

# Roots™ Synthetic Oil

## For Roots Rotary Lobe Blowers

ROOTS synthetic oil is the OEM blower lubricant recommended by the manufacturer of Roots™ Positive Displacement Blowers for all applications.

Formulated with a blend of synthetic base oils plus Synerlec® additives that form a tough, slippery film on all metal surfaces that improves lubrication, prevents metal-to-metal contact, and protects metals against rust and oxidation.

ROOTS oil is available in ISO Grade 100, 220 and 320.

### PERFORMANCE ADVANTAGES

**HIGH OXIDATION STABILITY:** Contains oxidation-resistant additives that mean longer oil life and fewer oil changes. ROOTS Synthetic Oil excels in ASTM oxidation tests, and in the field, where it counts. Longer oil life means lower expenditures, and greater conservation.

**RAPIDLY SEPARATES FROM WATER:** ROOTS Synthetic Oil rapidly and completely separates from water, which is easily drained from the bottom of the oil reservoir.

**SAVES ENERGY:** ROOTS Synthetic Oil has an extremely low coefficient of friction that is proven to save energy over conventional oils.

**REDUCES BEARING VIBRATIONS:** The tough oil film of ROOTS Synthetic Oil coupled with its ability to micro-polish contacting bearing elements provides superior bearing lubrication.

**LONGER OIL LIFE:** ROOTS Synthetic Oil has outstanding oxidation stability that greatly extends oil change intervals while keeping equipment clean.

**EXCELLENT CORROSION PROTECTION:** ROOTS Synthetic Oil's tough oil film forms an ionic bond on metal surfaces, which acts as a preservative oil during shutdown and provides instant lubrication at startup.

**SYNTHETIC SOLVENCY:** ROOTS Synthetic Oil's natural solvency cleans up dirty equipment and keeps it clean.

**COMPATIBLE WITH SEALS:** Excellent compatibility with most common seal materials.

**HIGH FILM STRENGTH:** ROOTS Synthetic Oil carries up to 700% greater loads than other mineral and synthetic oils

**ENVIRONMENTALLY RESPONSIBLE:** ROOTS Synthetic Oil components are TSCA listed and meet EPA, RCRA and OSHA requirements. ROOTS Synthetic Oil extends oil drain intervals, eliminates premature oil changes, decreases the amount of oil purchased and disposed of and conserves energy.



### RECOMMENDED OIL GRADES

2"-8" Blowers	
AMBIENT TEMPERATURE	ISO VISCOSITY
Above 90°F (32°C)	320
32° to 90°F (0°-32°C)	220
Below 32°F (-0°C)	100

10"-20" Splash Lubricated Blowers	
AMBIENT TEMPERATURE	ISO VISCOSITY
Above 90°F (32°C)	320
32° to 90°F (0°-32°C)	220
Below 32°F (-0°C)	100

10"-20" Pressure Lubricated Blowers	
AMBIENT TEMPERATURE	ISO VISCOSITY
32° to 120°F (0°-49°C)	220
Below 32°F (-0°C)	100

All RGS Series Blowers	
AMBIENT TEMPERATURE	ISO VISCOSITY
All Temperatures	100

PART NUMBERS	100	220	320
	ISO Grade		
Quart	57060	54524	54525
Gallon	50754	54527	53204
5-Gallon Pail	54584	54531	54532
55-Gallon Drum	57060.D	54530	57119

