



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EUROFINS SCIENTIFIC; NUTRITION ANALYSIS CENTER
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CHEMICAL

Valid To: February 28, 2018

Certificate Number: 2927.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the laboratory's compliance with the A2LA Food Testing Program Requirements, containing the 2010 "AOAC International Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food and Pharmaceuticals"), accreditation is granted to this laboratory to perform the following tests on commodities, spices, foods, dietary supplements, feeds, and pet foods.

<u>Test Type/Technology:</u>	<u>Test Method:</u>
Ash	AOAC 942.05 AOAC 945.38c (ref 923.03)
Protein, Combustion	AOCS Ba 4e-93 AOCS Ba 4f-00 AOAC 992.15 AOAC 990.03
Protein, Kjeltec	AOAC 2001.11 Eurofins Method: PR-MET3368
Moisture and Volatiles by Vacuum Oven	AOAC 920.151 AOAC 925.09 AOAC 925.45 AOAC 926.08 AOAC 927.05 AOAC 934.06 Eurofins Method: AN-MET3409
Loss on Drying (Moisture) by Force Draft Oven	AOCS Ba 2a-38; Eurofins Method: PR-MET3365 AOCS Ac 2-41 AOCS Aa 3-38 AOAC 925.10 AOAC 930.15 AOAC 950.46 AACC 44-15.02 NFTA 2.2.2.5 (NFTA Method 2.1.4)
Crude Fiber	AOCS Ba 6-84 AOAC 962.09 Eurofins Method: PR-MET3363

Test Type/Technology:	Test Method:
Dietary Fiber: Soluble, Insoluble, and Total Fiber	AOAC 991.43
Acid Detergent Fiber (ADF) by Filter Bag Technique	ANKOM Technology Method 10-21-05 Eurofins Method: PR-MET3366
Neutral Detergent Fiber (NDF) by Filter Bag Technique	ANKOM Technology : NDF for Ankom 2000 Fiber Analyzer Eurofins Method:PR-MET3367
Crude Fat by Solvent Extraction	AOAC 920.39 AOAC 945.16 AOCS Ba 3-38 AOCS Ac 3-44 AOCS Aa 4-38 Eurofins Method: PR-MET3373
Crude Fat by Acid and/or Alkaline Hydrolysis	AOAC 954.02 AOAC 945.44 AOAC 925.12 AOAC 922.06 AOAC 989.05 AOAC 933.05 AOAC 925.32 AOAC 935.38 AOAC 974.09 AOAC 995.19 AOAC 932.02 AOAC 932.06 AOAC 952.06 AOAC 950.54 Eurofins Method:GCLI-MET3328
Sugar Profile (Fructose, Glucose, Sucrose, Maltose, Lactose) by HPLC-ELSD	AOAC 982.14 Nollet, L.M.L. (Ed.) (2000). <i>Food Analysis by HPLC</i> . New York, NY: Marcel Dekker, Inc. (Peris-Tortjada, M. (Author) <i>HPLC Determination of Carbohydrates in Foods</i> Chapter 7 p.287-302) Eurofins Method: LC-MET3319
Tryptophan by Alkaline Hydrolysis (HPLC)	AOAC 988.15 Eurofins Method: LC-MET3302
Amino Acids by Performic Acid Oxidation (HPLC) Cystine, Taurine and Methionine	AOAC 994.12 Eurofins Method: LC-MET3306
Amino Acids by Acid Hydrolysis (HPLC) Alanine, Arginine, Aspartic Acid, Glutamic Acid, Glycine, Histidine, Hydroxyproline, Isoleucine, Leucine, Phenylalanine, Proline, Lysine, Serine, Threonine, Tyrosine, Valine	AOAC 982.03 Eurofins Method: LC-MET3307
Scoville Heat Units by UPLC	AOAC 995.03 ASTA 21.3 Eurofins Method: LC-MET3311
Vitamin A: Total Vitamin A, β -carotene, and Retinol by HPLC	AOAC 974.29 Eurofins Method: VT-MET3391
Vitamin C by Fluorescence	AOAC 967.22 Eurofins Method: VT-MET3375
Ascorbic Acid (Vitamin C) and Isoascorbic Acid	Journal of Food Chemistry, 94, 626-631 (2006) Eurofins Method: VT-MET3396

