

Accreditation No: LAB 100

Awarded to

Four Brothers Chemicals Laboratory. Lahore, 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 **29.01.2016** 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 28.01.2022.

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

03-09-2020 Date xxSdxx Director General



Testing Laboratory.

Accreditation Scope of Four Brothers Chemicals Laboratory. Lahore, Pakistan.

Permanent laboratory premises X

Pesticide Laboratory Section

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
Bifenthrin 10% w/v EC	Physical testing of Pesticide	Density	<u>4B-STM(P)-020</u> Ref: CIPAC Hand Book - Volume (F) - Method no MT 03 / ISO:15212-1
Imidacloprid 20% SL	Physical testing of Pesticide	Density	4B-STM(P)-037 Ref: CIPAC Hand Book - Volume (F) - Method no MT 03 / ISO:15212-1
Acetamirid 20% SL	Physical testing of Pesticide	Density	4B-STM(P)-014 Ref: CIPAC Hand Book - Volume (F) - Method no MT 03 / ISO:15212-1
Acetochlor 50% EC	Physical testing of Pesticide	Density	4B-STM(P)-016 Ref; CIPAC Hand Book - Volume (F) - Method no MT 03 / ISO:15212-1
Lambda- Cyhalothrin 2.5% EC	Physical testing of Pesticide	Density	4B-STM(P)-043 Ref: CIPAC Hand Book - Volume (F) - Method no MT 03 / ISO:15212-1
Pyriproxyfen 10.8% EC	Physical testing of Pesticide	Density	4B-STM(P)-093 Ref: CIPAC Hand Book - Volume (F) - Method no MT 03 / ISO:15212-1



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
Bifenthrin 10% w/v EC	Physical testing of Pesticide	Emulsification	<u>4B-STM(P)-020</u> Ref: CIPAC Hand Book - Volume (F) - Method no MT- 36.1
Pendimethalin 33% EC	Physical testing of Pesticide	Emulsification	4B-STM(P)-049 Ref: CIPAC Hand Book - Volume (F) - Method no MT- 36.1
Pyriproxyfen 10.8% EC	Physical testing of Pesticide	Emulsification	4B-STM(P)-093 Ref: CIPAC Hand Book - Volume (F) - Method no MT- 36.1
Lambda- Cyhalothrin 2.5% EC	Physical testing of Pesticide	Emulsification	4B-STM(P)-043 Ref: CIPAC Hand Book - Volume (F) - Method no MT- 36.1
Acetochlor 50%EC	Physical testing of Pesticide	Emulsification	4B-STM(P)-016 Ref: CIPAC Hand Book - Volume (F) - Method no MT- 36.1
Buprofezin 25%w/w WP	Physical testing of Pesticide	pH of Solution of 01% Buprofezin 25%w/w	4B-STM(P)-059 Ref: Method No. MT 75, CIPAC Handbook-Volume (F) - Page No. 206-



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
Bifenthrin 10%w/v EC	Chemical Testing on GC	Quantitative Determination of Active ingredient	<u>4B-STM(P)-020</u> In-House Validated Method
Lambda- Cyhalothrin 2.5% w/v EC	Chemical Testing on HPLC	Quantitative	4B-STM(P)-043 In-House
Lambda- Cyhalothrin 2.5% w/v EC	Chemical Testing on GC	Determination of Active ingredient	Validated Method
Imidacloprid 20 SL	Chemical Testing on HPLC	Quantitative Determination of Active ingredient	4B-STM(P)-037 In-House Validated Method
Acetamiprid 20% w/v SL	Chemical Testing on HPLC	Quantitative Determination of Active ingredient	4B-STM(P)-014 In-House Validated Method
Pyriproxyfen 10.8 % EC	Chemical Testing on GC	Quantitative Determination of Active ingredient	4B-STM(P)-093 In-House Validated Method
Pendimethalin 33%w/v EC	Chemical Testing on GC	Quantitative Determination of Active ingredient	4B-STM(P)-049 In-House Validated Method
Acetochlor 50 %w/v EC	Chemical Testing on GC	Quantitative Determination of Active ingredient	4B-STM(P)-016 In-House Validated Method



