



ACCREDITATION DOCUMENT

F-06/02
IssueDate:18/08/2020
Rev. No:09
LAB 152

Accreditation No: LAB 152

Awarded to

**Soil and Water Testing Laboratory for Research,
Jhang Road, opposite Rescue 1122, AARI,
Faisalabad-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 **02-07-2018** by Pakistan National Accreditation Council.

The laboratory complies with the requirements of **ISO/IEC 17025:2017**.

The accreditation requires regular surveillance, and is valid until **01-07-2027**.

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.

PAKISTANNATIONALACCREDITATION COUNCIL

13-12-2024

Date

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Director General

Testing Laboratory.

Accreditation Scope of M/s Soil and Water Testing Laboratory for Research, Jhang Road, opposite Rescue 1122, AARI, Faisalabad-Pakistan

Permanent laboratory premises

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
Nitrogen Fertilizer	Chemical Testing	Ammonical Nitrogen (Single/Mixture/Solid/ Liquid)	Official methods of Analysis of AOAC International, 20th Edition, 2016, Method No.2.4.10 (AOAC Official Method 892.01), Fertilizer Chapter 2 Page 15. SWTLF/SOP/036
Nitrogen Fertilizer		Nitrate Nitrogen (Single/ Mixture/ Solid/ Liquid)	Official methods of Analysis of AOAC International, 20th Edition, 2016, Method No.2.4.10 (AOAC Official Method 892.01), Fertilizer Chapter 2 Page 15 SWTLF/SOP/036
Nitrogen Fertilizer		Total Nitrogen (Single/Mixture/Solid/ Liquid)	Official methods of Analysis of AOAC International, 20th Edition, 2016, Method No.2.4.05 (AOAC Official Method 978.02), Fertilizer Chapter 2 Page 15/ SWTLF/SOP/036
Nitrogen Fertilizer		Uric Nitrogen (Biurate) (Single/Mixture/Solid/ Liquid)	i.Official methods of Analysis of AOAC International, 20thEdition, 2016, Method No.2.4.05 (AOAC Official Method 978.02), Fertilizer Chapter 2 Page 15 ii.Pakistan Standard Specification for Urea, PS No. 217-1962. ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-19. SWTLF/SOP/036

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Phosphate Fertilizer	Chemical Testing	Citrate Soluble Phosphorus Estimation (Single/Mixture/Solid / Liquid)	<p>i.Pakistan standard for Single Superphosphate (2nd edition) PS: 67-1996. PSQCA. Karachi/ ii.Pakistan Standard Specification for DAP, PS No. 3517-2023. 2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-20. iii.Pakistan Standard Specification for Nitrophos, PS No. 1873-1987. ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-19.</p> <p style="text-align: center;">SWTLF/SOP/037</p>
		Total Phosphorus (Single/Mixture/Solid / Liquid)	<p>Pakistan standard for Bio Organophosphate fertilizer (2nd edition) PS: 5295/2017. PSQCA. Karachi</p> <p style="text-align: center;">SWTLF/SOP/037</p>
Potassium Fertilizer	Chemical Testing	Water Soluble Potassium (Single/ Mixture/ Solid / Liquid)	<p>i.Pakistan Standard Specification for potassium Sulphate PS:1501: 2022 (3rd Revision) ICS: 65.080 PSQCA, Karachi ii.Pakistan Standard Specification for Murate of Potash/MOP PS:1517:1981 (3rd Revision) ICS: 65.080 PSQCA, Karachi</p> <p style="text-align: center;">SWTLF/SOP/038</p>
		Total Potassium in Fertilizer (Single/ Mixture/ Solid / Liquid)	
Boron Fertilizer	Chemical Testing	Water Soluble Boron (Single/Mixture/Solid/ Liquid)	<p>Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No 2.6.04 (AOAC Official method 982.01), Fertilizer Chapter 2, Subchapter 6, Page 31</p> <p style="text-align: center;">SWTLF/SOP/041</p>
Humic Acid	Chemical Testing	Humic Acid (Solid/Liquid)	<p>Based on F J. Stevenson, J. Environ. Quality, 1972, Vol 1, page 333</p> <p style="text-align: center;">SWTLF/SOP/047</p>
Organic Matter	Chemical testing	Cation Exchange Capacity (Single/Mixture/Solid)	<p>Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No. 2.7.13 (AOAC Official Method 973.09), Fertilizers Chapter 2, Subchapter 7 Page 56.</p> <p style="text-align: center;">SWTLF/SOP/052</p>
Organic Matter Solid	Chemical testing	C:N ratio (Single/Mixture/Solid)	<p>i. AOAC International, 20th Edition, 2016, Method No 2.7.08 (AOAC Official method 967.05), Fertilizer Chapter2, Subchapter 7, Page 45 ii. AOAC International, 20th Edition, 2016, Method No 2.4.05 (AOAC Official method 978.02), Fertilizer Chapter2, Subchapter 4, Page 14</p>

