



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

Ebatco

10025 Valley View Road, Suite 150, Eden Prairie, MN 55344

*and hereby declares that the Organization is accredited in accordance with
the recognized International Standard:*

ISO/IEC 17025:2017

Whereby, technical competence has been confirmed for the associated scope supplement, in the fields of:

***Chemical, Mechanical, Thermodynamic, and Metallurgical (Chemical &
Mechanical) Testing***
(As detailed in the supplement)

Accreditation claims for conformity assessment activities shall only be made from the addresses referenced within this certificate and shall apply solely to those activities identified in the related scope. This Accreditation is granted subject to the Accreditation Body rules governing the Accreditation referred to above, and the Organization hereby commits to observing and complying with those rules in their entirety.

For PJLA:

Initial Accreditation Date:

Issue Date:

Expiration Date:

November 03, 2017

June 14, 2026

July 31, 2028

Tracy Szerszen
President

Accreditation No.:

Certificate No.:

92808

L26-525

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.pjllabs.com*



Certificate of Accreditation: Supplement

Ebatco

10025 Valley View Road, Suite 150, Eden Prairie, MN 55344

Contact Name: Lawrence Anderson Phone: 952-941-2199

Accreditation is granted to the facility to perform the following conformity assessment activities:

FIELD OF TEST	ITEMS, MATERIALS, OR PRODUCTS TESTED	COMPONENT, CHARACTERISTIC, PARAMETER TESTED	SPECIFICATION OR STANDARD METHOD	TECHNOLOGY OR TECHNIQUE USED	FLEX CODE	LOCATION OF ACTIVITY
Chemical	Dry Particles or Particles in Solution	Particle Size	ASTM E2651	Laser Diffraction Particle Analyzer	F1, F2	F
Chemical	Liquid Samples	Density	ASTM D4052	Density Meter	F1, F2	F
Chemical	Liquid Samples	Dielectric Constant	ASTM D924	Dielectric Constant Meter	F1, F2	F
Chemical	Liquid Samples	Refractive Index	ASTM D1747	Refractive Index Meter	F1, F2	F
Chemical	Liquid Samples	Surface Tension	ISO 19403	Surface Tension (Pendant Drop)	F1, F2	F
Chemical	Liquid Samples	Viscosity	ASTM D2556	Viscometer	F1, F2	F
Chemical	Liquid Samples, Powders, and Solid Samples	Density	ASTM B962 ASTM B963	Archimedes Method	F1, F2	F
Chemical	Liquid Samples and Surfactant Solution	Critical Micelle Concentration	ISO 4311	Surface Tensiometer	F1, F2	F
Chemical	Liquid Samples and Surfactant Solution	Dynamic Surface Tension	ASTM D3825	Dynamic Surface Tensiometer	F1, F2	F
Chemical	Liquid Samples, Including those with Surfactants	Surface / Interfacial Tension	ASTM D1331	Surface Tensiometer	F1, F2	F
Chemical	Nanomaterials / Microstructure Substrates and Liquids	Micro Contact Angle Advancing/Receding Angle Surface Free Energy	ASTM D7334 ASTM D7490 ISO 19403	Micro Contact Angle Meter	F1, F2	F
Chemical	Particles in Solution	Particle Size	USP 787 USP 788 USP 789	Particle Analysis (Light Obscuration)	F1, F2	F
Chemical	Particles in Solution	Particle Size	ASTM F2149	Particle Analysis (Electrical Sensing Zone)	F1, F2	F
Chemical	Particles in Solution or Solid Surface	Particle Size	ASTM E2490	Particle Analysis (Dynamic Light Scattering)	F1, F2	F
Chemical	Particles in Solution or Solid Surface	Zeta Potential	ASTM E2865	Electrophoretic Light Scattering	F1, F2	F
Chemical	Powders	Contact Angle	EDC No. 0102072	Washburn Infiltration Method	F1, F4	F



