

	ACCREDITATION DOCUMENT	F-06/02 Issue Date: 18/08/2020 Rev. No: 09 LAB 000
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Accreditation No: LAB 154

Awarded to

**Soil & Water Testing Lab, For Research,
Government Agricultural Farm, Old Shujabad Road,
Multan, 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 17025:2017**.

The accreditation requires regular surveillance, and is valid until **01-07-2024**.

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

16-05-2023

Date

SD

Director General



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Testing Laboratory.

Accreditation Scope of Soil & Water Testing Lab, For Research, Government Agricultural Farm, Old Shujabad Road, Multan, 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. Nitrogen fertilizers Liquide	Chemical Testing of Fertilizer	Total -N Ammonical- N Nitrate -N Uric-N	<p>1. Testing method:</p> <p>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</p> <p>ii. Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16.</p> <p>2. Instrument required</p> <p>i. Nitrogen Distillation Unit</p> <p>ii. Digital Burette.</p> <p>iii. Magnetic Stirrer</p> <p>iv. Digestion Block</p>
2. Nitrogen fertilizers Solid	Chemical Testing of Fertilizer	Total Nitrogen Ammonical N Nitrate N	<p>1. Testing method:</p> <p>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</p> <p>ii. Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16.</p> <p>2. Instrument required</p> <p>i. Nitrogen Distillation Unit</p> <p>ii. Digital Burette.</p> <p>iii. Magnetic Stirrer</p> <p>iv. Digestion Block</p>

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3. Nitrogen fertilizers Liquide mix	Chemical Testing for Fertilizer	Total Nitrogen Ammonical N Nitrate N	<p>1. Testing method: 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, 18th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16. 2. Instrument required i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block</p>
4. Nitrogen fertilizers Soild mix	Chemical Testing for Fertilizer	Total Nitrogen Ammonical N Nitrate N	<p>1. Testing method: 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, 18th Edition, 2005, Current through Revision, 4, 2011. Method No. 2.4.10 (AOAC Official Method 892.01), Fertilizers Chapter 2 Page 16. 2. Instrument required i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block</p>
5. Phosphate fertilizer in solid	Chemical Testing for Fertilizer	Citrate soluble phosphorus Total Phosphorus	<p>. Pakistan standard for single super phosphate (2nd edition) BS.-1996pstqca Karachi 2. Instruments required i) Digital burette, ii) shaker iii) Water bath</p>
6. Phosphate fertilizer in solid mix	Chemical Testing for Fertilizer	Citrate soluble phosphorus Total Phosphorus	<p>1. Pakistan standard for single super phosphate (2nd edition) BS.-1996pstqca Karachi 2. Instruments required i) Digital burette, ii) shaker iii) Water bath</p>

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7. Phosphate fertilizer in liquide	Chemical Testing for Fertilizer	Citrate soluble phosphorus Total Phosphorus	1. Pakistan standard for single super phosphate (2 nd edition) BS..- 1996pstqca Karachi 2. Instruments required i) Digital burette, ii) shaker iii) Water bath
8. Phosphate fertilizer in liquid mix	Chemical Testing for Fertilizer	Citrate soluble phosphorus Total Phosphorus	1. Pakistan standard for single super phosphate (2 nd edition) BS..- 1996pstqca Karachi 2. Instruments required i) Digital burette, ii) shaker iii) Water bath
9. Potassium Fertilizer solid	Chemical Testing for Fertilizer	Water soluble potassium	1. Testing method: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. 2. Instrument required Flame photometer
10. Potassium Fertilizer solid mix	Chemical Testing for Fertilizer	Water soluble potassium	1. Testing method: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. 2. Instrument required Flame photometer
11. Potassium Fertilizer liquide	Chemical Testing for Fertilizer	Water soluble potassium	1. Testing method: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. 2. Instrument required Flame photometer
12. Potassium Fertilizer liquid mix	Chemical Testing for Fertilizer	Water soluble potassium	1. Testing method: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. 2. Instrument required Flame photometer
13. Boron liquide	Chemical Testing for Fertilizer	Water soluble boron Acid soluble boron	1. Testing method: Official Methods of Analysis of AOAC International, 18 th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 28 2. Instrument required

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			<ul style="list-style-type: none"> i. Spectrophotometer ii. Hot plate
14. Boron liquid mix fertilizer	Chemical Testing for Fertilizer	Water soluble boron Acid soluble boron	<p>3. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 28</p> <p>4. Instrument required</p> <ul style="list-style-type: none"> iii. Spectrophotometer iv. Hot plate
15. Boron solid mix fertilizer	Chemical Testing for Fertilizer	Water soluble Acid soluble	<p>5. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2, Subchapter 6, Page 28</p> <p>6. Instrument required</p> <ul style="list-style-type: none"> v. Spectrophotometer vi. Hot plate
16. Zinc liquide	Chemical Testing for Fertilizer	Water soluble Acid soluble	<p>1. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30</p> <p>2. Instrument required</p> <ul style="list-style-type: none"> i. Atomic Absorption Spectrophotometer ii. Hot plate
17. Zinc Solid	Chemical Testing for Fertilizer	Water soluble Acid soluble	<p>3. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30</p> <p>4. Instrument required</p> <ul style="list-style-type: none"> i. Atomic Absorption Spectrophotometer ii. Hot plate

