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|  | ACCREDITATION DOCUMENT | F-06/02 Issue Date: 10/08/15 Rev. No: 07 LAB 002 |
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Accreditation No: LAB 002

Awarded to

**PCSIR LABORATORIES COMPLEX,
SHAHRAH DR. SALEEM UZ ZAMAN ROAD, OFF UNIVERSITY
ROAD, KARACHI-75280, PAKISTAN**

The scope of accreditation is in accordance with the standard specifications outlined in the following page(s) of this document. The accredited scope shall be visible and legible in areas such as customer service, sample-receiving section etc and shall not mislead its users.

The accreditation was first time granted on **30-01-2004** by Pakistan National Accreditation Council.

The laboratory complies with the requirements of **ISO/IEC 17025:2005**.

The accreditation requires regular surveillance, and is valid until **01-10-2018**.

The decision of accreditation made by Pakistan National Accreditation Council implies that the organization has been found to fulfill the requirements for accreditation within the scope.

The organization however, itself is responsible for the results of performed measurements/tests.

PAKISTAN NATIONAL ACCREDITATION COUNCIL

25-11-2015
Date

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Director General

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Testing Laboratory.

Accreditation Scope of **PCSIR LABORATORIES COMPLEX,
SHAHRAH DR. SALEEM UZ ZAMAN ROAD, OFF UNIVERSITY
ROAD, KARACHI-75280, PAKISTAN**

Permanent laboratory premises

Laboratory Name: Chemical-Environment

| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|----------------------------------|---|--|---|
| Food All Commodities | Environmental Testing | 1. Lead, 2. Cadmium, 3. Zinc 4. Copper, 5. Iron | AOAC 19 th Edition (2012) 999.10 |
| | | 6. Arsenic, 7. Selenium, | AOAC 19 th Edition (2012) 986.15 |
| | | 8. Mercury, | AOAC 19 th Edition (2012) 971.21 |
| | | 9. Aluminum, 10. Manganese, 11. Tin, 12. Chromium | AOAC 19 th Edition (2012) 928.03 AOAC 19 th Edition (2012) 921.02 AOAC 19 th Edition (2012) 25.161 Lab Developed Method |
| | | 13. Pesticides | AOAC 19 th Edition (2012) 10.1.01 |
| Water | Environmental Testing | Pesticides | AOAC 2007 Gas Chromatography |
| Fish | Environmental Testing | Dibenzo Dioxine | Gas Chromatography Modified EPA-8290 |
| | | PCB's | Gas Chromatography EPA-1668- Revision -A for PCBs in Fisheries |
| | | PAH as Naphthalene, Acenaphthylene, Fluorene, Phenanthrene | Gas Chromatography (Validated) Pena. A. Morales, J..et..al (2003) Optimization of Clean-up procedures by column Chromatography and solid phase extraction for the PAH Determination by CGC: Applicant to fish. Revistar International de Contamination Ambiental. 19(12), 13023. |

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Permanent laboratory premises

Laboratory Name: **Textile**

| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|----------------------------------|---|--|--|
| Fabric | Textile | Colour fastness to water | ISO 105 EO1 |
| Fabric | Textile | Colour fastness to sea water | ISO 105 EO2 |
| Fabric | Textile | Colour Fastness to Rubbing organic solvent | ISO 105 DO2 |
| Fabric | Textile | Angle of Crease Wrinkle Recovery Tester | AATCC 66-2003 |
| Fabric | Textile | Tear Strength | ISO-13937-2 |
| Fabric | Textile | Blend Ratio (Polyester / Cotton) | ISO1833, Section 10 (Mixture of Cellulose & polyester) |
| Fabric | Textile | Ends & Picks | ISO-7211-2 |
| Fabric | Textile | Abrasion (Martindale) | ISO-12947-2 |
| Fabric | Textile | Spray Rating | AATCC-22 |
| Fabric | Textile | Count of yarn | ISO-7211-5 |

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Permanent laboratory premises

