



# ROOTS™ Meter Oil Application Chart\*

DMD-Roots DIVISION

In direct response to numerous customer requests, ROOTS Meters & Instruments will reduce the quantity of oil supplied with each meter. Introduction of the new ROOTS™ meter oil is scheduled for September, 2000.

All meters are shipped with the largest quantity of oil required for the initial filling of the meter (i.e., Top Inlet configuration plus a “little extra” in the event of spillage).

ROOTS® meter Series		A	B3	B3	B3	B3	A1	B3	B3-HPC	B3-HPC	B3-HPC	B3-HPC
<b>Meter Size</b>		8C175	8C175 11C175 15C175	2M175 3M175 5M175	7M175 11M175 16M175	23M175 38M175 56M175	102M125	1M300 3M300	1M740 1M1480	3M740 3M1480	5M1480	7M1480
<b>Oil Capacity (oz)</b>	Top Inlet	0.95	3.01	7.64	21.77	154.00	N/A	7.6	10.4	8.3	41	37
	Side Inlet	0.58	0.81	1.25	2.97	40.2	194	1.25	3.4	2.8	17.5	13.5
<b>Oil Capacity (ml)</b>	Top Inlet	28	89	226	644	4555	N/A	225	308	246	1213	1094
	Side Inlet	17	24	37	88	1189	5739	37	101	83	518	399
<b>Imperial Quantities</b>												
<b>Oil Currently Supplied Container Size (Quantity)</b>		4 oz (1)	14 oz (1)	14 oz (1)	14 oz (2)	1 gal (1) 14 oz (3)	1 gal (2)	14 oz (1)	14 oz (1)	14 oz (1)	N/A	N/A
<b>New Oil Supply Container Size (Quantity)</b>		4 oz (1)	4 oz (1)	8 oz (1)	16 oz (1) 8 oz (1)	1 gal (1) 16 oz (2)	1 gal (2)	8 oz (1)	16 oz (1)	16 oz (1)	16 oz (3)	16 oz (3)
<b>Metric Quantities</b>												
<b>Oil Currently Supplied Container Size (Quantity)</b>		118 ml (1)	414 ml (1)	414 ml (1)	414 ml (2)	3786 ml (1) 414 ml (3)	3786 ml (2)	414 ml (1)	414 ml (1)	414 ml (1)	N/A	N/A
<b>New Oil Supply Container Size (Quantity)</b>		118 ml (1)	118 ml (1)	237 ml (1)	473 ml (1) 237 ml (1)	3786 ml (1) 473 ml (2)	3786 ml (2)	237 ml (1)	473 ml (1)	473 ml (1)	473 ml (3)	473 ml (3)

\* Refer to TECH-Note issued August 1, 2000

**August 1, 2000****In This Issue: Environmentally Friendly ROOTS™ Meter Oil**

In direct response to expressed concerns for personal safety and environmental issues, DMD-Roots is introducing a new meter oil that is NOT rated hazardous by OSHA or the EPA and contains no substances subject to reporting or planning requirements under SARA TITLE III.

Most hydrocarbon-based oils used in the natural gas industry have limited occupational exposure limits. Often these oils contain a dye that is added for improved viewing capability. A commonly used component of the dye, Ethyl Benzene, produces a higher than desired toxicity level. Our new and environmentally friendly ROOTS™ meter oil is still red in color but contains no toxic or hazardous ingredients. The Material Safety Data Sheet (MSDS) for our new ROOTS™ meter oil permits handling with standard neoprene type gloves in lieu of Nitrite gloves recommended with most lubricants. The Material Safety Data Sheet (MSDS) is available in hard copy or can be electronically transmitted as a Microsoft Word.doc attachment.

Our new ROOTS™ meter oil is specially formulated and blended from a non-hazardous, state of the art R&O AW hydraulic oil additive package that inhibits oxidation and foaming. The oil can also be used in any Series A1 (LM-MA) or Series B2 (TQM) meter and can be safely blended with previously approved ROOTS™ meter oils such as ROOTS® Versi-Temp 2 Meter Oil (Shell Tellus T15) and Grade 50 (Shell Diala AX). The resulting oil color will vary depending on the quantities of each oil used in the mixture. Draining the old oil before adding the new oil is optional if oil color clarity is of concern.

Using this opportunity to address another customer concern, several new container sizes are being introduced. While a sufficient quantity of oil will still be provided free of charge with each shipment for the initial filling of the meter, the net result is a reduced quantity of residual meter oil requiring special handling. The new quantities are reflected in the attached ROOTS™ Meter Oil Application Chart.

ROOTS™ meter oil is available in various container sizes and can be purchased directly from ROOTS Meters & Instruments or through an authorized ROOTS® meter distributor.

The transition to our new ROOTS™ meter oil is planned for September, 2000.

