

	<b>ACCREDITATION DOCUMENT</b>	<b>F-06/02</b> <b>Issue Date: 18/08/20</b> <b>Rev. No: 09</b> <b>LAB 143</b>
---	-------------------------------	---

## **Accreditation No: LAB 143**

**Awarded to**

### **Soil and Water Testing Laboratory for Research, Suelmanpura, Sargodha, 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 **29-06-2018** 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 **28-06-2024**.

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**

**23-12-2021**

**Date**

**-Sd-**

**Director General**

	<b>ACCREDITATION DOCUMENT</b>	<b>F-06/02</b> <b>Issue Date: 18/08/20</b> <b>Rev. No: 09</b> <b>LAB 143</b>
---	-------------------------------	---

## Testing Laboratory.

### Accreditation Scope of Soil and Water Testing Laboratory for Research, Suelmanpura, Sargodha, 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
1. Phosphate fertilizer (Single or Mixed element, solid/liquid, Organic/Inorganic Fertilizer)	Chemical /Fertilizer Testing	Quantitative analysis of Citrate soluble phosphorus from phosphorus containing inorganic fertilizers	In-house verified method (SWTL-SGD /SOP-P/L3/002) based on Pakistan standard for Single Super Phosphate (2nd edition) PS: 67-1996. PSQCA. Karachi. <i>Technique: Titration</i>
		Quantitative analysis of Total phosphorus from Bio-Organic fertilizers	In-house verified method (SWTL-SGD/SOP-TP/L3/020) based on Pakistan standard for BOP.PS:5295/2017 (2ndRev.), PSQCA. Karachi. <i>Technique: Titration Method</i>
2. Potassium Fertilizer (Single or Mixed element, solid/liquid Fertilizer)		Quantitative analysis of Water soluble from potassium containing fertilizers	In-house validated method (SWTL-SGD /SOP-K/L3/003) based on Testing Methods for Fertilizers (2016). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. Section: 4.3.3.a <i>Technique: flame photometry</i>
3. Nitrogen fertilizers (Single or Mixed element, solid/liquid, inorganic/organic)		Quantitative analysis of Inorganic/ organic nitrogen (ammonical, nitrate and uric) from Nitrogen containing fertilizers	In-house verified method (SWTL-SGD/SOP-N/L3/001) based on i. Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, Waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi. Pp 161-162 ii. Official Methods of Analysis of AOAC International, 20th Edition, 2016. Method No. 2.4.10, 2.4.05 (AOAC Official Methods 978.02, 892.01), Fertilizers Chapter 2 Page 14-17. <i>Technique: Kjeldahl Nitrogen distillation</i>

23-12-2021

Date

-Sd-

Director



## ACCREDITATION DOCUMENT

**F-06/02**  
**Issue Date: 18/08/20**  
**Rev. No: 09**  
**LAB 143**

<p>4. Micronutrient (Single or Mixed element, solid/liquid, Inorganic/ Organic, Chelated)</p>	<p>Quantitative analysis of Water soluble zinc from Zn- Sulphate Fertilizers</p>	<p>In-house verified method (SWTL-SGD/SOP- Zn/L3/004) based Official Methods of Analysis of AOAC International, 20th Edition, 2016. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30. <i>Technique: Atomic Absorption Spectrophotometric Method</i></p>
	<p>Quantitative analysis of Water soluble boron from Boron containing Fertilizers</p>	<p>In-house verified method (SWTL-SGD/SOP- B/L3/005) based on Official Methods of Analysis of AOAC International, 20th Edition, 2016. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 31-32. <i>Technique: Spectrophotometric Method</i></p>
	<p>Quantitative analysis of Acid Soluble fraction estimation of Zn, Fe, Cu and Mn, from Multi-micro containing Fertilizers</p>	<p>In-house verified method (SWTL-SGD/SOP- AS/L3/010) based on 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. <i>Technique: Atomic Absorption Spectrophotometric Method</i></p>
	<p>Quantitative analysis of Charred / ashed fraction estimation of Zn, Fe, Cu and Mn from Organic Multi- micro Fertilizers</p>	<p>In-house verified method ( SWTL-SGD/SOP- CF/L3/009) based on Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No: 2.6.01-C(b) (AOAC Official Method 965.09), Fertilizers Chapter 2 Sub Chapter-6. Page 29-30. <i>Technique: Atomic Absorption Spectrophotometric Method</i></p>
	<p>Quantitative analysis of Water Soluble Zn, Cu, Mn and Fe estimation from Inorganic Multi-micro fertilizers</p>	<p>In-house verified method ( SWTL-SGD/SOP- WS/L3/011) based on Official Methods of Analysis of AOAC International, 20<sup>th</sup> Edition, 2016, Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Page 29- 30 and Method 2.6.25 page 38 (Official AOAC 972.03) <i>Technique: Atomic Absorption Spectrophotometric Method</i></p>
	<p>Quantitative analysis of Chelated Fraction estimation of Zn, Fe, Cu and Mn from multi-micro Chelated Fertilizers</p>	<p>In-house validated method ( SWTL-SGD/SOP- chl-Micro/L3/021) based Journal of Chemical Society of Pakistan, 35, 2 (2013). 1.M. S. A. Khan, M. A. Qazi, S.M. Mian, M. Akram, Comparison of Three Analytical Methods for Separation of Mineral and Chelated Fraction from an Adulterated Zn-EDTA Fertilizer, Journal of Chemical Society of Pakistan, 35, 2 (2013). <i>Technique: Atomic Absorption Spectrophotometric Method</i></p>
	<p>Quantitative analysis of Chelated Fraction estimation of Zn, Fe, Cu and Mn from multi-micro Chelated Fertilizers</p>	<p>In-house validated method ( SWTL-SGD/SOP- chl-Micro/L3/021) based Journal of Chemical Society of Pakistan, 35, 2 (2013). 1.M. S. A. Khan, M. A. Qazi, S.M. Mian, M. Akram, Comparison of Three Analytical Methods for Separation of Mineral and Chelated Fraction from an Adulterated Zn-EDTA Fertilizer, Journal of Chemical Society of Pakistan, 35, 2 (2013). <i>Technique: Atomic Absorption Spectrophotometric Method</i></p>

