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Accreditation No: LAB 141

Awarded to

**Leader AG Quality Assurance Laboratory,
47-B, Industrial Estate, Phase-I,
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 **29-06-2018** by Pakistan National Accreditation Council.

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

The accreditation requires regular surveillance, and is valid until **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

21-02-2024

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Director General

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Testing Laboratory.

Accreditation Scope of Leader AG Quality Assurance, Laboratory, 47-B Industrial, Multan-Pakistan.

Permanent laboratory premises

Materials/Product s 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
Pesticide Formulated/ finished Products FOR Emusifiable Concentrate(EC) (Chlorpyrifos, Pyriproxyfen, Emamectin benzoate, Pendimethalin, Lufenuron, Bifenthrin, Metolachlor Triazophos Deltamethrin Butachlor Lambda Cyhalothrin)	Physical testing of pesticides	Qualitative test for Emulsion Stability\ (EC)	SOP No.024 (Based on CIPAC Vol. F, 2007, Method No. 36 Page No. 108-110) Miscellaneous/ Measuring cylinder

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<p>Pesticide formulated/ finished products for Density of Emulsifiable concentrate (EC) (Chlorpyrifos, Pyriproxyfen, Emamectin benzoate, Pendimethalin, Lufenuron, Bifenthrin, Triazophos, Deltamethrin, Butachlor)</p> <p>Abamectin Acetochlor MCPA Isooctyl Carbosulfon</p>		<p>Qualitative test for Emulsion Stability (EC) Density of (Finished/ Formulated product)</p> <p>Qualitative test for Soluble Liquid (SL) Density of (Finished/ Formulated product)</p>	<p>SOP No.025 (Based on CIPAC Vol. F, 2007, Method No. 3 Page No.11) Direct Through Density Meter</p>
<p>Pesticide formulated/ finished products for Soluble Liquid (SL) (Imidacloprid, Acetamiprid, Glyphosate)</p>			

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<p>Pesticide formulated/ finished products for Suspension Concentrate (SC) (Fipronil, Iprodione, Clothianidin, Chlorfenapyr, Tebuconazole) Atrazine Mesotrione Azoxystrobin Difenconazole Nitenpyram Dinotefuron Topramezone Thiamethoxam Mesosulfuron Chlorantranilipro I Florasalam</p>		<p>Qualitative test for Suspension Concentrate (SC) Density of (Finished/ Formulated product)</p>	<p>SOP No.026 (Based on CIPAC Vol. F, 2007, Method No.3.3.1, Page No.18-19) Hydrometer method</p>
<p>Pesticide formulated/ Technical (Chlorpyrifos, Pyriproxyfen, Emamectin benzoate, Pendimethalin, Lufenuron, Bifenthrin,</p>		<p>Quantitative testing of Chlorpyrifos (Active Ingredient)</p>	<p>SOP No.004 (Based on CIPAC Vol. 1C, Method No. 221.b Page No.2028-2021) HPLC Technique</p>
		<p>Quantitative testing of Pyriproxyfen (Active Ingredient)</p>	<p>SOP No.020 (Verified method based on CIPAC Vol. M, 2009 Method No. 715 Page No.180-188) HPLC Technique</p>

