Accreditation No: LAB 170

Awarded to

Warble Quality Control Laboratory, Plot # 38 -A, Phase I, Industrial Estate, 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 **25-02-2019** 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 **24-02-2022.**

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

14-10-2020
Date

Director General

Testing Laboratory.

Accreditation Scope of Warble Quality Control Laboratory, 38 -A, Industrial Estate, Multan, Pakistan.

Permanent laboratory premises X

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
Lufenuron, Pyriproxyfen, Chlorpyrifos	Physical Testing	Emulsion (Finished/Formulated Product)	**WARBLE/QCL/SOP/02** Based on reference: MT 36, CIPAC Volume F, 2007, page # 108 – 114
Lufenuron , Pyriproxyfen, Chlorpyrifos, Imidacloprid, Diafenthiuron, Paraquat , Acetamiprid, Fipronil, Clothianidin, Nitrogen fertilizer liquid, Phosphate fertilizer liquid, Potassium fertilizer liquid, Zinc fertilizer liquid, Boron fertilizer liquid, Humic acid liquid, Paclobutrazole liquid, Naphthyl Acetic Acid liquid		Density (Finished/Formulated Product)	**WARBLE/QCL/SOP/01** Based on reference: MT 3, CIPAC Volume F, 2007, Pyknometer Method/ Hydrometer Method Page # 11 – 15 Pyknometer Method/ Hydrometer Method
Clodinafop Propergyl, Nitrogen fertilizer liquid,		pH	**WARBLE/QCL/SOP/29** Based on reference: MT 75- Determination of pH values, CIPAC Volume F, 2007.

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Phosphate fertilizer liquid, Potassium fertilizer liquid, Zinc fertilizer liquid, Boron fertilizer liquid, Humic acid liquid.			pH meter & glass electrode
Humic acid Formulations & Technical	Physical testing	Quantitative determination of active ingredient Humic Acid	**WARBLE/QCL/SOP/14** Based on reference: Gravimetric method of humic acid analysis. ISO 19822:2018 Gravimetric method
Organic matter Formulations	Physical testing	Quantitative determination of active ingredient Organic Matter in Compost	**WARBLE/QCL/SOP/12** Based on reference: Official Methods of Analysis of AOAC International, 21st Edition, 2019, Volume I, Current Through Revision, 2019, Method No. 2.7.08 (AOAC Official Method 967.05), Fertilizers Chapter 2, Subchapter 6 Page 72 (Oven & Furnace)
Pyriproxyfen Formulations & Technical	Chemical testing	Quantitative determination of Pyriproxyfen (active ingredient)	**WARBLE/QCL/SOP/04** Based on reference: 715/EC/M, CIPAC Volume M, 2009. HPLC
Lufenuron Formulations & Technical		Quantitative determination of Lufenuron (active ingredient)	**WARBLE/QCL/SOP/03** Based on reference: 704/EC/M, CIPAC Volume M 2009. HPLC
Imidacloprid Formulations & Technical		Quantitative determination of Imidacloprid (active ingredient)	**WARBLE/QCL/SOP/17** Based on reference: 582/TC/M/ CIPAC Volume -H, 2008. HPLC
Diafenthiuron Formulations & Technical		Quantitative determination of Diafenthiuron (active ingredient)	**WARBLE/QCL/SOP/18** Based on reference: Inhouse validation HPLC
Cartap Hydrochloride Formulations & Technical		Quantitative determination of Cartap Hydrochloride (active ingredient)	**WARBLE/QCL/SOP/19** Based on reference: 387/TC/M/ CIPAC Volume -D, 1988. Spectrophotometer
Carbofuran Formulations		Quantitative determination of Carbofuran	**WARBLE/QCL/SOP/20** Based on reference: 276/TC/M/

