Accreditation No: LAB 002

Awarded to

PCSIR LABORATORIES COMPLEX, KARACHI, 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 3**0-01-2004** 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 **01-10-2021.**

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

11-09-2020
Date

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Director General

Testing Laboratory.

Accreditation Scope of PCSIR laboratories complex, Shahrah Dr. Saleem-uz-Zaman Road, off University Road, Karachi-75280, Pakistan

Permanent laboratory premises X

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 19th Edition (2012) 999.10
		6. Arsenic, 7. Selenium,	AOAC 19th Edition (2012) 986.15
		8. Mercury,	AOAC 19th Edition (2012) 971.21
		9. Aluminum, 10. Manganese, 11. Tin, 12. Chromium	AOAC 19th Edition (2012) 928.03 AOAC 19th Edition (2012) 921.02 AOAC 19th Edition (2012) 25.161 Lab Developed Method
		13. Pesticides	AOAC 19th 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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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
Drinking water	Environmental Testing	Electrical Conductance	Standard Method for the Examination of Water and Waste Water 20th Edition, American Public Health Association, 1998
Drinking water		Total Dissolved Solids	
Drinking water		Hardness	
Waste Water		pH	ISO-10523
Waste Water		COD	ISO-6060
Waste Water		BOD	ISO-5815
Metal testing in Food		Calcium	AOAC 19th Edition, 2012, Spectroscopy Atomic Absorption Spectrophotometer (Flame AAS)

Permanent laboratory premises [X]

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

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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
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

Permanent laboratory premises [X]

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

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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
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)

Permanent laboratory premises X

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 19th edition (2012)

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			AOAC official methods 32.1.03,925.10
Cereal foods	Food testing	Protein	Kjeldahl method AOAC 19th edition (2012) AOAC official methods 32.1.22, 920.87 Total protein in flour
Cereal foods	Food testing	Fat	Soxhlet method AOAC 19th edition (2012) AOAC official methods 32.1.01, F (4.5.01) 920.39C
Cereal foods	Food testing	Ash	Direct method AOAC 19th edition (2012) AOAC official methods 32.1.05, 923.03
Cereal foods	Food testing	Crude fiber	Weende Method AOAC 19th 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
Cereal foods	Food testing	Calorific value/energy value	By calculation MacCane & Widdowson's. The composition of Food by Paul & Southgate 4th 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 19th edition 2012
Cereal foods	Food testing	Vitamin C	Titrimetric method

			Association of Official Analytical Chemist (AOAC) 19th 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 spectroscopiy 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 19th edition 2012

Permanent laboratory premises X

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, 19th 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,	Milk and Milk Products Testing	Aflatoxin M_1	Official Methods of Analysis of AOAC International, 19th Edition (2012) Chapter 49, AOAC Official Method (Adapted) #

Cheese etc.			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, 19th Edition (2012) Chapter 49, AOAC Official Method (Adapted) # 973.37 (49.6.01),

Permanent laboratory premises X

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)
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	*Salmonella* Detection	Detected/Not Detected	Bacteriological Analytical Manual, Online USFDA, Chapter # 05 (Jan. 2001), (Selective enrichment method)

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Food	*Staphylococcus aureus* Enumeration	$7 – 10^5$ cfu/g	Bacteriological Analytical Manual, Online USFDA (Chapter 12), Jan 2001, (Spread plate method)
Food	*E.coli* 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, 20th Edition 1998, (Pour plate method)
Water	Total Coliforms Count	3 – 1100 cfu/dL	ISO- 9308- 1 Part 1 Membrane filtration Method 2nd Edition, 2000, (Membrane filtration /MPN Multiple tube method) ISO- 9308- 2 Part 2 Multiple Tube Method 1st 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 2nd Edition, 2000, (Membrane filtration Method/MPN Multiple tube method) ISO- 9308- 2 Part 2 Multiple Tube Method 1st Edition, 1990, (MPN Multiple tube method)
Water	*E. coli* for Water	3 – 1100 cfu/dL	ISO- 9308- 1 Part 1 Membrane filtration Method 2nd Edition, 2000, (Membrane filtration/MPN Multiple tube method) ISO- 9308- 2 Part 2 Multiple Tube Method 1st Edition, 1990, (MPN Multiple tube method)

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Calibration Laboratory.

