



PERRY JOHNSON LABORATORY ACCREDITATION, INC.

Certificate of Accreditation

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

**BETA Analytic Inc.
4985 SW 74th Court
Miami, Florida 33155**

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

ISO/IEC 17025:2005

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 January 2009):

**Measurement of Natural Levels of Radiocarbon by Accelerator Mass Spectrometry (AMS), Liquid Scintillation Counting (LSC) and /or Proportional Scintillation-Counter Method (PSM), and the Stable Isotopes Ratios of Carbon, Nitrogen, and Oxygen by Isotope Ratio Mass Spectrometry (IRMS)
(As detailed in the supplement)**

Such testing and/or calibration services shall only be offered at or from the address given above. 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:

Tracy Szeszen
President/Operations Manager

The validity of this certificate is mandated through ongoing surveillance.

Perry Johnson Laboratory
Accreditation, Inc. (PJLA)
26555 Evergreen, Suite 1325
Southfield, Michigan 48076

<i>Initial Accreditation Date:</i>	<i>Issue Date:</i>	<i>Revision Date:</i>	<i>Expiration Date:</i>
November 01, 2008	November 01, 2008	December 23, 2009	October 31, 2010

<i>Accreditation No:</i>	<i>Certificate No:</i>	<i>Page No:</i>
59423	L08-89-R1	Page 1 of 2



Certificate of Accreditation: Supplement

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Accreditation is granted to this 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 Testing	Archaeological / Geological Materials and Water	Determination of Radiocarbon Age / Activity: Measurement of $^{14/13}\text{C}$, $^{14/12}\text{C}$, $^{13/12}\text{C}$	Determination of Radiocarbon Content: by the Benzene Method (LSC) and Accelerator Mass Spectrometry (AMS)	Range (LSC or AMS): From Present Day back to 47 000 years BP Detection Limit (AMS or LSC): 47 000 BP
	Organic and Carbonate Materials	Determination of Stable Isotope Ratios: Measurement of $^{13/12}\text{C}$, $^{15/14}\text{N}$, $^{18/16}\text{O}$	Stable Isotope Ratios (by Isotope Ratio Mass Spectrometry – IRMS)	Range: 100 per mil to 100 per mil Detection Limit: 0.05 mV mass 13 output
	Any Carbon containing material; solid, liquid or gaseous forms	Determination of the Biobased Carbon Content of Natural Range Materials: $^{14/13}\text{C}$, $^{14/12}\text{C}$ and $^{13/12}\text{C}$	ASTM D6866-B (By AMS Counting)	Range: 0% pMC to 198% pMC Detection Limit: 0.28 pMC
			ASTM D6866-C (By LSC Counting)	Range: 0% pMC to 198% pMC Detection Limit: 0.37 pMC
	Solid Materials; Specifically solid recovered fuels (SRF) or refuse derived fuels (RDF)	Determination of Bio-Carbon Content: Measurement of $^{14/13}\text{C}$, $^{14/12}\text{C}$ and $^{13/12}\text{C}$	CEN/TS 15747:2008 CEN/TR 15591:2007	Range (AMS): 0% pMC to 198% pMC Detection Limit: 0.28 pMC
Range (LSC/PSM): 0% pMC to 198% pMC Detection Limit: 0.37 pMC				