765-2500**

E-mail address:  
**lubricants@  
p66.com**



### **Features/Benefits**

- Outstanding resistance to thermal breakdown at high temperatures
- Outstanding oxidation resistance to minimize sludge and varnish formation
- Protects against wear
- Protects against rust and corrosion
- Good water-separating properties
- Good foam resistance
- Excellent low-temperature fluidity
- Low carbon-forming tendency for use in rotary air compressors
- Extended service intervals compared with conventional mineral oil-based lubricants
- Compatible with mineral oil-based lubricants<sup>(1)</sup>

<sup>(1)</sup> **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

### Typical Properties

ISO Grade	32	46	68	100
AGMA Grade	0	1	2	3
Specific Gravity @ 60°F	0.854	0.857	0.865	0.867
Density, lbs/gal @ 60°F	7.11	7.14	7.20	7.22
Color, ASTM D1500	L 0.5	L 0.5	L 0.5	L 0.5
Flash Point (COC), °C (°F)	245 (473)	270 (518)	275 (527)	275 (527)
Pour Point, °C (°F)	-51 (-60)	-39 (-38)	-39 (-38)	-39 (-38)
Viscosity,				
cSt @ 40°C	32.0	44.0	66.0	93.0
cSt @ 100°C	5.8	7.4	9.8	12.5
SUS @ 100°F	164	225	339	479
SUS @ 210°F	45.7	51.0	59.4	69.5
Viscosity Index	125	133	131	129
Acid Number, ASTM D974, mg KOH/g	0.17	0.17	0.17	0.17
Copper Corrosion, ASTM D130	1a	1a	1a	1a
Demulsibility, ASTM D1401, minutes to pass	10	10	10	10
Foam Test, ASTM D892	Pass	Pass	Pass	Pass
Four-Ball Wear, ASTM D4172,				
Scar Diameter, mm	0.40	0.33	0.48	0.33
FZG Scuffing Test, ASTM D5182,				
Failure Load Stage	9	9	9	9
Oxidation Stability,				
RPVOT, ASTM D2272, minutes	2,400	2,400	2,400	2,400
Rust Test, ASTM D665 A&B	Pass	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

### Typical Properties

ISO Grade	150	220	320	460	680
AGMA Grade	4	5	6	7	8
Specific Gravity @ 60°F	0.872	0.875	0.878	0.881	0.884
Density, lbs/gal @ 60°F	7.26	7.29	7.31	7.34	7.36
Color, ASTM 1500	L 1.0	L 1.0	L 1.0	L 1.0	L 1.0
Flash Point (COC), °C (°F)	246 (475)	246 (475)	243 (470)	243 (470)	243 (470)
Pour Point, °C (°F)	-40 (-40)	-38 (-37)	-34 (-30)	-29 (-20)	-26 (-15)
Viscosity,					
cSt @ 40°C	150	220	320	460	680
cSt @ 100°C	17.5	22.8	29.1	37.2	47.9
SUS @ 100°F	778	1,148	1,681	2,431	3,620
SUS @ 210°F	90.1	114	143	181	232
Viscosity Index	128	127	124	123	121
Acid Number, ASTM D974, mg KOH/g	0.20	0.20	0.20	0.20	0.20
Copper Corrosion, ASTM D130	1b	1b	1b	1b	1b
Demulsibility, ASTM D1401, minutes to pass	—	—	—	—	—
Foam Test, ASTM D892	Pass	Pass	Pass	Pass	Pass
Four-Ball Wear, ASTM D4172, Scar Diameter, mm	0.40	0.40	0.40	0.40	0.40
FZG Scuffing Test, ASTM D5182, Failure Load Stage	10	10	10	10	10
Oxidation Stability, RPVOT, ASTM D2272, minutes	850	850	850	850	850
Rust Test, ASTM D665 A&B	Pass	Pass	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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