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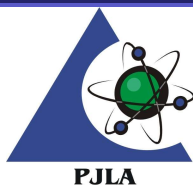
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Chemical	Solid Samples	Sedimentation	EDC No. 0102073	Surface Tensiometer	F1, F4	F
Chemical	Solid Samples, Preferable Inorganic Compounds	Elemental Composition	ASTM E1508	Energy Dispersive X-Ray Spectroscopy	F1, F2	F
Chemical	Solid Substrates and Liquid Samples	Contact Angle Advancing/Receding Angle Surface Free Energy	ASTM D7334 ASTM D7490 ISO 19403	Contact Angle Meter	F1, F2	F
Chemical	Polycrystalline Solids	Phase Identification	ASTM D934 ASTM D380	XRD	F1, F2	F
Chemical	Polycrystalline Solids	Quantitative Composition	ASTM C1365 ASTM D3720	XRD	F1, F2	F
Chemical	Solids, Liquids, and Gases	Transmission Bulk Analysis	ASTM E1252	FTIR	F1, F2	F
Chemical	Solids and Liquids	Bulk Analysis	ASTM E573 ASTM E1252	ATR FTIR	F1, F2	F
Chemical	Solids	Qualitative Analysis	ASTM E334 ASTM E1252	FTIR Transmission & Reflection Microscopic Analysis (Obj: 4x, 15x, 25x)	F1, F2	F
Chemical	Solids and Liquids	Qualitative Analysis	ASTM E573 ASTM E334 ASTM E1252	ATR Microscopic Analysis (Obj: 15x)	F1, F2	F
Chemical	Solids and Liquids	Qualitative Analysis	ASTM E334 ASTM E1252	FTIR Transmission and Reflection Focal Plane Array Imaging (Obj: 4x)	F1, F2	F
Chemical	Solids and Liquids	Qualitative Analysis	ASTM E334 ASTM E1252	FTIR Transmission and Reflection Focal Plane Array Imaging (Obj: 15x, 25x)	F1, F2	F
Chemical	Solids and Liquids	Qualitative Analysis	ASTM E573 ASTM E334 ASTM E1252	ATR Focal Plane Array Imaging (Obj: 15x)	F1, F2	F
Chemical	Solids and Liquids	Qualitative Analysis	EDC# 0102096	Raman Microscopy	F1, F4	F



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Chemical	Solids, Particles, and Fibers	AFM	ASTM E2859 ASTM E2382	AFM	F1, F2	F
Chemical	Solids, Particles, and Fibers	EFM	ASTM E2859 ASTM E2382	EFM	F1, F2	F
Chemical	Solids, Particles, and Fibers	MFM	ASTM E2859 ASTM E2382	MFM	F1, F2	F
Chemical	Powders, Particles, and Fibers	Powder Zeta Potential	ISO 13099	Powder Zeta Potential Cylindrical Cell (Streaming Potential)	F1, F2	F
Chemical	Surfaces	Surface Zeta Potential (Streaming Potential)	ISO 13099	Surface Zeta Potential (Streaming Potential)	F1, F2	F
Chemical	Flexible Tubing	Surface Zeta Potential (Streaming Potential)	ISO 13099	Surface Zeta Potential (Streaming Potential)	F1, F2	F
Chemical	Liquids	Turbidity	ISO 7027 ASTM D6855 ASTM D7315	Turbidity Meter	F1, F2	F
Chemical	Liquids	Elemental Composition (Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Hg, Ir, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Ru, Sb, Se, Sr, Ti, Th, U, V, Zn)	EPA 200.7 ASTM UOP 303 ASTM UOP 389 ASTM UOP 549 ASTM UOP 714 ASTM UOP 796 ASTM UOP 925 ASTM UOP 961 ASTM UOP 972 ASTM UOP 1003 ASTM C1301 ASTM C1875 ASTM D7151 ASTM D5708 ASTM D7111	ICP-OES/ICP-AES	F1, F2	F



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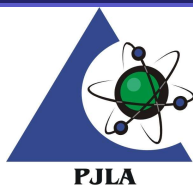
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Chemical	Liquids	Elemental Composition (Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Hg, Ir, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Ru, Sb, Se, Sr, Ti, Th, U, V, Zn)	ASTM D7260 ASTM D7691 ASTM D5185 ASTM D5600 ASTM E1479 FDA EAM 4.6	ICP-OES/ICP-AES	F1, F2	F
Chemical	Liquids, Semi-Solids	Rheology Viscosity G' G'' Tan Delta	ASTM D4440 ASTM D4473 ASTM D5279 ASTM D7271 DIN 1342 1-3 DIN 3219 DIN 13343 DIN 51810 Part 1 DIN 51810 Part 2 DIN 53019-1 DIN 53019-2 DIN 54458 EN 3219 EN 14770 ISO 3219 ISO 6721-1 Pharmacopoeia Europe 2.2.8 Viscosity Pharmacopoeia Europe 2.2.10 - Rotating Viscometer Method Pharmacopoeia Europe 0132 USP 912 - Rotational Rheometer Methods	Rheometer	F1, F2	F



