

International Accreditation Service

CERTIFICATE OF ACCREDITATION

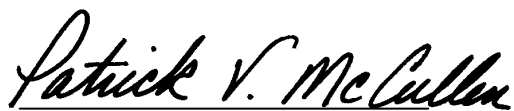
This is to signify that

CARIBBEAN INDUSTRIAL RESEARCH INSTITUTE (CARIRI)

UWI CAMPUS
ST AUGUSTINE
TRINIDAD AND TOBAGO

Testing Laboratory TL-397

has met the requirements of the IAS Accreditation Criteria for Testing Laboratories (AC89), has demonstrated compliance with ANS/ISO/IEC Standard 17025:2005, *General criteria for the competence of testing and calibration laboratories*, and has been accredited, commencing August 10, 2009, for the test methods listed in the approved scope of accreditation.



Patrick V. McCullen
Vice President



C. P. Ramani, P.E.
President

(see attached scope of accreditation for fields of testing and accredited test methods)

Print Date: 09/17/2009

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This accreditation certificate supersedes any IAS accreditation certificate bearing an earlier date. The certificate becomes invalid upon suspension, cancellation, revocation, or expiration of accreditation. See the IAS Accreditation Listings on the web at www.iasonline.org for current accreditation information, or contact IAS directly at (562) 699-0541.

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SCOPE OF ACCREDITATION

Caribbean Industrial Research Institute (CARIRI) TL-397

Caribbean Industrial Research Institute (CARIRI)
UWI Campus
St Augustine
Trinidad and Tobago

Liaquat A Shah
Chief Executive Officer
868-662-7161/4

FIELDS OF TESTING	ACCREDITED TEST METHODS
Aggregates	ASTM C-117, ASTM C-127, ASTM C-128, ASTM C-136
Concrete - Hardened	ASTM C-39, BS 1881 PARTS 111, 114 and 116, BS EN 12390-2, BS 12390-3
Metals – Hardness and reinforcing steels	ASTM E384 and ASTM E 92, ASTM A 370-03a, BS 4449, BS EN 10002-1 and BS EN 10002-4
Soils (Physical Tests)	ASTM D 698, ASTM D1557, BS 1377 Part 2 Sections 3, 4.3, 5
Gases and natural gas	ASTM D1945 (Helium, Hydrogen, Oxygen, Nitrogen, Carbon dioxide, Methane, Ethane, Hydrogen Sulfide, Propane, Isobutane, n-butane, neo&iso Pentane, n-Pentane, Hexane isomers, Heptanes)

August 10, 2009
Commencement Date


C. P. Ramani, P.E.
President

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FIELDS OF TESTING	ACCREDITED TEST METHODS
Petroleum products	ASTM D 86
Food and food products	AOAC 923.03 (Ash-flour), AOAC 920.39 (Fat-crude), AOAC 925.45A,B; 920.175 (Moisture in sugars), DIHM CAR/CHEM.FM4.1 (Protein in fruit and fruit products), AOAC 945.46;925.21; 923.03 (Milk-liquid,ash), AOAC 930.30; 923.03 (Milk-dried- ash), AOAC 945.38 A,C; 923.03 (Grain- Ash), AOAC 920.153; 923.03; 983.18 (Meat-ash), AOAC 925.11; 926.06; 923.03(Macaroni Products Ash), AOAC 935.39; 923.03; 926.06 (Baked Products- Ash), AOAC 945.18;923.03 (Cereal adjuncts- Ash), AOAC 930.22; 926.04; 923.03 (Bread-ash), AOAC 945.38A,B; 925.09B; 925.45A,B (Grains-moisture), AOAC 926.07A; 926.06; 925.09B; 925.45A,B (Macaroni Products – moisture), AOAC 927.05; 925.45A,B; 935.41B (Milk, Dried-moisture), AOAC 950.46B; 925.45A,B; 983.18 (Meat Moisture), AOAC 934.01; 925.45A,B; 950.02 (Animal food- moisture), AOAC 931.04; 970.20; 925.45A,B (Cocoa products- moisture)

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Pesticide residue – Fruits and vegetables	DIHM CAR/CHEM.PEST 1.1 GC Determination of Organochlorine (OC) and Organophosphorus (OP) Pesticide Residues based on US EPA method 8000B
Water - Chemistry	SMEWW 3111 A,D Metals by AAS - Nitrous Oxide-Acetylene (Aluminum, Barium, Silicon, Vanadium, Calcium, Molybdenum, Tin). SMEWW 3111 A,B Metals by AAS - Air-Acetylene (Lead, Cadmium, Calcium, Chromium, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Sodium, Tin, Zinc, Antimony, Silver). SMEWW 3112 A,B Metals by Cold Vapour AAS (Mercury). SMEWW 3114 A,C Metals by Hydride Generation AAS (Arsenic, Selenium). DIHM CAR/CHEM.EM 1.1 based on Varian Spectra AA instrument operation Manual - Publication No. 85 101275 00 (Tin). DIHM CAR/CHEM.EM 1.3 based on Varian Spectra AA instrument operation Manual - Publication No. 85 101275 00 (Antimony). SMEWW 4500A,B: pH. DIHM CAR/CHEM.EM 1.10 based on SMEWW 5220 and HACH DR.890: COD. SMEWW 4110 A,B,C Anions by ion chromatography: NO ₃ ⁻ , NO ₂ ⁻ , F ⁻ , Cl ⁻ and SO ₄ ⁻² ; SMEWW 2540 A, D: Total Suspended Solids. SMEWW 2540 A, C: Total Dissolved Solids

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FIELDS OF TESTING	ACCREDITED TEST METHODS
Food and food products (Microbiology)	DIHM CAR.MICRO.001 - Total aerobic plate count, DIHM CAR.MICRO.002 - Enumeration of Total Coliforms, Faecal Coliforms and Escherichia Coli; DIHM CAR.MICRO.003 - Enumeration of Yeasts and Molds; DIHM CAR.MICRO.006 Detection of Presumptive Salmonella Species
Waters treated and untreated industrial sewage effluent, leachate and fresh and saline receiving waters (Toxicity and Biochemistry)	DIHM CAR/CHEM.TOX 1.3 – Microtox acute toxicity test; DIHM CAR/CHEM.TOX 2.1 – 96 Hour acute toxicity test using the Mysid shrimp, <i>Mysidopsis bahia</i> , based on USEPA/821/R02/012; DIHM CAR/CHEM.TOX 3.1– 48 hour Acute Toxicity test using water flea, <i>Daphnia magna</i> , based on USEPA/821/R02/012; DIHM CAR.MICRO.009 – 5-day Biochemical Oxygen Demand based on SMEWW 5210B and SMEWW 4500-O.C Dissolved Oxygen

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Water- Potable and effluent (Microbiology)	DIHM CAR.MICRO.004 – Faecal Coliforms and E.coli using Membrane Filtration; DIHM CAR.MICRO.007 - Heterotrophic Plate Count using Membrane Filtration, DIHM CAR MICRO.008 – Total Coliforms using Membrane Filtration
Waters recreational and effluent (Microbiology)	DIHM CAR.MICRO.012 – Faecal Streptococcus & Enterococcus using membrane filtration
Chemicals from industry (Chemistry)	DIHM CAR.MICRO.013 Biodegradability testing based on OECD Guidelines 301D – Closed Bottle Test

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