



**Due to sludge build-up and seal leakage problems, Roots recommendation is DO NOT USE Mobil SHC synthetic oils in ROOTS blowers.**

**Proper lubrication is usually the most important single consideration in obtaining maximum service life and satisfactory operation from the unit.**

- If you choose to use another oil other than the specified and recommended ROOTS™ Synthetic, use a good grade of industrial type non-detergent, rust inhibiting, anti-foaming oil and of correct viscosity per Table 2,
- Roots does NOT recommend the use of automotive type lubricants, as they are not formulated with the properties mentioned above.

**URAI AIR (Non GAS) blower grease specifications.**

- When servicing drive end bearings of a AIR (Non Gas) blower, use the specified and recommended Shell Darina SD 2 NLGI #2 product code 5067628.
- Lithium based greases are not compatible with the specified and recommended Shell Darina SD 2 grease used when assembling the blower. **Lithium based grease is not approved for any ROOTS blowers.**

**URAI GAS blower grease specifications.**

- When servicing drive end bearings of a URAI GAS blower, use the specified NLGI #2 premium grade aluminum complex\* grease, ROOTS P/N T20019001.
- Lithium based greases are not compatible with the specified and recommended ROOTS Synthetic grease used when assembling a GAS blower. **Lithium based grease is not approved for any ROOTS blowers.**
- The lubricants selected must be compatible with the gas.

**ROOTS Synthetic Oil: ISO-VG-320 Grade**

|               | Part Number |
|---------------|-------------|
| Quart         | 13106004    |
| Gallon        | 13106005    |
| Case (12 qts) | 13106007    |

**ROOTS Synthetic Oil: ISO-VG-220 Grade**

|               | Part Number |
|---------------|-------------|
| Quart         | 13106001    |
| Gallon        | 13106002    |
| Case (12 qts) | 13106008    |

**ROOTS Synthetic Oil: ISO-VG-150 Grade**

|                | Part Number |
|----------------|-------------|
| Quart          | 13106020    |
| Gallon         | 13106021    |
| Case (12 qts)  | 13106023    |
| 5 Gallon Pail  | 13106022    |
| 55 Gallon Drum | 13106025    |

**ROOTS Synthetic Oil: ISO-VG-100 Grade**

|                | Part Number |
|----------------|-------------|
| Quart          | 13106011    |
| Gallon         | 13106012    |
| Case (12 qts)  | 13106014    |
| 5 Gallon Pail  | 13106013    |
| 55 Gallon Drum | 13106016    |

**ROOTS Synthetic Grease: NLGI #2**

|                 | Part Number |
|-----------------|-------------|
| 14.5 oz. Tube   | T200019-001 |
| 5 Gallon Pail   | T200019-003 |
| Case (30 tubes) | T200019-002 |

# ROOTS® Synthetic Oil

## Multi-Purpose Industrial Oil

### Specifications



### Beyond Synthetic™

ROOTS® Synthetic Oil is a long life, high film strength, energy efficient, synthetic lubricant that significantly increases bearing life and equipment reliability. Roots Synthetic Oil gains its performance advantages over competing mineral and synthetic oils through its superior blend of synthetic base oils plus proprietary additive technology. This unique additive technology is proven to make equipment run smoother, cooler, quieter, longer and more efficiently.

ROOTS Synthetic Oil typically replaces conventional, low film strength, R & O (rust and oxidation inhibited) oils that rely solely on their viscosity to protect equipment against wear.

ROOTS Synthetic Oil is NSF approved for ISO-VG 32, 150, 220 and 320.

#### Synerlec® additive technology makes the difference!

Synerlec® additive technology forms a tough, slippery, synthetic film on all metal surfaces. This proprietary film significantly improves lubrication: first, by increasing the oil's film thickness, and second, by increasing the oil film's toughness, both of which help to prevent metal-to-metal contact. It displaces moisture from metal surfaces and protects all metals against rust and corrosion. It also fortifies the oil against the detrimental effects of heat, which causes oil to oxidize.