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Chemical	Solid Materials	Color	CIEL*a*b* ASTM E2194 SAE J1545	Colorimeter	F1, F2	F
Chemical	Solid Materials	Gloss	ASTM D523	Gloss Meter	F1, F2	F
Chemical	Solids	Refractive Index	ISO 489	Refractive Index Meter	F1, F2	F
Mechanical	Adhesive Materials	Peel Strength	ASTM D3330	Versatile Peel Strength Analyzer	F1, F2	F
Mechanical	Ceramics, Fabrics, Geologicals, Membranes, Papers, and Porous Materials	Porosity	ASTM F316	Porometer	F1, F2	F
Mechanical	Solid Materials	Surface Roughness	ASTM E2244	Optical Profilometry	F1, F2	F
Mechanical	Solid Materials	Dimensional and Microstructural Analysis	ASTM E766	Scanning Electron Microscopy	F1, F2	F
Mechanical	Solid Materials (Tested Dry or Lubricated)	Coefficient of Friction	ASTM G115	Triboster	F1, F2	F
Mechanical	Solid Materials, Thin Films, Coatings	Micro Hardness	ASTM E384	Micro Indentation	F1, F2	F
Mechanical	Solid Materials, Thin Films, Coatings	Plastic Resistance Interfacial Adhesion Scratch Resistance	ASTM C1624 ISO 20502	Micro Scratch	F1, F2	F
Mechanical	Solid Materials, Thin Films, Coatings	Modulus Mapping	EDC No. 0102054	Modulus Mapping	F1, F4	F
Mechanical	Solid Materials, Thin Films, Coatings	Nano-DMA	EDC No. 0102055	Nano-DMA	F1, F4	F
Mechanical	Solid Materials, Thin Films, Coatings	Nanohardness Elastic modulus	ASTM E2546	Nanoindentation	F1, F2	F



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Mechanical	Solid Materials, Thin Films, Coatings	Plastic Resistance Interfacial Adhesion Scratch Resistance	ASTM C1624 ASTM D7187	Nanoscratch	F1, F2	F
Mechanical	Solid Materials, Thin Films, Coatings	Surface Topography	ISO 3274	Scanning Probe Microscopy	F1, F2	F
Mechanical	Solid Materials, Thin Films, Coatings	Scratch Resistance	ISO 1518	Scratch	F1, F2	F
Mechanical	Solid Materials, Thin Films, Coatings	Wear Resistance	EDC No. 0102066	Scanning Wear	F1, F4	F
Mechanical	Solid Materials, Thin Films, Coatings	Plastic Resistance Interfacial Adhesion Scratch Resistance	ASTM C1624 ISO 20502	Macro scratch	F1, F2	F
Mechanical	Printed Materials	Smear Rubbing	ASTM D5264	Smear Rubbing	F1, F2	F
Mechanical	Polycrystalline Solids	Residual Stress	ASTM E915 ASTM E2860	XRD Residual Stress	F1, F2	F
Mechanical	Solid Materials	Tensile, Compression, 3-Point Bend, 4-Point Bend, and Shear	ASTM A370 ASTM C1499 ASTM C1550 ASTM C1609 ASTM C297 ASTM C364 ASTM C365 ASTM C469 ASTM C633 ASTM C1161 ASTM C1421	Universal Testing Machine	F1, F2	F



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Mechanical	Solid Materials	Tensile, Compression, 3-Point Bend, 4-Point Bend, and Shear	ASTM D1002 ASTM D1004 ASTM D1037 ASTM D1184 ASTM D1335 ASTM D1414 ASTM D143 ASTM D1621 ASTM D1623 ASTM D1708 ASTM D1761 ASTM D1781 ASTM D1876 ASTM D2256 ASTM D2261 ASTM D2295 ASTM D2344 ASTM D2519 ASTM D2844 ASTM D3039 ASTM D3043 ASTM D3163 ASTM D3167 ASTM D3410 ASTM D3518 ASTM D3574 ASTM D3822 ASTM D3846 ASTM D4018 ASTM D412 ASTM D413	Universal Testing Machine	F1, F2	F