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
Lufenuorn 05 %w/v EC	Chemical Testing on HPLC	Quantitative Determination of Active ingredient	4B-STM(P)-044 In-House Validated Method
Lufenuron 10%WDG	Chemical Testing on HPLC	Quantitative Determination of Active ingredient	4B-STM(P)-136 In-House Validated Method
Chlorfenapyr 36 %SC	Chemical Testing on HPLC	Quantitative Determination of Active ingredient	4B-STM(P)-102 In-House Validated Method
Chlorfenapyr 10% WDG	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-131 In-House Validated Method
Diafenthiuron 80% WDG	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-132 In-House Validated Method
Fipronil 05% SC	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-133 In-House Validated Method
Atrazine (40%) + Mesotrione (10%) 50 WP	Chemical Testing on GC	Quantitative Determination of (Atrazine) Active Ingredient	4B-STM(P)-130 In-House Validated Method
Nitenpyram 50% WDG	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-135 In-House Validated Method



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
Lambda- Cyhalothrin 10% WDG	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-134
Lambda- Cyhalothrin 10% WDG	Chemical Testing on GC		In-House Validated Method
Butachlor (28.5%) +Bensulfuron- Methyl 1.5%) 30WP	Chemical Testing on HPLC	Quantitative Determination of (Bensulfuron-Methyl) Active Ingredient	4B-STM(P)-140 Ref: In-House Validated Method
Emamectin- Benzoate 1.9% EC	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-032 Ref: In-House Validated Method
Pyriproxyfen 20% WDG	Chemical Testing on HPLC	Quantitative Determination of Active Ingredient	4B-STM(P)-141 Ref: In-House Validated Method
Buprofezin 25% WP	Chemical Testing on GC	Quantitative Determination of Active Ingredient	4B-STM(P)-059 Ref: In-House Validated Method



Micronutrient Laboratory Section

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
Zinc Sulphate Liquid 10%	Chemical Testing on AAS	Quantitative Determination of Zinc Active Ingredient	4B-STM(P)-126 Ref: Mohawk College of Chemical, Environmental and Bio-Technological Department. Professor Cindy Mehlen bacher and Bill Rolfe (Chief Technologist
NPK 8:8:6	Chemical Testing on Kjeldhal	Quantitative Determination of {Nitrogen (N)} Active Ingredient	4B-STM(P)-125 Ref: 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 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.
NPK 8:8:6	Chemical Testing through Titration Method	Quantitative Determination of {Phosphorus (P2O5)} Active Ingredient	4B-STM(P)-125 Ref: Pakistan standard for Single Super Phosphate (2 nd edition) PS: 67-1996. PSQCA. Karachi Vogel's Text book of quantitative chemical analysis 6 th edition, Pearson education, India



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
Tash-36	Chemical Testing through Titration Method	Quantitative Determination of {Phosphorus (P2O5)} Active Ingredient	4B-STM(P)-139 Ref: Pakistan standard for Single Super Phosphate (2 nd edition) PS: 67-1996. PSQCA. Karachi Vogel's Text book of quantitative chemical analysis 6 th edition, Pearson education, India
NPK 8:8:6	Chemical Testing on Flame Photometer	Quantitative Determination of {Potash (K2O)} Active Ingredient	4B-STM(P)-125 Ref: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. Standard operating manual of instrument. (Potash), India
Humic Acid (10% + Potash (3.5%)	Chemical Testing on Flame Photometer	Quantitative Determination of {Potash (K2O)} Active Ingredient	4B-STM(P)-127 Ref: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. Standard operating manual of instrument. (Potash), India