### 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. In rotating equipment these savings frequently exceed the total cost of the oil within several months, making what was once an oil expense a profit.
- **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** - ROOTS Synthetic Oil has excellent seal compatibility.
- **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.
- **Blower Protection** - Protects blower through a wide range of operating temperatures.
- **Pour Point** - from -40°F (-40°C). Flash Point - at 500°F (260°C).
- **Range of Use** - ROOTS Synthetic Oil can be used in any blower application or operating environment.
- **High Film Strength** - ROOTS Synthetic Oil carries up to 700% greater loads than other mineral and synthetic oils
- **Compatibility With Other Oils** - 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: It is NOT compatible with silicone or glycol synthetics.
- **ISO Grade Availability** - Available in ISO Grade 100, 150, 220, or 320.
- **Container Sizes** - Available in one-quart containers, 12-quart cases, one-gallon containers, 5-gallon pails, or 55 gallon drums.



Today's ROOTS™ blowers and exhausters are designed and built with the same attention to detail that has firmly established the Dresser Roots reputation for reliability, quality and technical excellence over the past 150 years.

| Typical Properties*   | ISO Grade/AGMA Grade |        |       |       |
|---|----------------------|--------|-------|-------|
|   | 100                  | 150*** | 220   | 320   |
| AGMA Grade  | 3                    | 4      | 5     | 6     |
| Viscosity   |                      |        |       |       |
| cSt @ 40°C  | 100                  | 150    | 220   | 320   |
| cSt @ 100°C   | 12.6                 | 16.1   | 21.5  | 27.0  |
| SSU @ 100°C   | 518                  | 783    | 1153  | 1685  |
| SSU @ 210°C   | 70                   | 84     | 108   | 139   |
| Viscosity Index   | 120                  | 112    | 117   | 112   |
| Specific Gravity @ 60°F   | 0.863                | 0.869  | 0.874 | 0.880 |
| Lbs./Gal  | 7.19                 | 7.24   | 7.28  | 7.33  |
| Flash °F  | 440                  | 485    | 485   | 500   |
| Pour Point °F   | -53                  | -47    | -35   | -35   |
| ISO Cleanliness Level   | NA                   | NA     | NA    | NA    |
| ASTM D-1401 Demulsibility<br>(from 40/40/0/06 to<br>40/40/0/30) | Pass                 | Pass   | Pass  | Pass  |
| D-892 Foam Tests<br>Sequences I, II & III                       | —                    | —      | —     | —     |
| D-130 Copper Corrosion  |                      |        |       |       |
| 3 hrs. @ 210°F  | 1A                   | 1A     | 1A    | 1A    |
| 250 hrs. @ 210°F  | 1A                   | 1A     | 1A    | 1A    |
| Cincinnati Millicron "A"<br>72 hrs. @ 275°F                     | Pass                 | Pass   | Pass  | Pass  |
| D-665 Rust Test   |                      |        |       |       |
| Fresh Water   | Pass                 | Pass   | Pass  | Pass  |
| Salt Water  | Pass                 | Pass   | Pass  | Pass  |
| D-2893 Dry Air Oxidation  |                      |        |       |       |
| 312 hrs. @ 203°F,<br>% Viscosity Increase                       | 0                    | 0      | 0     | 0     |
| Precip. No. (% Solids)  | 0                    | 0      | 0     | 0     |

\*All properties are typical and may vary.

Note: 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.

 Note: ROOTS Synthetic Oil is NSF approved for ISO-VG 32, 150, 220 and 320.

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## Specified Lubricants

| 2"-8" Blower Recommended Oil Grades |                     |
|-------------------------------------|---------------------|
| Ambient Temperature                 | ISO Viscosity Range |
| Above 90°F (32°C)                   | 320                 |
| 32° to 90°F (0°-32°C)               | 220                 |
| 0° to 32°F (-18°-0°C)               | 150                 |
| Below 0°F (-18°C)                   | 100                 |

| 10"-20" Splash Lubricated Blower Recommended Lubricating Oils |                     |
|---|---------------------|
| Ambient Temperature   | ISO Viscosity Range |
| Above 90°F (32°C)   | 320                 |
| 32° to 90°F (0°-32°C)   | 220                 |
| 0° to 32°F (-18°-0°C)   | 150                 |
| Below 0°F (-18°C)   | 100                 |

| 10"-20" Pressure Lubricated Blower Recommended Lubricating Oils |                     |
|---|---------------------|
| Ambient Temperature   | ISO Viscosity Range |
| 32° to 120°F (0°-49°C)  | 220                 |
| Below 32°F (0°C)  | 100                 |

**All RGS - Use ISO-VG-100**

See the manual provided with the blower for service intervals of the lubrications mentioned.



[www.dresser.com/rootsblowers](http://www.dresser.com/rootsblowers)