



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:

December 11, 2015

Issue Date:

January 12, 2022

Expiration Date:

March 31, 2024

Accreditation No.:

84229

Certificate No.:

L22-32

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 |
| | | 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) |
| | Oils, Greases, Solids by XRF | Sulfur Content by XRF (WDX) | ASTM D2622 | Calibration range of standards utilized |
| | | Qualitative Analysis by XRF (WDX) | Spectrum Library Reference (Elements F through U) | Qualitative |
| Fluid Lubricants | Viscosity Loss - KRL | CEC-L-45-99 modified | 0.2 cSt to 300 000 cSt | |



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| 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.