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Organic Matter	Chemical testing	Organic Matter/ Organic Carbon (Single/Mixture/Solid)	AOAC International, 20th Edition, 2016, Method No 2.7.08 (AOAC Official method 967.05), Fertilizer Chapter 2, Subchapter 7, Page 45 SWTLF/SOP/045
Micronutrient (Single or Mixed element, Solid/Liquid, Inorganic/Organic, Chelated)	Chemical testing	Quantitative analysis of Water-Soluble Zinc sulphate Fertilizer (Single/Mixture/Solid/ Liquid)	i. Official Method of Analysis of AOAC International, 20 th Edition, 2016 Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizer Chapter 2, Subchapter 6, Page 29-30/ ii. Official Method of Analysis of AOAC International, 20 th Edition, 2016 Method No. 2.6.31 (AOAC Official Method 975.02), Fertilizer Chapter 2, Subchapter 6, Page 40 SWTLF/SOP/039
		Acid Soluble Zinc (Single/Mixture/Solid/ Liquid)	
Amino Acid	Chemical testing	Total Amino Acid (Protein Base) (Solid / Liquid)	Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No 2.4.10 (AOAC Official method 892.01), Fertilizer Chapter 2, Page 15 SWTLF/SOP/046
Total Sulphur	Physical and Chemical Testing	Total Sulphur (Single/Mixture/Solid/ Liquid)	i. Pakistan Standard Specification for potassium Sulphate PS:1501: 2022 (3rd Revision) ICS: 65.080 PSQCA, Karachi ii. Official Method of Analysis of AOAC International, 20th Edition, 2016 AOAC Official Method 2.6.28 Method No. 980.02, Page 39 iii. Pakistan Standard Specification for Sulphur PS:5449:2020: PSQCA, Karachi SWTLF/SOP/048

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Micronutrient (Single or Mixed element, Solid/Liquid, Inorganic/Organic, Chelated)	Chemical testing	Quantitative Analysis of Acid Soluble fraction estimation of Zn, Fe, Cu and Mn from Multi-micro containing Fertilizer (Single/Mixture/Solid/ Liquid)	Official Method of Analysis of AOAC International, 20th Edition, 2016 Method No. 2.6.01-C (a) (AOAC Official Method 965.09), Fertilizer, Chapter 2, Subchapter 6, Page 29-30/
		Quantitative analysis of Water Soluble Fe estimation from Inorganic Multi-micro fertilizers (Single/Mixture/Solid/ Liquid)	Official Method of Analysis of AOAC International, 20th Edition, 2016 Method No. 2.6.15 (AOAC Official Method 980.01), Fertilizer Chapter 2, Subchapter 6, page 35 SWTLF/SOP/043
		Quantitative analysis of Water Soluble Cu estimation from Inorganic Multi-micro fertilizers (Single/Mixture/Solid/ Liquid)	Official Method of Analysis of AOAC International, 20th Edition, 2016 Method No. 2.6.11 (AOAC Official Method 975.01), Fertilizer Chapter 2, Subchapter 6, page 33 SWTLF/SOP/042
		Quantitative analysis of Water Soluble Mn, estimation from Inorganic Multi-micro fertilizers (Single/Mixture/Solid/ Liquid)	Official Method of Analysis of AOAC International, 20th Edition, 2016 Method No. 2.6.25 (AOAC Official Method 972.03), Fertilizer Chapter 2, Subchapter 6, page 38 SWTLF/SOP/044
		Quantitative analysis of Chelated Fraction estimation of Zn, Fe, Cu and Mn from multi-micro chelated fertilizers (Single/Mixture/Solid/ Liquid)	Official Method of Analysis of AOAC International, 20 th Edition, 2016 Method No.2.6.01 (AOAC Official Method 965.09), Fertilizer Chapter 2, Subchapter 6, Page 29-30/SOPs SWTLF/SOP/040
Micronutrient (Single or Mixed element, Solid/Liquid, Inorganic/Organic, Chelated)	Chemical testing	Quantitative Analysis of Charred/ashed fraction/Bio-active estimation of Zn, Fe, Cu and Mn from Organic Multi-micro Fertilizers (Single/ Mixture/ Solid / Liquid)	Official Method of Analysis of AOAC International, 20thEdition, 2016 Method No.2.6.01 (AOAC Official Method 965.09), Fertilizer Chapter 2, Subchapter 6, Page 29-30/SOPs SWTLF/SOP/040

