

TANNAS CO.

4800 JAMES SAVAGE ROAD
MIDLAND, MI 48642
USA



"Tomorrow's Instruments... Today"™

Certificate of Verification

High Temperature, *Newtonian* Viscosity
Reference Oil

RL 237/01 CEC L/36-90
R-500 Viscosity Standard

Part #: 020500, 030500, 040500 & 050500		Batch #: 20BB	Expiration date shown on bottle	
Temperature		Absolute Viscosity	Kinematic Viscosity	Density
°C	°F	cP (mPa · s)	cSt (mm ² /s)	g/mL
40.0	104.0	193.0	220.7	0.8742
80.0*	176.0	30.23	35.57	0.8500
100.0	212.0	15.90	18.98	0.8378
120.0*	248.0	9.424	11.41	0.8257
150.0	302.0	5.068	6.276	0.8075

See applicable method for precision level calculations
* Temperatures at which viscosities and densities are interpolated

This reference oil is intended for use as a High Temperature, *Newtonian* Viscosity Reference Oil. The certified values have been determined at the corresponding temperatures in degrees Celsius.

Kinematic Viscosity (-40°C to + 150 °C)			
Range of Kinematic Viscosity (mm ² /s)	Expanded Uncertainty* (%) at Temperatures		
	<15°C	15 to 45°C	>45°C
<10	0.21	0.16	0.21
10-100	0.26	0.22	0.26
100-1000	0.32	0.29	0.32
1000-10,000	0.47	0.38	0.38
10,000-100,000	0.53	0.44	0.48

*The Kinematic and Dynamic Viscosity Uncertainties can be considered equivalent since the uncertainty contribution from the density measurement is negligible.

The viscosity analysis for this reference oil was inspected and verified by the representative signed below.

Tannas Co.

Quality Control

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Traceability: Tannas Company manufactures in accordance with ASTM, EN or IP test method protocol where applicable. The Quality Management System for manufacturing this product is certified to ISO 9001:2015 guidelines. The laboratory test methods utilized for the certification are ISO 17025:2005 accredited and the fluids are traceable to National Institute of Standards and Technology (NIST) standards.

Measurement of Uncertainty: Tannas Company has determined and reported the measurement uncertainty of its laboratory capabilities. These uncertainties are based on the uncertainty of the NIST traceable calibration fluids used and the NIST traceable test equipment capabilities. Uncertainty values overall are limited by the uncertainty associated with the calibration fluids. All instruments used to determine stated fluid viscosity values (both kinematic and dynamic) operate well within the uncertainty of the NIST traceable calibration fluids and do not significantly add to the overall measurement uncertainty.

Safety Data Sheets can be viewed from the QR Codes on the oil labels or at www.TannasKing.com