Laboratory Name: **Chemical-Pharmaceutical**

| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|---|---|--|--|
| Edible Oil and Products Containing Edible Oil | Food | Erucic Acid | Validated self developed method KL/PRC/Erucic Acid/03 Gas Chromatograph |
| Medicines, Edible oil containing products, frozen food, Baby feed, Milk powder | Food & Pharmaceutical | Vitamin E | HPLC (Handbook of Food Analysis by Ronald E. Wrolstad, Wiley & Sons 2000-2005). |
| Medicines | Pharmaceutical | Vitamin C | BP 2008 Page #. 155-56 Techniques used: Titrimetric method |
| Spices & Food containing Spices | Food & Spices | Sudan I, II, III and IV | AOAC, 920.208B (2012) UV Visible Spectrophotometer TLC |
| Medicines, Products containing Edible oil, Pickles, Frozen food | Food & Pharmaceutical | Water Activity Equilibrium water | AOAC 978.18 (2012) Hygrometer |
| Milk powder, Baby feed, Fruits, Vegetable, Medicines | Food & Pharmaceutical | Vitamin A | HPLC (J. Dairy Sci. 73:3402, 1990) |
| Medicines, Oil and Products containing Edible oil, Milk powder, Baby feed | Food & Pharmaceutical | Vitamin D | AOAC, 2002.05 (2012) HPLC |
| Chilli | Food & Spices | Para red | HPLC J.Chem.Soc.Pak., 31(1), 151- 155, 2009 |
| Spices & Food containing spices | Food & Spices | Sudan I, II, III and IV | LC-MS/MS Validated self-developed method KL/PRC/Sudan/09 |
| Medicines, Milk powder, Baby feed, Fruits, Vegetables | Food and Pharmaceutical | Vitamin C | USP31-NF26 (2008) |

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Permanent laboratory premises

Laboratory Name: **Chemical-Food**

| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|-------------------------------|---|---|---|
| Cereal foods | Food testing | Moisture | Air oven method AOAC 19 th edition (2012) AOAC official methods 32.1.03,925.10 |
| Cereal foods | Food testing | Protein | Kjeldahl method AOAC 19 th edition (2012) AOAC official methods 32.1.22, 920.87 Total protein in flour |
| Cereal foods | Food testing | Fat | Soxhlet method AOAC 19 th edition (2012) AOAC official methods 32.1.01, F (4.5.01) 920.39C |
| Cereal foods | Food testing | Ash | Direct method AOAC 19 th edition (2012) AOAC official methods 32.1.05, 923.03 |
| Cereal foods | Food testing | Crude fiber | Weende Method AOAC 19 th edition (2012) Fiber tech M6 (1020/1021) Foss AOAC official methods 920.86, (32.1.15) AOAC official methods 950.37, (32.3.16) AOAC official methods 930.24, (32.4.02) AOAC official methods 935.39, (32.5.06) |
| Cereal foods | Food testing | Carbohydrates(by difference)/ nitrogen free extract | By calculation Modern food Analysis by Hart & fisher 1971 By difference/nitrogen free extract |

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| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|-------------------------------|---|--|--|
| Cereal foods | Food testing | Calorific value/energy value | By calculation MacCane & Widdowson's. The composition of Food by Paul & Southgate 4 th ed.1988 |
| Cereal foods | Food testing | Fat | Acid Hydrolysis method AOAC official method 922.06, chapter 32.1.14, official method of analysis AOAC internation 19 th edition 2012 |
| Cereal foods | Food testing | Vitamin C | Titrimetric method Association of Official Analytical Chemist (AOAC) 19 th edition,2012, chapter 45.1.14, Method: 967.21 |
| Raw/ Processed Food | Food testing | Vitamin A | UV Spectrophotometer Pearson's Composition & analysis of Food 9th edition Page 646 Food analysis, by S.Suzanne Neilsen., 4th edition, page 188 the essential chromatography and spectroscopy catalog. Your comprehensive reference guide for columns and supplies (agilent technologies) 2007-2008 edition page 656 |
| Raw/ Processed Food | Food testing | Vitamin C | Titrimetric method AOAC Official Method 985.33 Chapter 50.1.09, Official methods of Analysis of AOAC 19 th edition 2012 |