23-12-2021

Date

-Sd-

Director



## ACCREDITATION DOCUMENT

**F-06/02**  
**Issue Date: 18/08/20**  
**Rev. No: 09**  
**LAB 143**

5. Organic Matter (Solid/Liquid Fertilizer)	Quantitative analysis of Organic matter contents from OM containing fertilizers	In-house verified method (SWTL-SGD/SOP-O.M/L3/008) based on Official Methods of Analysis of AOAC International, 20th Edition, 2016, Method No. 2.7.08 (AOAC Official Method 967.05), Fertilizers Chapter 2, Subchapter 7 Page 54. <i>Technique: Loss on ignition (oven)</i>
6. CEC/Organic Matter (Solid/Liquid Fertilizer)	Quantitative analysis of Cation exchange capacity of OM/compost	In-house verified method (SWTL-SGD/SOP-CEC/L3/023) based on 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. <i>Technique: Titration</i>
7. Humic acid Fertilizers (Single or Mixed, Solid/Liquid Fertilizer)	Quantitative analysis of Humic acid contents from Humic Acid Fertilizers	In-house verified method (SWTL-SGD/SOP-HA/L3/007) based on ISO:19822:2018 method, <a href="https://www.iso.org/standard/66271.html">https://www.iso.org/standard/66271.html</a> . <i>Technique: Gravitational (Oven)</i>
8. Calcium and Magnesium fertilizers (inorganic/organic, single /mixed, liquid/solid)	Quantitative analysis of Water Soluble calcium from gypsum fertilizers	In-house verified method (SWTL-SGD/SOP-G/L3/015) based on USDA Handbook 60, US Government Printing Office, Washington, D C. <i>Technique: Titration</i>
	Quantitative analysis of Water Soluble Calcium from Calcium containing fertilizers	In-house verified method (SWTL-SGD/SOP-Ca/L3/015) based on Testing Methods for Fertilizers (2016). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. 4.5.3.a <i>Technique: Atomic Absorption Spectrophotometric Method</i>
	Quantitative analysis of Acid Soluble Ca Mg from Calcium and Magnesium containing fertilizers	In-house verified method (SWTL-SGD/SOP-AS_Ca_Mg/L3/019) based on 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 <i>Technique: Atomic Absorption Spectrophotometric Method</i>
	Quantitative analysis of water Soluble Mg from Mg containing fertilizers	In-house verified method (SWTL-SGD/SOP-WS-Mg/L3/023) based on Testing Methods for Fertilizers (2016). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center Japan. Section 4.6.3.a. <i>Technique: Atomic Absorption Spectrophotometric Method</i>
9. Total Sulphur Determination from fertilizers (Liquid, Solid)	Quantitative analysis of Total soluble Sulphur from S-containing fertilizers	In-house verified method (SWTL-SGD/SOP-S/L3/018) based on Official Methods of Analysis of AOAC, 20th Edition, 2016. Method No. 2.6.8 (AOAC Official Method 980.02), Fertilizers Chapter 2, , Page 39

23-12-2021

Date

-Sd-

Director



## ACCREDITATION DOCUMENT

**F-06/02**  
**Issue Date: 18/08/20**  
**Rev. No: 09**  
**LAB 143**

10. Chloride Determination from fertilizers (Liquid, Solid)		Quantitative analysis of Total Soluble Chloride from Chloride containing fertilizers	In-house verified method (SWTL-SGD/SOP-Cl/L3/017 ) based on Pakistan standards specification for Potassium chloride (muriate of potash) fertilizer grade PS: 1517-1981
11. Sodium Determination from fertilizers (Liquid, Solid)		Quantitative analysis of Total Soluble and Acid Sodium from Chloride containing fertilizers	In-house verified method (SWTL-SGD/SOP-AS/L3/010) based on 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. <i>Technique: FlamePhotometer Method</i>

23-12-2021

Date

-Sd-

Director