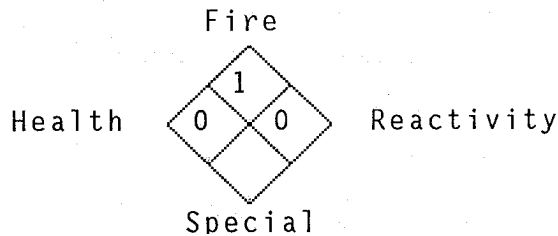
A M E R I C A N R E F I N I N G G R O U P I N C .  
M A T E R I A L S A F E T Y D A T A S H E E T

H.V.I. R & O AW ISO VG 15 METER OIL

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Product Code: H44 7360

NFPA HAZARD RATING  
4 - Extreme  
3 - High  
2 - Moderate  
1 - Slight  
0 - Insignificant



DIVISION AND LOCATION---SECTION I

Division: LUBRICANTS AND SPECIALTY PRODUCTS DIVISION  
Location: BRADFORD, PENNSYLVANIA  
77 N. KENDALL AVE, BRADFORD, PA, 16701  
Emergency Telephone Number: (814) 368-1297  
Transportation Emergency: CHEMTREC 1-(800) 424-9300 (U.S. and Canada)

CHEMICAL AND PHYSICAL PROPERTIES---SECTION II

Chemical Name: petroleum hydrocarbon  
Formula: not applicable  
Hazardous Decomposition Products: carbon monoxide and carbon dioxide from burning.  
oxides of phosphorous from burning  
oxides of sulfur  
Incompatibility (Keel away from): strong oxidizers such as hydrogen peroxide, bromine, and chromic acid.  
Toxic and Hazardous Ingredients: none  
Form: liquid Odor: bland  
Appearance: liquid Color: red  
Specific Gravity (water=1): 0.8729  
Boiling Point: greater than 330°C (625°F)  
Melting Point: less than -53°C (-70°F)  
Solubility in Water (by -weight %): 0 at 20°C  
Volatile (by weight %): 0  
Evaporation Rate: 0  
Vapor Pressure (mm Hg at 20 ° C): 0  
Vapor Density (air=1): not volatile  
pH (as is): not applicable  
Stability: Product is stable under normal conditions  
Viscosity SUS at 100°F: Less than 100

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M A T E R I A L   S A F E T Y   D A T A   S H E E T

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FIRE AND EXPLOSION DATA---SECTION III

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Special Fire Fighting Procedures:

Do not use water except as fog.

Unusual Fire and Explosion Hazards:

none

Flash-point: (Method Used) Cleveland open cup greater than 135°C (275°F)

Flammable limits %: not applicable

Extinguishing agents: Drychemical or Waterfog or CO2 or Foam Closed  
containers exposed to fire may be cooled with water.

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HEALTH HAZARD DATA---SECTION IV

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Permissible concentrations (air): see  
COMMENTS section

Chronic effects of overexposure: no data  
available

Acute toxicological properties: no data  
available

Emergency First Aid Procedures:

Eyes: Immediately flush with large quantities of water for at least 15  
minutes and call a physician.

Skin Contact: Remove excess with cloth or paper. Wash thoroughly with soap and water.

Inhalation: Remove victim to fresh air. Call a physician.

If Swallowed: Call a physician immediately. DO NOT induce vomiting. (Vomiting  
may cause aspiration into lungs resulting in chemical pneumonia.)

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SPECIAL PROTECTION INFORMATION---SECTION V

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Ventilation Type Required (Local mechanical, special): see COMMENTS  
section

Respiratory Protection (Specify type): Use NIOSH/MSHA certified respirator with dual organic vapor/mist  
and particulates cartridge if vapor concentration exceeds permissible exposure limit.

Protective Gloves:  
neoprene type

Eye Protection:  
chemical safety goggles

Other Protective Equipment: none

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HANDLING OF SPILLS OR LEAKS---SECTION VI

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Procedures for Clean-Up:

Transfer bulk of mixture into another container. Absorb residue with an inert material such as earth, sand, or vermiculite. Sweep up and dispose as solid waste in accordance with local, state, and federal regulations.

Waste Disposal:

Dispose of in accordance with all applicable federal, state and local regulations.

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SPECIAL PRECAUTIONS---SECTION VII

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Precautions to be taken in handling and storage: Do not handle or store at temperatures over Maximum Storage Temperature: 60 ° C (140 ° F )

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TRANSPORTATION DATA---SECTION VIII

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D. O. T. : Not Regulated

Reportable Quantity: not applicable

Freight Classification: Petroleum Lubricating Oil

Special Transportation Notes: none

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ENVIRONMENTAL/SAFETY REGULATIONS---SECTION IX

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Section 313 (Title III Superfund Amendment and Reauthorization Act):

This product does not contain any chemical in sufficient quantity to be subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

COMMENTS

If used in applications where a mist may be generated, observe a TWA/PEL of 5 mg/m<sup>3</sup> for mineral oil mist (OSHA and ACGIH).

The additive mixtures in this Product have been declared a trade secret by the additive manufacturers.

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M A T E R I A L   S A F E T Y   D A T A   S H E E T

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(COMMENTS continued)

Prepared by: ROBERT M. KELLAM  
Title: PRODUCT SAFETY & HEALTH COORDINATOR  
Original Date: 01/20/00 Sent to:  
Revision Date:  
Supersedes  
Date Sent

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