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& Technical		(active ingredient)	Volume -D, CIPAC 1988. HPLC
Paraquat Formulations & Technical		Quantitative determination of Paraquat (active ingredient)	**WARBLE/QCL/SOP/21** Based on reference: 56/SL/M/ CIPAC Volume -E, 1993. Spectrophotometer
Acetamiprid Formulations & Technical		Quantitative determination of Acetamiprid (active ingredient)	**WARBLE/QCL/SOP/22** Based on reference: 649/TC/M/ CIPAC Volume -L, 2006. HPLC
Fipronil Formulations & Technical		Quantitative determination of Fipronil (active ingredient)	**WARBLE/QCL/SOP/23** Based on reference: 581/TC/M/ CIPAC Volume -J, 2000. HPLC
Clothianidin Formulations & Technical		Quantitative determination of Clothianidin (active ingredient)	**WARBLE/QCL/SOP/24** Based on reference: 738/TC/M/ CIPAC Volume -N, 2012. HPLC
Clodinafop Propargyl Formulations & Technical		Quantitative determination of Clodinafop Propargyl (active ingredient)	**WARBLE/QCL/SOP/25** Based on reference: 683.225/TC/M/ CIPAC Volume -M, 2009. HPLC
Chlorpyrifos Formulations & Technical		Quantitative determination of Chlorpyrifos (active ingredient)	**WARBLE/QCL/SOP/26** Based on reference: 221.B/TC/M/ CIPAC Volume -1C, 1983. HPLC
Bensulfuron-Methyl Formulations & Technical		Quantitative determination of Bensulfuron-Methyl (active ingredient)	**WARBLE/QCL/SOP/27** Based on reference: 502/TC/M/ CIPAC Volume -K, 2003. HPLC
Rimsulfuron Formulations & Technical		Quantitative determination of Rimsulfuron (active ingredient)	**WARBLE/QCL/SOP/28** Based on reference: 716/TC/M/ CIPAC Volume -M, 2009. HPLC
Nitrogen fertilizers Formulations & Technical	Chemical testing	Quantitative determination of active ingredient **Ammonical Nitrogen**	**WARBLE/QCL/SOP/07** Based on reference: Official Methods of Analysis of AOAC International, 21st Edition, 2019, Volume I, Current through Revision, 2019. Method No. 2.4.05 (AOAC Official Method 978.02), Fertilizers Chapter 2 Page 14-
		Quantitative determination of active ingredient **Nitrate Nitrogen**	

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		Quantitative determination of active ingredient **Total Nitrogen**	15 (Kjeldhal,s distillation apparatus)
		Quantitative determination of active ingredient **Uric Nitrogen**	
Phosphate fertilizer Formulations & Technical		Quantitative determination of active ingredient Citrate soluble & Total Phosphorous (P_2O_5)	**WARBLE/QCL/SOP/06** Based on reference: Pakistan standard for Single Super Phosphate (2nd edition) PS: 67-1996. PSQCA. Karachi Titrimetric Method
Potassium fertilizer Formulations & Technical		Quantitative determination of active ingredient Water Soluble Potassium (K_2O)	**WARBLE/QCL/SOP/09** Based on reference: Richards. L.A. 1954 Diagnosis & Improvement of Saline & Alkali Soils. USDA, Agric, Hand Book 60, Washington, D.C. (Flame Photometry)
Fertilizer (Zinc, Copper, Iron & Manganese) Formulations & Technical		Quantitative determination of active ingredient (Water Soluble Zinc, Copper, Iron & Manganese)	**WARBLE/QCL/SOP/05** Based on reference: Official Methods of Analysis of AOAC International, 21st Edition, 2019, Volume I, Current Through Revision, 2019. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30 (Atomic Absorption Spectrophotometry)
Fertilizer (Zinc, Copper, Iron & Manganese) Formulations & Technical		Quantitative determination of active ingredient (Acid Soluble Zinc, Copper, Iron & Manganese)	**WARBLE/QCL/SOP/10** Based on reference: Official Methods of Analysis of AOAC International, 21st Edition, 2019, Volume I, Current Through Revision, 2019. Method No. 2.6.01 (AOAC Official Method 965.09), Fertilizers Chapter 2, Subchapter 6, Page 29-30 (Atomic Absorption Spectrophotometry)
Boron fertilizer Formulations & Technical		Quantitative determination of active ingredient Water Soluble Boron	**WARBLE/QCL/SOP/08** Based on reference: Official Methods of Analysis of AOAC International, 21st Edition, 2019, Volume I, Current Through Revision, 2019. Method No. 2.6.04 (AOAC Official Method 982.01), Fertilizers Chapter 2,

			Subchapter 6, Page 31-32 (Spectrophotometry)
Chelated zinc Formulations		Quantitative determination of active ingredient Chelated Zinc	**WARBLE/QCL/SOP/11** Based on reference: Vogel`s Text Book Of Quantitative Chemical Analysis, 6th Edition, J Mendham, R C Denney, J D Barnes, M J K Thomas (Atomic Absorption Spectrophotometry)
Cation Exchange Capacity (ECE) 5-80 meq/100 gm		Quantitative determination of active ingredient Cation Exchange Capacity	**WARBLE/QCL/SOP/13** Based on reference: Official Methods of Analysis of AOAC International, 21st Edition, 2019, Volume I, Current Through Revision, 2019, Method No. 2.7.13 (AOAC Official Method 973.09), Fertilizers Chapter 2, Page 74
Paclobutrazole liquid Formulations & Technical		Quantitative determination of active ingredient Paclobutrazole	**WARBLE/QCL/SOP/15** Based on reference: Inhouse validation (HPLC)
Naphthyl Acetic Acid Formulations & Technical		Quantitative determination of active ingredient Naphthyl Acetic Acid	**WARBLE/QCL/SOP/16** Based on reference: Evaluation of two plant growth regulators as chemical pruning agents for Kiwi fruits vines in summer, New Zealand Journal of Experimental Agriculture, 19886, Vol. 14: 199-203 (HPLC)

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