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<p>Imidacloprid, Acetamiprid, Fipronil, Iprodione, Clothianidin, Chlorfenapyr, Chlorsulfuron, Metsulfuron, Clodinafop propergyl, Cymoxanil, Sulphur, Metolachlor, Glyphosate, Tebuconazole Myclobutanil, , Metalaxyl, Thiophenate methyl Triazophos Deltamethrin Butachlor Lambda Cyhalothrin Atrazine Mesotrione Azoxystrobin Difenconazole</p>	<p>Chemical testing of Pesticides</p>	<p>Quantitative testing of Emamectin benzoate (Active Ingredient)</p>	<p>SOP No.009 (Validated method Based on Pak china) HPLC Technique</p>
		<p>Quantitative testing of Pendimethalin (Active Ingredient)</p>	<p>SOP No.019 (Verified method based on CIPAC Vol. M, 2009 Method No. 357 Page No.148-154) HPLC Technique</p>
		<p>Quantitative testing of Lufenuron (Active Ingredient)</p>	<p>SOP No.014 (Verified method based on CIPAC Vol. M, 2009 Method No. 704 Page No.106-114) HPLC Technique</p>
		<p>Quantitative testing of Bifenthrin (Active Ingredient)</p>	<p>SOP No.002 (Validated method Based on NLA South Africa) HPLC Technique</p>
		<p>Quantitative testing of Imidacloprid (Active Ingredient)</p>	<p>SOP No.012 (Verified method based on CIPAC Vol. H, 2008 Method No. 581 Page No.185-193) HPLC Technique</p>
		<p>Quantitative testing of Acetamiprid (Active Ingredient)</p>	<p>SOP No.01 (Verified method based on CIPAC Vol. L, 2008 Method No. 649 Page No.04-15) HPLC Technique</p>
		<p>Quantitative testing of Fipronil (Active Ingredient)</p>	<p>SOP No.010 (Verified method based on CIPAC Vol. J, 2012 Method No. 581 Page No.60-65) HPLC Technique</p>
		<p>Quantitative testing of Iprodion (Active Ingredient)</p>	<p>SOP No.0113 (Verified method based on CIPAC Vol. J, 2008 Method No. 278 Page No.98-104) HPLC Technique</p>
		<p>Quantitative testing of Clothianidin (Active Ingredient)</p>	<p>SOP No.007 (Verified method based on CIPAC Vol. N, 2012 Method No. 738 Page No.14-24) HPLC Technique</p>
		<p>Quantitative testing of Chlorfenapyr (Active</p>	<p>SOP No.003 (Verified method based on</p>

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	Ingredient)	CIPAC Vol. O, 2017 Method No.570 Page No.22-30) HPLC Technique
	Quantitative testing of Chlorsulfuron (Active Ingredient)	SOP No.005 (Verified method based on CIPAC Vol. H, 2008 Method No.391 Page No.89-95) HPLC Technique
	Quantitative testing of Metsulfuron (Active Ingredient)	SOP No.017 (Verified method based on CIPAC Vol. H, 2008 Method No.441 Page No.204-211) HPLC Technique
	Quantitative testing of Clodinafop propergyl (Active Ingredient)	SOP No.006 (Verified method based on CIPAC Vol. M, 2009 Method No.240 Page No.26-39) HPLC Technique
	Quantitative testing of Cymoxanil (Active Ingredient)	SOP No.008 (Verified method based on CIPAC Vol. J, 2008 Method No.419 Page No.22-28) HPLC Technique
	Quantitative testing of Sulphur (Active Ingredient)	SOP No.021 (Verified method based on CIPAC Vol. E, 1993 Method No.18, Gravimetric Technique. Page No.202-210)
	Quantitative testing of Metolachlor (Active Ingredient)	SOP No.016 (Validated method based on NLA South Africa, HPLC Technique.
	Quantitative testing of Glyphosate (Active Ingredient)	SOP No.011 (Verified method based on CIPAC Vol. H, 2008 Method No.284, Page No.182-184) HPLC Technique
	Quantitative testing of Myclobutanil (Active Ingredient)	SOP No.018 (Validated method Based on Dow Agro Sciences) GC Technique
	Quantitative testing of Metalaxyl (Active Ingredient)	SOP No.024 (Verified method based on CIPAC Vol. H, 2008 Method No.284, Page No.261-268) GC Technique

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		Quantitative testing of Tebuconazole (Active Ingredient)	SOP No.022 (Verified method based on CIPAC Vol. H, 2008 Method No.494, Page No.261-268) GC Technique
		Quantitative testing of Thiophenate methyl (Active Ingredient)	SOP No.023 (Verified method based on CIPAC Vol. D, 2008 Method No.262, Page No.162-168) HPLC Technique
		Quantitative testing of Triazophos(Active Ingredient)	SOP No.024 (Verified method based on CIPAC Vol. H, 2008 Method No.353, Page No.288-291) HPLC Technique
		Quantitative testing of Deltamethrin (Active Ingredient)	SOP No.025 (Verified method based on CIPAC Vol. D, 2008 Method No.333, Page No.45-60) HPLC Technique
		Quantitative testing of Butachlor (Active Ingredient)	SOP No.026 (Verified method based on CIPAC Vol. D, 2008 Method No.354, Page No.16-19) Gas Chromatography Technique