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Permanent laboratory premises

Laboratory Name: **Food & Feed Safety**

| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|---|---|--|--|
| Food, Feed and Agricultural Commodities such as, Rice, Wheat, Maize, Red Chilli, Cattle and Poultry Feed etc. | Food, Feed and Agricultural Commodities Testing | Aflatoxin B ₁ , B ₂ , G ₁ , G ₂ and Total Aflatoxins | Official Methods of Analysis of AOAC International, 19 th Edition (2012) Chapter 49, AOAC Official Method (Adapted) # 975.36 (49.2.05), 968.22 (49.2.08), 970.43 (49.1.01), 971.22 (49.2.03), 970.44 (49.2.02). |
| Milk and Milk Products such as, Liquid and Dried Milk, Butter, Cheese etc. | Milk and Milk Products Testing | Aflatoxin M ₁ | Official Methods of Analysis of AOAC International, 19 th Edition (2012) Chapter 49, AOAC Official Method (Adapted) # 980.21 (49.3.02), 974.17 (49.3.01), 970.43 (49.1.01), 978.15 (49.2.21), 970.44 (49.2.02), 968.22 (49.2.08). |
| Food, Feed and Agricultural Commodities such as, Rice, Wheat, Maize, Cattle and Poultry Feed etc. | Food, Feed and Agricultural Commodities Testing | Ochratoxin 'A' | Official Methods of Analysis of AOAC International, 19 th Edition (2012) Chapter 49, AOAC Official Method (Adapted) # 973.37 (49.6.01), |

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Permanent laboratory premises

Laboratory Name: Microbiology

| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
|-------------------------------|---|--|---|
| Food | Aerobic Plate Count | 250 - 10 ⁸ cfu/g | Bacteriological Analytical Manual, Online USFDA, Chapter # 03 (Jan. 2001), (By Pour Plate method) |
| Food | Total Coliforms | 3 - 1100 cfu/g | Bacteriological Analytical Manual, Online USFDA, Chapter # 04 (Sept. 2002), (By MPN Multiple tube method) |
| Materials/ Products Tested | Testing Field (e.g. Environmental Testing or Mechanical Testing) | Types of Test/ Properties Measured | Reference to Standardized Method (e. g. ISO-14577-1: 2003)/ Internal Method Reference |
| Food | Faecal Coliforms | 3 - 1100 cfu/g | Bacteriological Analytical Manual, Online USFDA, Chapter # 04 (Sept. 2002), (MPN Multiple tube method) |
| Food | Mould & Yeast Count | 10 - 10 ⁵ cfu/g | Bacteriological Analytical Manual, Online USFDA, Chapter # 18 (April 2003), (Spread plate/pour plate method) |
| Food | <i>Salmonella</i> Detection | Detected/Not Detected | Bacteriological Analytical Manual, Online USFDA, Chapter # 05 (Jan. 2001), (Selective enrichment method) |
| Food | <i>Staphylococcus aureus</i> Enumeration | 7 - 10 ⁵ cfu/g | Bacteriological Analytical Manual, Online USFDA (Chapter 12), Jan 2001, (Spread plate method) |
| Food | <i>E.coli</i> in food | 3 - 1100 cfu/g | Bacteriological Analytical Manual, Online USFDA, Chapter # 04 (Sept. 2002), (MPN Multiple tube method) |
| Water | Heterotrophic Plate Count | 10 - 10 ⁵ cfu/mL | Standard Method for the examination of water & wastewater, 20 th Edition 1998, (Pour plate method) |
| Water | Total Coliforms Count | 3 - 1100 cfu/dL | ISO- 9308- 1 Part 1 Membrane filtration Method 2 nd Edition, 2000, (Membrane filtration /MPN Multiple tube method) |