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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
Tash-36	Chemical Testing on Flame Photometer	Quantitative Determination of {Potash (K2O)} Active Ingredient	4B-STM(P)-128 Ref: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. Standard operating manual of instrument. (Potash), India
Tash-30			4B-STM(P)-139 Ref: Testing Methods for Fertilizers (2013). Incorporated Administrative Agency. Food and Agricultural Materials Inspection Center. Japan. Standard operating manual of instrument. (Potash), India
Humic Acid (10% + Potash (3.5%)	Chemical Testing through Gravimetric Method	Quantitative Determination of	4B-STM(P)-127 Ref: F.J. Stevenson, J. Environ. Quality, 1972, 1, 333. A.K. Fataftah, PhD Thesis, Northeastern University, Boston, 1997. T. L. Senn and A. R. Kingman, A Review of Humus and Humic Acid Research, www.humates.com/methodol ogy.html
Humic Acid (40%) + Potash (07%)		{Humic-Acid} Active Ingredient	4B-STM(P)-137 Ref: F.J. Stevenson, J. Environ. Quality, 1972, 1, 333. A.K. Fataftah, PhD Thesis, Northeastern University, Boston, 1997. T. L. Senn and A. R. Kingman, A Review of Humus and Humic Acid Research, www.humates.com/methodol ogy.html



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
Boron 05%	Chemical Testing on Spectrophotometer	Quantitative Determination of Active Ingredient	In House Validated Test method



Toxicology Laboratory Section

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
Pesticides	Toxicity of Pesticide	Acute Dermal Irritation	4B-STM(T)-001 Ref: OECD Guidelines 404
Pesticides	Toxicity of Pesticide	Acute Dermal Toxicity	4B-STM(T)-003 Ref: OECD Guidelines 402
Pesticides	Toxicity of Pesticide	Acute Oral Toxicity	4B-STM(T)-002 Ref: OECD Guidelines 423
Pesticides	Toxicity of Pesticide	Acute Eye Irritation	4B-STM(T)-004 Ref: OECD Guidelines 405
Pesticides	Toxicity of Pesticide	Skin sensitization	4B-STM(T)-006 Ref: OECD Guideline 406
Pesticides	ECO-Toxicity of Pesticide	Eco Toxicity through Earth worm reproduction	4B-STM(T)-005 Ref: OECD Guidelines 222



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Pesticide Residue & Aflatoxin Laboratory Section

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
Acephate residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Acephate residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Carbendazim residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Carbendazim residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Diemthoate residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Diemthoate residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>



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
Dimethomorph residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Dimethomorph residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Paclobutrazole residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Paclobutrazole residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Fenpyroximate residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Fenpyroximate residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>



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
Thiamethoxam residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Thiamethoxam residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Spirotetramat residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Spirotetramat residue Testing in Rice	Pesticide Residue Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-002 Ref: In House Verified method https://www.waters.com/webass ets/cms/library/docs/720005295 <u>en.pdf</u>
Aflatoxin B2 testing in food items	Aflatoxin Testing on LCMS/MS	Quantitative Determination of Active Ingredient	4B-STM (HT)-001 Ref: In House validated Test Method
Aflatoxin B2 testing in food items	Aflatoxin Testing on LCMS/MS	Qualitative Determination of Active Ingredient	4B-STM (HT)-001 Ref: In House validated Test Method



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
Aflatoxin G2	Aflatoxin Testing on LCMS/MS	Quantitative	4B-STM (HT)-001
testing in food		Determination of Active	Ref: In House validated Test
items		Ingredient	Method
Aflatoxin G2	Aflatoxin Testing on LCMS/MS	Qualitative	4B-STM (HT)-001
testing in food		Determination of Active	Ref: In House validated Test
items		Ingredient	Method
Total Aflatoxin	Aflatoxin Testing on LCMS/MS	Quantitative	4B-STM (HT)-001
testing in food		Determination of Active	Ref: In House validated Test
items		Ingredients	Method

Bio Technology Laboratory Section

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
Plant (leaf / Seed)	Biotechnology	Genomic DNA Isolation through CTAB Extraction	4B-STM P(G)-001 Ref: ISO: 21571
Plant (Leaf / Seed)	Biotechnology	PCR Based Screening method for detection of genetically modified plant DNA	4B-STM P(G)-002 Ref: ISO: 21569