PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

BETA Analytic LLC

4985 SW 74th Court, Miami, Florida USA 33155

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 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:

Tracy Szerszen
President

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

Initial Accreditation Date:	*Issue Date:*	*Expiration Date:*
November 01, 2008	August 08, 2024	September 30, 2026
Revision Date:	*Accreditation No.:*	*Certificate No.:*
August 29, 2025	59423	L24-613-R2

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

Beta Analytic LLC

4985 SW 74th Court, Miami, Florida USA 33155
Contact Name: Ron Hatfield Phone: +1 (305) 667-5167

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	Archaeological / Geological Materials and Water	Determination of Radiocarbon Age / Activity: Measurement of $^{14/13}C$, $^{14/12}C$, $^{13/12}$ C ratios	Determination of Radiocarbon Activity / Content. Relative to Modern 14C Standard (NIST SRM 4990C Oxalic Acid II)	Accelerator Mass Spectrometry (AMS). Range: From 43,500 years BP, through present day (0.44 pMC to 198 pMC).	F1, F4	F
Chemical	Organic and Carbonate Materials and Water	Determination of Stable Isotope Ratios: Measurement of: $\delta^{13}C$, $\delta^{15}N$, $\delta^{18}O$, $\delta^{17}O$, $\delta^{2}H$.	Determination of Stable Isotopic Ratios. Relative to in-house standards which are traceable to the NIST / IAEA Standards VPDB & VSMOW, incorporating Stretch-Shift and Blank Area Corrections.	By Isotope Ratio Mass Spectrometry (IRMS) and Cavity Ring-down Spectroscopy (CRDS). Range IRMS / CRDS -200 o/oo (per-mil) to +100 o/oo (per-mil)	F1, F4	F
Chemical	Organic and Carbonate Materials and Water	Measurement of C:N Ratios, %C, %N.	Determination of Carbon / Nitrogen Ratios and their Percentages. C:N calculation from the %C divided by the %N times 1.167. C and N percentages are derived by the calculation of the sample mass, multiplied by the theoretical elemental percentage, divided by 100.	Elemental Analysis	F1, F4	F

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Chemical	Any Carbon Containing Material; Solid, Liquid or Gaseous Forms	Determination of the Biobased Carbon Content of Natural Range Materials: $^{14/13}C$, $^{14/12}C$, $^{13/12}$ C ratios.	ASTM D6866 - Method B EN 16640: Annex E – Method B ISO 13833:Annex A ISO 16620-2: Annex D – Method C ISO 19984-2: Annex A – Method A	Accelerator Mass Spectrometry (AMS). Range: 0.44 pMC to 198 pMC Isotope Ratio Mass Spectrometry (IRMS) Range IRMS -200 o/oo (per-mil) to +100 o/oo (per-mil)	F1, F2, F3	F
Chemical	Any Carbon-Containing Material. Solid, Liquid or Gaseous Forms And specifically, for (SRF) Solid Recovered Fuels or (RDF) Refuse Derived Fuels	Determination of the Biobased Carbon Content of Natural Range Materials – Measurement of $^{14/13}C$, $^{14/12}C$, $^{13/12}$ C ratios. Determination of Bio-Carbon Content - Measurement of $^{14/13}C$, $^{14/12}C$, $^{13/12}$ C ratios	ASTM D6866 - Method B BS EN ISO 21644 Annex A EN 16640 Annex E – Method B ISO 13833: Annex A ISO16620-2: Annex D – Method C	Accelerator Mass Spectrometry (AMS) Range: 0.44 pMC to 198 pMC Isotope Ratio Mass Spectrometry (IRMS) Range IRMS -200 o/oo (per-mil) to +100 o/oo (per-mil)	F1, F2, F3	F

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

1. Location of activity:

Location	Location
F	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