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| | | | ISO- 9308- 2 Part 2 Multiple Tube Method 1 st Edition, 1990, Membrane filtration Method/ (MPN Multiple tube method) |
| Water | Faecal Coliforms Count | 3 – 1100 cfu/dL | ISO- 9308- 1 Part 1 Membrane filtration Method 2 nd Edition, 2000, (Membrane filtration Method/MPN Multiple tube method) ISO- 9308- 2 Part 2 Multiple Tube Method 1 st Edition, 1990, (MPN Multiple tube method) |
| Water | <i>E. coli</i> for Water | 3 – 1100 cfu/dL | ISO- 9308- 1 Part 1 Membrane filtration Method 2 nd Edition, 2000, (Membrane filtration/MPN Multiple tube method) ISO- 9308- 2 Part 2 Multiple Tube Method 1 st Edition, 1990, (MPN Multiple tube method) |

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Calibration Laboratory.

Accreditation Scope of **PCSIR LABORATORIES COMPLEX,
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ROAD, KARACHI-75280, PAKISTAN**

Permanent laboratory premises

| Field of measurement: | | | |
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| Measured quantity | Range | Calibration & Measurement Capability (CMC) expressed as an uncertainty (\pm) | Brief description of measurement and equipment used |
| Weighing* | 2.0 mg to 20.0 kg | 0.2 mg to 5 g | R-76-1 & 2 (OIML) Masses 1. ASTM Class 1 Masses 2. Working Class Masses |
| Mass/Weights | 10 mg to 20 kg | 0.01 mg to 10g | Technique: Direct Comparison 1. Set of masses 2. Analytical Balance Mettler Toledo AX 205 3. Mass Comparator Mettler Toledo XP 5003S 4. Mass Comparator Mettler Toledo KA 30-3/P 5. Top Loading Balance, AND GP-40K |
| Volume | 1 mL to 2 L | 0.012 ml to 12 ml | ASTM E-542- 01 Top Loading Balance (i) Ohaus Model AR 3130 and (ii) AND Model GX 6100 (iii) Analytical Balance ME 414 Capacity 410 g |
| Length | 1mm to 1000 mm | 0.01 mm to 2 mm | Direct Comparison Use of gauge blocks Grade 0, Length Comparator |
| Pressure | 100 – 5000 psi | 0.5 psi – 10 psi | Technique: Direct Comparison 1. Pressure comparator 2. Pressure Calibrator 3. Dead Weight Tester |

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| Field of measurement: | | | |
|-----------------------|------------------------------|--|--|
| Measured quantity | Range | Calibration & Measurement Capability (CMC) expressed as an uncertainty (\pm) | Brief description of measurement and equipment used |
| Temperature* | -20 °C to 1000 °C | 0.03 °C to 5.0 °C | ASTM E-77/84 Low Temperature Hydra Liquid Bath, 7380 Fluke Dry Block Calibrator Jupiter Make ISO Tech Model 650B Dry Block Calibrator Tecal, 650S Dry Block Calibrator Pegas, ISO Tech Three Zone Furnace ISO Tech 465 Saturn Thermocouple Calibrator 27152-6 Huminator Germany Multi Function Process Calibrator Model 725 Make Fluke Thermocouples S, R T &K type |
| DC Voltage | 1 mV to 1000 V | 0.001 mV to 3.0 V | Direct comparison Universal Calibration System, |
| AC Voltage | 1 mV to 700 V | 0.004 mV to 3.0 V | Keithley Model 2002 DMM |
| Resistance | 1 Ω to 300 M Ω | 0.2m Ω to 1.0 M Ω | Agilent 344401 |
| RPM | 50 rpm-40 000 rpm | 1 rpm to 10 rpm | Technique: Direct Comparison 1. Tachometer |
| Time | 30 min | Up to 2 seconds | Technique: Direct Comparison 1. Stop Watch |

- * on-site calibration

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