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18. Zinc liquid mix fertilizer	Chemical Testing for Fertilizer	Water soluble Acid soluble	<p>5. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30</p> <p>6. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate</p>
19. Zinc Solid mix fertilizer	Chemical Testing for Fertilizer	Water soluble Acid soluble	<p>7. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30</p> <p>8. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate</p>
20. Iron fertilizer Solid	Chemical Testing for Fertilizer	Water soluble Iron Acid Soluble	<p>9. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30</p> <p>10. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate</p>
21. Iron fertilizer Liquid	Chemical Testing for Fertilizer	Water soluble Iron Acid Soluble	-do-
22. Iron fertilizer Solid Mixed	Chemical Testing for Fertilizer	Acid soluble iron Water Soluble	-do-

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23. Iron fertilizer Liquid Mixed	Chemical Testing for Fertilizer	Acid soluble iron Water Soluble	-do-
24. Copper fertilizer Solid	Chemical Testing for Fertilizer	Water soluble Copper Acid Soluble	-do-
25. Copper fertilizer Liquid	Chemical Testing for Fertilizer	Water soluble Copper Acid Soluble	-do-
26. Copper Solid Mixed	Chemical Testing for Fertilizer	Acid soluble copper Water Soluble	-do-
27. Copper Liquid Mixed	Chemical Testing for Fertilizer	Acid soluble copper Water Soluble	-do-
28. Manganese fertilizer Solid	Chemical Testing for Fertilizer	Water soluble Manganese Acid Soluble	-do-
29. Manganese fertilizer Liquid	Chemical Testing for Fertilizer	Water soluble Manganese Acid Soluble	-do-
30. Manganese Solid Mixed	Chemical Testing for Fertilizer	Acid soluble Manganese Water Soluble	-do-
31. Manganese Liquid	Chemical Testing for Fertilizer	Acid soluble Manganese Water Soluble	-do-

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32. Waste Compost	Chemical Testing for Fertilizer	Organic Matter	<p>1. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.7.08 (AOAC Official Method 967.05), Fertilizers Chapter 2, Subchapter 6 Page 54</p> <p>2. Instrument required</p> <p>i. Muffle furnace ii. Oven</p>
33. Waste Compost	Chemical Testing for Fertilizer	CEC	<p>3. Testing method: Official Methods of Analysis of AOAC International, 18th Edition, 2005, Current Through Revision, 4, 2011. Method No. 2.7.13 (AOAC Official Method 973.09), Fertilizers Chapter 2, Subchapter 6 Page 56</p> <p>4. Instrument required</p> <p>iii. Muffle furnace iv. Oven</p>
34. Humic acid Liquid	Chemical Testing for Fertilizer	Humic acid	<p>1. Testing method Gravimetric method of humic acid analysis</p> <p>2. Instrument required</p> <p>i. Oven</p>
35. Humic acid solid	Chemical Testing for Fertilizer	Humic acid	<p>1. Testing method Gravimetric method of humic acid analysis</p> <p>2. Instrument required</p> <p>i. Oven</p>
36. Amino acid Solid	Chemical Testing for Fertilizer	Total amino-acid (protein base)	<p>1. Method of analysis</p> <p>i. FAO nutritional studies no 24(1970). ii. Pellet, L P and Young (1980). iii. Theymoli Balasubramanian, Sadasivam (1987). iv. www.eplantsceinece.com</p> <p>.Instrument required</p> <p>i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block.</p>
37. Amino acid liquid	Chemical Testing for Fertilizer	Total amino-acid (protein base)	<p>2. Method of analysis</p> <p>v. FAO nutritional studies no 24(1970). vi. Pellet, L P and Young (1980). vii. Theymoli Balasubramanian, Sadasivam (1987).</p>

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			viii. www.eplantsceinece.com .Instrument required i. Nitrogen Distillation Unit ii. Digital Burette. iii. Magnetic Stirrer iv. Digestion Block
38. Chelated Zinc liquid	Chemical Testing for Fertilizer	Chelated zinc	1. Testing method: Vogel's Text Book Of Quantitative Chemical Analysis, 6 th Edition, J Mendham, R C Denney, J D Barnes, M J K Thomas 2. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate
39. Chelated Zinc Solid	Chemical Testing for Fertilizer	-do-	-do-
40. Chelated Zinc, Copper, Iron Manganese in mixed fertilizer solid	Chemical Testing for Fertilizer	-do-	-do-
41. Chelated Zinc mixed fertilizer liquid	Chemical Testing for Fertilizer	-do-	-do-
42. Sulphur fertilizer solid, solid mixed, liquid and liquid mixed	Chemical Testing for Fertilizer	Water Soluble Sulphur	1 . Diagnosis and Improvement of Saline and Alkali Soils, USDA, Handbook Book No. 60 pp 146 3. Official Method of Analysis of AOAC International, 20th Edition, 2016 AOAC Official Method 980.02 Method No. 2.6.28 Page 39 4. Pakistan Standard Specification for SOP Fertilizer Grade PS:1501-2011 @ ICS:65.080 Pakistan Standards and Quality Control

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			Authority, Karachi SWTLM/SOP-S/L3/013
43. Bio Active Zn	Chemical Testing for Fertilizer	Acid Soluble	11. Testing method:PS:5336-2021(2nd Rev)ICS:65.080 12. Instrument required i. Atomic Absorption Spectrophotometer ii. Hot plate

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