Test Type/Technology:	Test Method:
Vitamin D by HPLC Total Vitamin D, D ₂ (ergocalciferol), and D ₃ (cholecalciferol)	EN 12821:2009 <i>Determination of vitamin D by high performance liquid chromatography -Measurement of cholecalciferol (D3) and ergocalciferol (D2).</i> Eurofins Method: VT-MET3388
Vitamin D by LC-MS/MS Total Vitamin D, D ₂ (ergocalciferol), and D ₃ (cholecalciferol)	Huang et al.: Journal of AOAC International, 2012, Vol. 95, No.2, 1-3 Gilliand & Dowell: Journal of AOAC international, 2012, Vol 95, No.3, 583-588 Huang etc., Rapid Commun. Mass Spectrom 2014, 28, 2101-2110 Eurofins Method: VT-MET3401
Vitamin E – Profile including: Total Vitamin E, and tocopherol isomers: alpha (α), beta (β), gamma (γ), and delta (δ) by HPLC	AOAC 971.30 Eurofins Method: VT-MET3382
Thiamin - Vitamin B ₁ by Fluorescence Detection	AOAC 942.23 Eurofins Method: VT-MET3390
Riboflavin - Vitamin B ₂ by Fluorometric Method	AOAC 970.65 Eurofins Method: VT-MET3376
Pyridoxine - Vitamin B ₆ by HPLC	Journal of AOAC International, 88, 30-37, (2005) Eurofins Method: VT-MET3395
Niacin - Vitamin B ₃ by Microbiological Method	AOAC 944.13 Eurofins Method: VT-MET3379
Total Folate by Microbiological Method	AOAC 922.05 Eurofins Method: VT-MET3389
Biotin - Vitamin B ₇ by Microbiological Method	Biotin, Methods of Vitamin Assay, 3 rd edition, Interscience Publishers, 1966, chap 12 Eurofins Method: VT-MET3377
Pantothenic Acid - Vitamin B ₅ by Microbiological Method	AOAC 945.74 Eurofins method: VT-MET3381
Choline by HPLC-Fluorescence with Chemical Derivatization	AOAC 999.14 Analytica Chimica Acta 664 (2009) 90-94 Eurofins Method: VT-MET3400
Calcium (Ca), Sodium (Na), Iron (Fe), Phosphorus (P), Potassium (K), Magnesium (Mg), Zinc (Zn), Copper (Cu), and Manganese (Mn) by ICP - OES	AOAC 965.17 AOAC 927.02 Eurofins Method: EL-MET3284 AOAC 984.27 AOAC 985.01 Eurofins Method: EL-MET3285
Selenium (Se) by AAS (Atomic Absorption Spectroscopy)	AOAC 986.15 Eurofins Method: EL-MET3290
Sulfur by ICP-OES	T.T. Nham. <i>Analysis of soil extracts using the Varian 725-ES</i> , Varian ICP-OES Application Note No. 34 A. R. Jurgensen, J. C. Hart, L. L. Farrow. <i>Sulfur limits of detection and spectral interference corrections for DWPF sludge matrices by inductively coupled plasma emission spectrometry</i> , WSRC-TR-2004-00090, Z. A. Grosser, L. J. Davidowski, P. Wee. <i>The analysis of biodiesel for inorganic contaminants, including sulfur, by ICP-OES</i> , Application note, PerkinElmer 2009 Eurofins Method: EL-MET3289

Test Type/Technology:	Test Method:
Heavy Metals by ICP-MS; Arsenic (As), Cadmium (Cd), Mercury (Hg), Lead (Pb)	Method CLG-TM3.01, USDA Food Safety and Inspection Service, 2006 J. Entwisle. <i>Determination of Mercury in Microwave Digests of Foodstuffs by ICP-MS</i> , Application note, Agilent Technologies, 2004 Julshamn et al. <i>Determination of Arsenic, Cadmium, Mercury, and Lead by Inductively Coupled Plasma Mass Spectrometry in Foods after Pressure Digestion: NMKL Interlaboratory Study</i> , Journal of AOAC Int., 90, No 3, 2007 Zbinden, P. Andrey, D. <i>Determination of Trace Element Contaminants in Food Matrices Using a Robust, Routine Analytical Method for ICP-MS</i> , Atomic Spectroscopy, Vol. 19 (6), p. 214 - 219 Eurofins Method: EL-MET3292
Cholesterol by GC	AOAC 994.10 Eurofins Method: GCLI-MET3353
Fatty Acid Profile non-NLEA	AOCS Ce 2-66, Ce 1b-89 Eurofins Method: GCLI-MET3352, GCLI-MET3339
Fatty Acid Profile Including Total Fat, Unsaturated, Saturated, and Trans Fat by GC	AOAC 996.06 AOAC 925.32 Eurofins Method: GCLI-MET3332
Omega-3 EPA and DHA Fatty Acids by GC	GOED Voluntary Monograph
Marine Oil Fatty Acid Profile (MOFAP) by GC	AOCS Ce 1b-89, Eurofins Methods: GCLI-MET3360, GCLI-MET3339
Oxidative Stability Index	AOCS Official Method Cd12b-92 Eurofins Method: GCLI-MET3342
Free Fatty Acid	AOAC 940.28, AOCS Ca 5a-40 Eurofins Method: GCLI-MET3334
Acid Value (or Acid Number)	AOAC 940.28 AOCS Cd 3d-63 Eurofins Method: GCLI-MET3334
Unsaponifiable Matter	AOCS Ca 6a-40 Eurofins Method: GCLI-MET3359
Saponification Value	AOCS Cd 3-25
Neutral Oil Loss	AOCS Ca 9f-57
Peroxide Value	AOAC Cd 8-53
p-Anisidine Value	AOCS Cd 18-90
Iodine Value	AOCS Cd 1d-92
Totox Value	GOED Voluntary Monograph
Moisture by Toluene Distillation	AOAC 925.04
Steam Volatile Oil	ASTA 5.0
Water Activity	AquaLab Operator's manual, Version 3 for AquaLab Model Series 3TE Eurofins Method AN-MET3406
Capillary Melting Point	AOCS Cc 1-25, Eurofins Method: GCLI-MET3330
Calories from Fat and Saturated Fat	Calculated using the Atwater (4.9.4) formula, as cited in 21CFR101.9(c)(1)(A&B)

<u>Test Type/Technology:</u>	<u>Test Method:</u>
Total Calories	Calculated using the Atwater (4.9.4) formula, as cited in 21CFR101.9(c)(1)(A&B) or As cited in 21CFR101.9(c)(1)(i)(C)
Total Carbohydrates	Calculated by difference, as cited in 21CFR101.9(c)(6)
ASTA Color	ASTA 20.1



Accredited Laboratory

A2LA has accredited

EUROFINS SCIENTIFIC; NUTRITION ANALYSIS CENTER

Des Moines, IA

for technical competence in the field of

Chemical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).



Presented this 4th day of March 2016.

A handwritten signature in blue ink, appearing to read "J. C. Bunt".

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 2927.01
Valid to February 28, 2018

For the tests to which this accreditation applies, please refer to the laboratory's Chemical Scope of Accreditation.