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Fertilizer formulated/ Technical (Nitrogen, Direct Available Phosphorus, Soluble Potassium, Humic acid Boron Mencozeb)	Chemical Testing of Fertilizer	Quantitative testing of Total Nitrogen (Active Ingredient)	SOP No.027 Verified Method based on Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi Page No. 158 Kjeldhal Apparatus Technique
		Quantitative testing of Uric Nitrogen (Active Ingredient)	
		Quantitative testing of Ammonical Nitrogen (Active Ingredient)	SOP No.028 Verified Method based on Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi Page No. 158 Kjeldhal Apparatus Technique
		Quantitative testing of Nitrate Nitrogen (Active Ingredient)	SOP No.029 Verified Method based on Tandon HLS (Ed.) 2009. Methods of Analysis of Soils, Plants, waters, Fertilizer and Organic Manures Fertilizer Development and Consultation Organization, New Delhi Page No. 161 Kjeldhal Apparatus Technique
		Quantitative testing of Direct Available Phosphorus (Active Ingredient)	SOP No.030 Verified Method based on AOAC 970.01 OMA .15 Addition.Kjeldahl Plant Analysis Hand Book,USA
		Quantitative testing of Citrate soluble Phosphorus (Active Ingredient)	SOP No.031 PS :-5295/2017(2 nd Rev.) Chemical Division P-8/12 SDC/PSQCA United states salinity laboratory staff agriculture Handbook No. 60 issued February 1954 USDA Saline and alkali Soils Flame photometer Technique

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		Quantitative testing of Humic acid (Active Ingredient)	A.K Fataftah .PhD Thesis,Northeastern University,Boston,1997.
		Quantitative testing of Boron (Active Ingredient)	SOP No.032 Verified Method based on Methods of Analysis of AOAC International.20 th Edition, 2016.Method No.2.6.04, Fertilizers Chapter 2, Sub chapter 6, Page No. 31-32 Spectrophotometer Technique
		Quantitative testing of Mencozeb (Active Ingredient)	SOP No.033 (Verified method based on CIPAC Vol. M, 2009 Method No.61, Page No.116-120)

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EXTENSION IN SCOPE (PESTICIDE PRODUCTS)					
Materials/Products tested*	Types of test/ Properties measured	Range of measurement	Minimum detection limit	Uncertainty of Measurement (where applicable) (±)	Standard specification/ Techniques/ equipment used
Nitenpyram	Concentration / Quantitative analysis	05% - 30% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, Standard Method for analysis of Technical and Formulated Pesticides, Agriculture Department, Govt of Punjab. Page No.88-89
Dinotefuron	Concentration / Quantitative analysis	05% - 40% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, CIPAC Volume L Page No 68-72.
Acetochlor	Concentration / Quantitative analysis	05% - 30% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, In house Validated Method
Topramezone	Concentration / Quantitative analysis	05% - 30% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, In House Validated Method

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Carbosulfon	Concentration / Quantitative analysis	05% - 30% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, CIPAC Vol. E, Page No.35-41
Thiamethoxam	Concentration / Quantitative analysis	05% - 30% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, CIPAC Vol. O, Page No.147-157.
MCPA Isooctyl	Concentration / Quantitative analysis	05% - 30% 05% - 99%	01%	± 0.20% ± 0.70%	Chromatographic Technique HPLC, Standard Method for analysis of Technical and Formulated Pesticides, Agriculture Department, Govt of Punjab. Page No.158-159
Mesosulfuron	Concentration / Quantitative analysis	0.1% - 10% 0.1% - 95%	01%	± 0.03% ± 0.50%	Chromatographic Technique HPLC, Standard Method for analysis of Technical and Formulated Pesticides, Agriculture Department, Govt of Punjab. Page No.160-161
Chlorantranilip ol	Concentration / Quantitative analysis	0.1% - 10% 0.1% - 95%	01%	± 0.03% ± 0.50%	Chromatographic Technique HPLC, Standard Method for analysis of Technical and Formulated

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					Pesticides, Agriculture Department, Govt of Punjab. Page No.44-45
Abamectin	Concentration / Quantitative analysis	0.1% - 10% 0.1% - 95%	01%	± 0.03% ± 0.50%	Chromatographic Technique HPLC, Standard Method for analysis of Technical and Formulated Pesticides, Agriculture Department, Govt of Punjab. Page No.30-31
Florasalam	Concentration / Quantitative analysis	0.1% - 10% 0.1% - 95%	01%	± 0.03% ± 0.50%	Chromatographic Technique HPLC, In House Validated Method.

***Please also mention Active Pharmaceutical Ingredient (API) in case of Pharmaceutical Testing**

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