Permanent laboratory premises X

Field of measurement:			
Measured quantity	**Range**	***Expanded Uncertainty (±)**	**Technique, Reference Standard, Equipment**
Weighing Scales ** Weighing Instruments Class I and Below Accuracy Classes	2.0 mg to 220 g	0.00020 g	Ultra Class Masses (Equivalent To E2 Class Masses), ASTM 1 Class Masses(Equivalent To F1 Class Masses) **OIML R76**
	2.0 mg to 610 g	0.0050 g	Ultra Class Masses (Equivalent To E2 Class Masses), ASTM 1 Class Masses(Equivalent To F1 Class Masses) **OIML R76**
	2.0 mg to 6.1 kg	0.0055 g	Ultra Class Masses (Equivalent To E2 Class Masses), ASTM 1 Class Masses(Equivalent To F1 Class Masses) **OIML R76**
	100 mg to 20 kg	0.25g	Ultra Class Masses (Equivalent To E2 Class Masses), ASTM 1 Class Masses(Equivalent To F1 Class Masses) **OIML R76**
Masses/Weights F1 Class and Below Accuracy Classes	10 mg to 200 g	0.010 mg-200.00 mg	Ultra Class Masses (Equivalent To E2 Class Masses), ASTM 1 Class Masses(Equivalent To F1 Class Masses) and Analytical Balance, Mettler Toledo AX 205 **OIML R111**
	500 g to 5 kg	1.00 mg-300.00 mg	Ultra Class Masses (Equivalent To E2 Class

			Masses), ASTM 1 Class Masses (Equivalent To F1 Class Masses) and Mass Comparator, Mettler Toledo XP 5003, **OIML R111**
	10 kg to 20 kg	2.00 mg-5000.00 mg	Ultra Class Masses (Equivalent To E2 Class Masses), ASTM 1 Class Masses(Equivalent To F1 Class Masses)Mass Comparator Mettler Toledo KA 30-3/P and Top Loading Balance, AND GP-40K **OIML R111**
Liquid in Glass Thermometer	-20 ºC to 200 ºC 300ºC to 400 ºC	0.20 ºC 0.30 ºC	Digital Thermometer DIGI Sense Temperature Controller, with (K Type Temperature Probe) and Dry Block Calibrators TECHNE KL/MSRC/Cal/T-01, KL/MSRC/Cal-M/T-01
Dial gauge Thermometer (*)	-20 ºC to 200 ºC 300ºC to 400 ºC	0.20 ºC 0.30 ºC	Digital Thermometer, DIGI Sense Temperature Controller with (K Type Temperature Probe) and Dry Block Calibrators TECHNE KL/MSRC/Cal/T-01, KL/MSRC/Cal-M/T-01
Oven (*)	50 ºC to 200 ºC	0.20 ºC	Digital Thermometer, DIGI Sense Temperature Controller with (K Type Temperature Probe) KL/MSRC/Cal-M/T-01
Dry Block Calibrator	50 ºC to 200 ºC 300ºC to 400 ºC 400ºC to 500 ºC	0.20 ºC 0.30 ºC 1.60 ºC	Digital Thermometer, DIGI Sense Temperature Controller with (K Type Temperature Probe) KL/MSRC/Cal-M/T-03
Digital Thermometer with T/K Type	-20 ºC to 200 ºC 300ºC to 400 ºC	0.20 ºC 0.30 ºC	Digital Thermometer, DIGI Sense Temperature Controller

