PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

Perry Johnson Laboratory Accreditation, Inc. has assessed the Laboratory of:

Savant Labs

4800 James Savage Road, Midland, MI 48642

(Hereinafter called the Organization) and hereby declares that Organization is accredited in accordance with the recognized International Standard:

ISO/IEC 17025:2017

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system
(as outlined by the joint ISO-ILAC-IAF Communiqué dated April 2017):

Chemical and Mechanical Testing

(As detailed in the supplement)

Accreditation claims for such testing and/or calibration services shall only be made from addresses referenced within this certificate. This Accreditation is granted subject to the system rules governing the Accreditation referred to above, and the Organization hereby covenants with the Accreditation body's duty to observe and comply with the said rules.

For PJLA:

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
December 11, 2015	January 12, 2022	March 31, 2024
Revision Date:	*Accreditation No.:*	*Certificate No.:*
January 13, 2023	84229	L22-32-R1

Tracy Szerszen
President

Perry Johnson Laboratory Accreditation, Inc. (PJLA)
755 W. Big Beaver, Suite 1325
Troy, Michigan 48084

The validity of this certificate is maintained through ongoing assessments based on a continuous accreditation cycle. The validity of this certificate should be confirmed through the PJLA website: www.pjlabs.com

Certificate of Accreditation: Supplement

Savant Labs

4800 James Savage Road, Midland, MI 48642

Contact Name: Maggie Smerdon Phone: 989-496-2301

Accreditation is granted to the facility to perform the following testing:

FIELD OF TEST	ITEMS, MATERIALS OR PRODUCTS TESTED	SPECIFIC TESTS OR PROPERTIES MEASURED	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED	RANGE (WHERE APPROPRIATE) AND DETECTION LIMIT
Chemical [F]	Engine Oils and Lubricants	Kinematic	ASTM D445 ASTM D2270	0.2 cSt to 300 000 cSt
		Dynamic Viscosities	ASTM D4683 ASTM D6616	1 cP to 25 cP
			ASTM D5133	1 500 cP to 100 000 cP
			ASTM D2983	300 cP to 900 000 cP
			ASTM D5293	900 cP to 25 000 cP
		Sulfur Analysis by UV Fluorescence	ASTM D5453	1 ppm to 8 000 ppm
		Inductively Coupled Plasma Atomic Emission Spectroscopy	ASTM D5185 ASTM D4951	5 ppm to 10 000 ppm
		Boiling Point Distribution and Estimation of Engine Oil Volatility by Gas Chromatography	ASTM D6417 ASTM D2887EXT	Volatility 1.8 % to 19.8 %
		Chlorine Content by XRF	ASTM D6443	5 mg/kg to 250 mg/kg
		FTIR Oxidation, Soot (Phosphate and Sulfate), and Nitration	E2412: D7414, D7415, D7412, D7844, D7624	Differential Trend Analysis with Reference
		Nitrogen by Chemiluminescence	ASTM D5762 & ASTM D4629	1 ppm to 10 000 ppm
		Elastomer properties	ASTM D7216 CEC L-112	100 °C to 150 °C
		Base Number	ASTM D2896 ASTM D4739	0.1 mg KOH/g to 250 mg KOH/g
		Water by Karl Fischer	ASTM D6304	10 mg/kg to 25 000 mg/kg
		Acid Number	ASTM D664	0.1 mg KOH/g to 150 mg KOH/g
	Engine Oils	Oxidation Deposits (MHT)	ASTM D7097	1 mg to 150 mg
		Oxidation Deposits (TEOST 33C)	ASTM D6335	10 mg to 65 mg
	Steam Turbine Oils	Oxidation Stability (RPVOT)	ASTM D2272	2 500 minutes (plus)
	Fluid Lubricants	Viscosity Loss - KRL	CEC-L-45-99 modified	0.2 cSt to 300 000 cSt

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Chemical [F]	Oils and Lubricants	Oxidation Stability of Lubricating Oils used in Automotive Transmissions by Artificial AgeingAST	CEC L-48	0.2 cSt to 300,000 cSt KV results
		Low Temperature Pumpability	CEC L-105	5,000 cP to 400, 000 cP
		Oxidation Test for Engine Oils Operating in the Presence of Biodiesel Fuel	CEC L-109	0.2 cSt to 300,000 cSt KV results
		Wear preventive characteristics of lubricating fluid	ASTM D4172 & ASTM D2266	Follows ASTM method
		Four Ball Extreme Pressure	ASTM D2783 & ASTM D2596	Follows ASTM method
Mechanical [F]	Engine Oils and Lubricants	Flash and Fire Point	ASTM D92	79 °C to 400 °C
		Flash Point	ASTM D93	40 °C to 370 °C
		Foam Sequence I-III	ASTM D892	0 mL to 800 mL
		Foam Sequence IV	ASTM D6082	0 mL to 800 mL
		Pour Point	ASTM D97	20 °C to -60 °C
		Sulfated Ash	ASTM D874	0.05 % to 25 %
		Evaporation Loss of Lubricating Oils	ASTM D5800	0 % to 25 %
		Density	SAVLAB Density by Pycnometer	Temperatures of -70 °C to 150 °C
		Kurt Orbahn 30 Pass 90 Pass	ASTM D6278 ASTM D7109	Pumpable fluids < 30 cP @ 100 °C
		Dynamic Viscosities	ASTM D4684 ASTM D3829	5 000 cP to 400 000 cP
		Fuel Dilution	ASTM D3525 ASTM D3524	0.1 % to 100 %
	Corrosiveness in Diesel Engine Oil at 135 °C	Tarnish Rating and Concentrations of Copper and Lead and any changes in metal concentrations	ASTM D6594	Copper Rating 1A to 4C Elemental Analysis Related to ASTM D5185
	Corrosiveness to Copper by Copper Strip Test (Oils and Greases)	Level of tarnish and corrosion	ASTM D130 ASTM D4048	Copper Rating 1A to 4C

1. The presence of a superscript F means that the laboratory performs testing of the indicated parameter at its fixed location. Example: Outside Micrometer[F] would mean that the laboratory performs this testing at its fixed location.