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Magnesium Fertilizer	Chemical testing	Acid Soluble Magnesium (Single/ Mixture/ Solid / Liquid)	Official Method of Analysis of AOAC International, 20th Edition, 2016 Method No.2.6.19. (AOAC Official Method 937.01), Fertilizer Chapter 2, Subchapter 6, Page 36 SWTLF/SOP/050
		Water Soluble Magnesium (Single/ Mixture/ Solid / Liquid)	Official Method of Analysis of AOAC International, 20th Edition, 2016 Method No.2.6.21. (AOAC Official Method 937.02), Fertilizer Chapter 2, Subchapter 6, Page 37 SWTLF/SOP/050
Chloride	Chemical testing	Chlorides (Single/Mixture/Solid/ Liquid)	i. Official Method of Analysis of AOAC International, 20th Edition, 2016 AOAC Official Method 2.6.09 Method No. 928.02, page 33 ii. Pakistan Standard Specification for SOP Fertilizer Grade PS:1501- 2022 ® ICS:65.080 Pakistan Standards and Quality Control Authority, Karachi iii. Pakistan Standard Specification for Murate of Potash/MOP PS:1517:1981 (3rd Revision) ICS: 65.080 PSQCA, Karachi SWTLF/SOP/049
pH	Chemical Testing	pH in Fertilizer	i. Official Method of Analysis of AOAC International, 20th Edition, 2016 AOAC Official Method 2.7.05 Method No. 973.04, chapter 2, page 53 ii. Pakistan Standard Specification for Urea Fertilizer PS No. 217- 1962. Chemical Division SDC/PSQCA Page No. 1-19. SWTLF/SOP/055

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Sized Fertilizer	Physical Testing	Particle size of i. BOP ii. SSP, iii. K ₂ SO ₄ , iv. MAP v. TSP vi. DAP vii. Urea (Single/ Mixed/ Solid/)	i. Pakistan Standard Specification for BOP Fertilizer (2nd Revision). PS No. 5295/2017(2nd Revision) Chemical Division SDC/PSQCA Page No. 1-12. ii. Pakistan Standard Specification for SSP (2nd Revision) PS No. 67-1996 (2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-16. iii. Pakistan Standard Specification for Potassium Sulphate, Fertilizer Grade (2nd Revision) PS No. 1501-2022 (3rd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-11. iv. Pakistan Standard Specification for Monoammonium Phosphate (1st Revision) PS No. 4991-2017 (1st Revision). Chemical Division SDC/PSQCA Page No. 1-16. v. Pakistan Standard Specification for Triple Super Phosphate (2nd Revision) PS No. 216-2009 (2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-16. vi. Pakistan Standard Specification for DAP, PS No. 3517-2023. 2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-20. vii. Pakistan Standard Specification for Urea, PS No. 217-2023. 5th Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-19. viii. Official Method of Analysis of AOAC International, 20th Edition, 2016 AOAC Official Method 2.7.04 Method No. 973.04, Chapter 2, page 53
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<p>Moisten Fertilizer</p>	<p>Chemical Testing</p>	<p>Moisture in</p> <ul style="list-style-type: none"> i. BOP ii. SSP iii. Ammonium Sulphate iv. K₂SO₄ v. MAP vi. TSP vii. KNO₃ viii. KCl (MOP) ix. DAP x. Urea xi. Nitrophos xii. CAN xiii. Urea Phosphate <p>(Single/Mixed/Solid)</p>	<ul style="list-style-type: none"> i. Pakistan Standard Specification for BOP Fertilizer (2nd Revision). PS No. 5295/2017(2nd Revision) Chemical Division SDC/PSQCA Page No. 1-12. ii. Pakistan Standard Specification for SSP (2nd Revision) PS No. 67-1996 (2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-16. iii. Pakistan Standard Specification for Ammonium Sulphate, Fertilizer Grade (2nd Revision) PS No. 36-2022 (3rd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-11. iv. Pakistan Standard Specification for Potassium Sulphate, Fertilizer Grade (2nd Revision) PS No. 1501-2011 (R) (2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-11. v. Pakistan Standard Specification for Monoammonium Phosphate (1st Revision) PS No. 4991-2017 (1st Revision). Chemical Division SDC/PSQCA Page No. 1-16. vi. Pakistan Standard Specification for Triple Super Phosphate (2nd Revision) PS No. 216-2009 (2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-16. vii. Pakistan Standard Specification for Potassium Nitrate PS No. 5341-2016, ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-7. ix. Pakistan Standard Specification for Potassium Chloride (Murate of Potash) PS No. 1517-1981. Chemical Division SDC/PSQCA Page No. 1-11. x. Pakistan Standard Specification for DAP, PS No. 3517-2023. 2nd Revision) ICS:
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			<p>65.080. Chemical Division SDC/PSQCA Page No. 1-20.</p> <p>xi. Pakistan Standard Specification for Urea, PS No. 217-2023. 5th Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-19.</p> <p>xii. Pakistan Standard Specification for Nitrophos, PS No. 1873-1987. ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-19.</p> <p>xiii. Pakistan Standard Specification for CAN, PS No. 229-1980. ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-20.</p> <p>xiv. Pakistan Standard Specification for Urea Phosphate, PS No. 5611- 2023. ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-7.</p> <p>xv. Official Method of Analysis of AOAC International, 20th Edition, 2016 AOAC Official Method 2.7.03 Method No. 967.03, Chapter 2, page 53</p>
Shaped Fertilizer	Physical Testing	<p>Physical Condition of</p> <ol style="list-style-type: none"> i. BOP ii. K_2SO_4 iii. MAP iv. TSP v. KNO_3 vi. KCl vii. $ZnSO_4 \cdot 2H_2O$ viii. DAP ix. Urea x. CAN <p>(Single/ Mixed/ Solid)</p>	<ol style="list-style-type: none"> i. Pakistan Standard Specification for BOP Fertilizer (2nd Revision). PS No. 5295/2017(2nd Revision) Chemical Division SDC/PSQCA Page No. 1-12. ii. Pakistan Standard Specification for Potassium Sulphate, Fertilizer Grade (2nd Revision) PS No. 1501-2022 (3rd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-11. iii. Pakistan Standard Specification for Monoammonium Phosphate (1st Revision) PS No. 4991-2017 (1st Revision). Chemical Division SDC/PSQCA Page No. 1-16. iv. Pakistan Standard Specification for Triple Super Phosphate (2nd Revision) PS No. 216-2009 (2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-16.