thermocouple	400ºC to 700 ºC 800ºC to 1000 ºC	1.60 ºC 2.00 ºC	with (K Type Temperature Probe) and Dry Block Calibrators TECHNE KL/MSRC/Cal/T-01 KL/MSRC/Cal-M/T-03
Furnace (*)	50ºC to 200 ºC 300ºC to 400 ºC 400ºC to 700 ºC 800ºC to 1000 ºC	0.20 ºC 0.30 ºC 1.60 ºC 2.00 ºC	Digital Thermometer, DIGI Sense Temperature Controller with (K Type Temperature Probe) KL/MSRC/Cal-M/T-01
Temperature indicators (*) (Dryer/ Lander-o meter, hygrometer, refrigerator, bath)	0 ºC to 100 ºC	0.20 ºC	Digital Thermometer, DIGI Sense Temperature Controller with (K Type Temperature Probe) and Dry Block Calibrators TECHNE KL/MSRC/Cal/T-01
Time (Stop watch)	30 Minutes	0.52 s	Digital Stop watch(TF-014/19) **KL/MSRC/CAL-M/TF-01**
Length Micro meter (external),	0.00 mm to100 mm	0.16 µm – 10 µm	Gauge Block Set Grade 0 and 1 JISB 7502 micrometer
Calliper,	0.00 mm to300 mm	0.16 µm – 50 µm	Gauge Block Set Grade 0 and 1 JISB 7507 Calipers
Dial Indicator	0.00 mm to 25mm	0.001 mm	Dial Indicator Calibrator JISB 7503 Dial Indicator
measuring scale, measuring tape, templates, length interval marked on equipment)	0.00 mm to 1000 mm	0.02 – 0.30 mm	Length comparator 0.1 µm Digital Caliper 300 and 600mm R35-1 Measures of length for general use
Pressure Gauges	100 psi to 5000 psi (Hydraulic)	0.010 % - 0.030 % of reading	Dead weight Tester

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Transmitters and Recorders Pressure Gauges Transmitters and recorders	100 psi to 2000 psi (Pneumatic)	0.025 of full scale deflection 0.025 to 0.050%(of full scale deflection)	Pressure Calibrator DKD-R6-1, OIML R-110(Guide for the uncertainty analysis in Pressure when using Deadweight Tester 2170TN13 Pressure Calibrator DKD-R6-1
DC Voltage (Source & measurement)	1 mV-300 mV 1 V-10 V 10 V-300 V 300 V-1000 V	0.0010 mV 0.0010 mV 0.0010 mV 3.00 V	Universal Calibration System Model: 9100 Keithley Multimeter Model: 2002 DMM Agilent Multimeter Model: 344401 KL/MSRC/CAL-M/E-01 KL/MSRC/CAL-M/E-02 **Euramet cg-15**
AC Voltage (Source & measurement)	1 mV-300 mV 1 V-10 V 10 V-300 V 300 V-1000 V	0.040 mV 0.040 mV 0.040 mV 3.00 V	
Resistance (Source & measurement)	1 Ω-100 Ω 1 KΩ-100 kΩ 1 MΩ-10 MΩ	0.20 mΩ 0.20 mΩ 1.00 kΩ	
RPM (Source & measurement)	50 rpm-40000 rpm	1.00 rpm to 10.00 rpm	Tachometer Model:TM-5010 Signal Generator with Photo tachometer Calibrator Circuit Model: DD-S271 Fluke KL/MSRC/CAL-M/TF-02
Pipette	1 mL to 50 mL	0.20 mL	Analytical Balance Model: GX 6100
Burette	1 mL to 100 mL	0.20 mL	

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Measuring Cylinder	5 mL to 2000 mL	0.20 mL	Analytical balance Model: ME-414 ASTM E542
Measuring Brakers	25mL to 1000mL	0.20 mL	
Volumetric Flask	10 mL to 2000 mL	0.20 mL	
Phycnometer	10mL /25mL/50mL	0.20 mL	
Density Bottle	50mL/250mL	0.20 mL	

* **Expanded Uncertainty:**

Expanded Uncertainty is the measurement uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of k = 2. This measurement uncertainty is a value for which the laboratory has been accredited using the procedure that was the subject of assessment. In certificates issued under its accreditation scope an accredited laboratory is not permitted to quote an uncertainty that is smaller than the published uncertainty for respective ranges as given above.

** On Site Accreditation (as well)

11-09-2020
Date

Director