Food Grade Oil also available

TYPICAL PROPERTIES	100	220	320
	ISO Grade		
AGMA Grade	3	5	6
Viscosity			
cSt @ 40° C	100	220	320
cSt @ 100° C	12.6	21.5	27.0
SSU @ 100° C	518	1153	1685
SSU @ 210° C	70	108	139
Viscosity Index	120	117	112
Specific Gravity @ 60° F	0.863	0.874	0.880
LBs / Gallon	7.19	7.28	7.33
Flash	440	485	500
Pour Point °F	-53	-35	-35
ISO Cleanliness Level	NA	NA	NA
ASTM D-1401 Demulsibility (40/40/0/06 to 40/40/0/30)	PASS	PASS	PASS
D-892 Foam Tests Sequences I,II & III	—	—	—
D-130 Copper Corrosion			
3 hrs @ 210° F	1A	1A	1A
250 hrs @ 210° F	1A	1A	1A
Cincinnati Millicron "A" 72 hrs @ 275° F	PASS	PASS	PASS
D-665 Rust Test			
Fresh Water	PASS	PASS	PASS
Salt Water	PASS	PASS	PASS
D-2893 Dry Air Oxidation			
312 hrs @ 203° F,			
% Viscosity Increase	0	0	0
Precip. No. (% Solids)	0	0	0

All properties typical, but may vary. Roots Synthetic Oil's solvency cleans wear metals and deposits left behind by previous oils. These wear metals and deposits can become soluble in the new oil, causing abnormally high values on used oil analysis until equipment is clean.

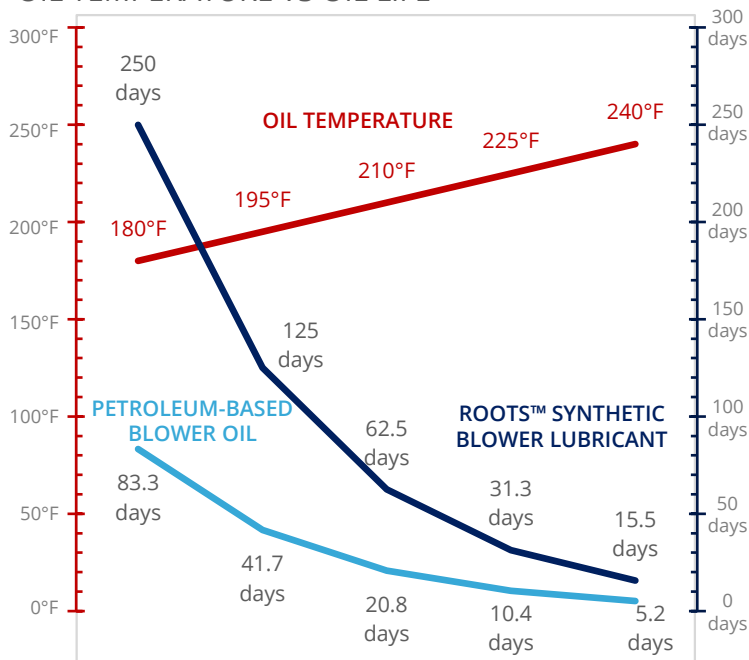
## MAINTENANCE INTERVALS

New Roots blowers typically ship dry from the factory and require an initial oil fill prior to startup. Oil should then be changed after the initial 100 hours of operation.

Normal life expectancy of ROOTS Oil is approximately 6000 hours with an oil temperature of 180°F (82°C). As the oil temperature increases by increments of 15°F (8°C), the life is reduced by half. For example, an oil temperature of 195°F (90.5°C) will produce a life expectancy reduced by half or 3000 hours oil service life.

The oil temperature may be estimated by multiplying the discharge temperature of the air or gas stream by 0.8. As an example, if the discharge air temperature of the blower is 200°F, it is estimated that the oil temperature is 160°F.

## OIL TEMPERATURE VS OIL LIFE



These guidelines are based on typical performance. Contact pdblowers if you have questions about your specific application.

## ALTERNATIVE LUBRICANTS

ROOTS Synthetic Oil is compatible with, and can be mixed with, other mineral oils and most other synthetic oils. No special cleaning is required at change out for blowers previously running on mineral oil. NOTE: ROOTS Synthetic Oil is NOT compatible with silicone or glycol synthetics.



If you choose to use a different oil on your Roots blower other than their recommended ROOTS Synthetic Oil, it must be an industrial type non-detergent, rust inhibiting, anti-foaming oil of the correct viscosity. Roots does NOT recommend the use of any automotive type lubricants as they are not formulated with the necessary properties.

pdblowers synthetic oil meets or exceeds all of these requirements and has outperformed name brand oils in third party testing.