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Mechanical	Solid Materials	Tensile, Compression, 3-Point Bend, 4-Point Bend, and Shear	ASTM D4255 ASTM D429 ASTM D4833 ASTM D5034 ASTM D5035 ASTM D5045 ASTM D5083 ASTM D5379 ASTM D5528 ASTM D5587 ASTM D575 ASTM D5766 ASTM D5868 ASTM D5961 ASTM D6068 ASTM D624 ASTM D6319 ASTM D638 ASTM D6641 ASTM D6671 ASTM D695 ASTM D7137 ASTM D7269 ASTM D732 ASTM D7774 ASTM D790 ASTM D882 ASTM D885 ASTM D903 ASTM D905 ASTM E1820	Universal Testing Machine	F1, F2	F



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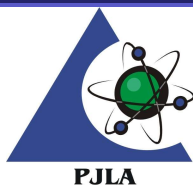
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Mechanical	Solid Materials	Tensile, Compression, 3-Point Bend, 4-Point Bend, and Shear	ASTM E190 ASTM E290 ASTM E399 ASTM E8/E8M ASTM F1264 ASTM F1306 ASTM F1717 ASTM F2077 ASTM F2606 ASTM F382 ASTM F606 ASTM F88	Universal Testing Machine	F1, F2	F
Metallurgical	Solids	Metallographic Phase Identification	ASTM E45 ASTM B795 ASTM A247 ASTM E1268 ASTM G209 ASTM B657 ASTM E2567 ASTM A892	Microscopy	F1, F2	F
Metallurgical	Metals and Alloys	Sample Preparation	ASTM E407	Metallographic Sample Preparation	F1, F2	F
Metallurgical	Metals and Alloys	Grain Size	ASTM E112 ASTM E1382 ASTM E1181	Microscopy	F1, F2	F
Metallurgical	Metals and Alloys	Case Depth	ASTM B931 ASTM B934	Microscopy and Hardness Testing Unit	F1, F2	F
Metallurgical	Rigid Solids	Microstructural Analysis	ASTM B748 ASTM E1508	Microscopy	F1, F2	F
Metallurgical	Rigid Solids	Metallographic Sample Preparation	ASTM E3	Metallographic Sample Preparation	F1, F2	F



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Thermodynamic	Liquid and Solid Samples	Thermal Properties Phase Transitions Specific Heat Capacity Heat of Fusion	ASTM E1356 ASTM E794	Differential Scanning Calorimetry	F1, F2	F
Thermodynamic	Liquid and Solid Samples	Mass Loss/Gain	ASTM E2402 ASTM E2250	Thermogravimetric Analysis	F1, F2	F
Thermodynamic	Solid Samples	Phase Transitions Mechanical Properties	ASTM E1640 ASTM D648	Dynamic Mechanical Analysis	F1, F2	F
Thermodynamic	Solid Samples	Coefficient of Thermal Expansion	ASTM E831	Thermal Mechanical Analysis	F1, F2	F
Thermodynamic	Liquid and Solid Samples	Thermal Properties Phase Transitions Specific Heat Capacity Heat of Fusion	ASTM E2716 ASTM E2602 ASTM E1952	Modulated Differential Scanning Calorimetry	F1, F2	F



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Accreditation is granted to the facility to perform the following conformity assessment activities:

1. Location of activity:

Location

F

Location

Conformity assessment activity is performed at the CABs fixed facility

2. Flex Code:

- F0- Fixed scope item. No deviations allowed to the line item as identified, except for updating to the most recent version of an accredited standard method after verification.
- F1- Laboratory has the capability to test a new item, material, matrix, or product similar in composition to item, material, matrix, or product identified on the scope
- F2- Laboratory has the capability to introduce the newest revision of an accredited authoritative standard method (with no modifications) identified on the scope
- F3- Laboratory has the capability to introduce a parameter/component/analyte to an accredited test method identified on the scope
- F4- Laboratory has the capability to introduce a new revision of an accredited non-standard method using the same technology or technique identified on the scope
- F5- Laboratory has the capability to introduce a validated method that is equivalent to an accredited method (using same technology or technique) identified on the scope