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			<p>v. Pakistan Standard Specification for Potassium Nitrate PS No. 5341-2016, ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-7.</p> <p>vi. Pakistan Standard Specification for Potassium Chloride (Murate of Potash) PS No. 1517-1981. Chemical Division SDC/PSQCA Page No. 1-11.</p> <p>vii. Pakistan Standard Specification for Zinc Sulphate Monohydrate (ZnSO₄.2H₂O) Fertilizer Grade PS No. 4750-2001. Chemical Division SDC/PSQCA Page No. 1-5.</p> <p>viii. Pakistan Standard Specification for DAP, PS No. 3517-2023. 2nd Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-20.</p> <p>ix. Pakistan Standard Specification for Urea, PS No. 217-2023. 5th Revision) ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-19.</p> <p>x. Pakistan Standard Specification for CAN, PS No. 229-1980. ICS: 65.080. Chemical Division SDC/PSQCA Page No. 1-20.</p>
Sodium Determination from fertilizers	Chemical Testing	Quantitative analysis of Total Soluble and Acid soluble Sodium from Chloride containing fertilizers (Liquid/Solid)	<p>i. Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No. 2.6.01-C(a). (AOAC Official Method 965.09), Fertilizers Chapter 2, Sub Chapter-6. Page 29-30.</p> <p>ii. Pakistan Standard Specification for SOP Fertilizer Grade PS:1501- 2022 @ ICS:65.080 Pakistan Standards and Quality Control Authority, Karachi</p> <p>iii. Pakistan Standard Specification for Murate of Potash/MOP PS:1517:1981 (3rd Revision) ICS: 65.080 PSQCA, Karachi</p> <p style="text-align: center;">SWTLF/SOP/055</p>
Calcium and Magnesium fertilizers	Chemical Testing	Quantitative analysis of Water Soluble calcium from gypsum fertilizers (inorganic/organic, single/mixed, liquid/solid)	USDA Handbook 60, US Government Printing Office, Washington, D C. Technique: Titration

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		Quantitative analysis of Acid Soluble Ca Mg from Calcium and Magnesium containing fertilizers	Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No. 2.6.01-C(a). (AOAC Official Method 965.09), Fertilizers, Chapter 2, Sub Chapter-6. Page 29-30
Liquid Nutrient Supplement	Physical and Chemical Testing	i. Category single nutrient (%) ii. Category multinutrient (%) ii. Category chelated nutrients (%) (Single/Mixed /Liquid)	Pakistan Standard Specification for Liquid Nutrient Supplement PS No. 5469-2020. Chemical Division SDC/PSQCA Page No. 1- 38.

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