Accreditation No: LAB 194

Awarded to

Solex Chemicals Quality Control Laboratory.
7/C-II, 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 **26-02-2023** 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 **25-02-2026.**

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

04-07-2024
Date

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Director General

Testing Laboratory.

Accreditation Scope of Solex Chemicals Quality Control Laboratory 7/C-II, Industrial Estate Multan, Pakistan.

Permanent laboratory premises X

Materials/Products tested	Testing field (e.g. Chemical Testing or mechanical testing)	Types of test/ Properties measured	Reference to standardized method (e.g. ISO 14577-1:2003)/ Internal method reference
Pesticides & Fertilizers (Solid & Liquid)	Physical Testing	pH of 1% Solution (Finished / Formulated Products)	CIPAC ,Volume F, Method No. 75, Page No. 205 **(SOLEX/QCL/STM/pH)** (pH Meter)
Nitenpyram (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Nitenpyram (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/NP)** (HPLC Method) Based on reference: Shandong United Pesticide Co., Ltd. China.
Chlorpyrifos (Formulation/Finished & Technical)		Quantitative determination of Chlorpyrifos (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/CF)** (HPLC Method) Based on reference: 221. b/TC/M/Volume-1C, Pg. No. 2028 – 2031, CIPAC. HPLC.
Pyriproxyfen (Formulation/Finished & Technical)		Quantitative determination of Pyriproxyfen (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/PF)** (HPLC Method) Based on reference: 715/TC/M/Volume-M, Pg. No. 180 – 188, CIPAC 2009. HPLC.
Lufenuron (Formulation/Finished & Technical)		Quantitative determination of Lufenuron (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/LF)** (HPLC Method) Based on reference:

04-07-2024
Date

-Sd-
Director

	Chemical Testing		704/TC/M/Volume-M, Pg. No. 106 – 114, CIPAC 2009. HPLC.
Lambda Cyhalothrin (Formulation/Finished & Technical)		Quantitative determination of Lambda Cyhalothrin (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/LMB)** (HPLC Method) Based on reference: Advance Material Research Journal Switzerland.
Bifenthrin (Formulation/Finished & Technical)		Quantitative determination of Bifenthrin (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/BF)** (HPLC Method) Based on reference: Bureau of Indian Standards.
Imidacloprid (Formulation/Finished & Technical)		Quantitative determination of Imidacloprid (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/IMD)** (HPLC Method) Based on reference: National Laboratory Association South Africa.
Fertilizer Potassium (Formulation/Finished & Technical)	Chemicals Testing	Quantitative determination of Potassium (Active Ingredient)	Standard Testing Method Based on Food and Agricultural Materials Inspection Centre (FAMIC) Japan, 2016. **(SOLEX/QCL/STM/K)** (Flame Photometer)
Lambda Cyhalothrin Lufenuron Chlorpyrifos Pyriproxyfen Bifenthrin Nitenpyram Imidacloprid Deltamethrin Triazophos Emamectin Pendimethalin Chlorfenapyr Diafenthiuron Acetamiprid Metalochlor Bromoxynil + MCPA Paraquat Fipronil Mesotrione	Physical Testing	Density (Finished / Formulated of all types of Pesticides and fertilizer Products)	CIPAC Vol. F Method No.3.3.1 Page No 18-19 (Hydrometer/S.G Bottle) **(SOLEX/QCL/STM/SG)**

04-07-2024
Date

-Sd-
Director

Atrazine Azoxystrobin Difenconazole Butachlor Clothianidin Dimethoate Quzilofop-P-Ethyl Phosphate Fertilizer Liquid Potassium Liquid Total Nitrogen Fertilizer Liquid Humic Acid Fertilizer Liquid Sulphur Fertilizer Liquid Boron Fertilizer Liquid Zinc (Zn), Ferrous (Fe), Copper (Cu) , Manganese (Mn) Liquid (Including All types of Pesticides and Fertilizer Products)	Physical Testing		
Lambda Cyhalothrin Lufenuron Chlorpyrifos Pyriproxyfen Bifenthrin Deltamethrin Triazophos Emamectin Pendimethalin Metalochlor Bromoxynil + MCPA Difenconazole Butachlor Dimethoate Quzilofop-P-Ethyl		Emulsion (Finished / Formulated Products)	CIPAC Vol. F,MT 36 Page No.108-110 (Measuring Cylinder, Water Bath) **(SOLEX/QCL/STM/EM)**
Deltamethrin (Formulation/Finished & Technical)		Quantitative determination of Deltamethrin (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/DM)** (HPLC Method) Based on reference: 333/TC/M2/Volume-L, CIPAC 2006. HPLC.

04-07-2024
Date

-Sd-
Director

Carbofuran (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Carbofuran (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/CARB)** (HPLC Method) Based on reference: 276/TC/M/Volume -D, CIPAC 1988. HPLC.
Triazophos (Formulation/Finished & Technical)		Quantitative determination of Triazophos (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/TRI)** (HPLC Method) Based on reference: 353/TK/M/Volume -H, CIPAC 1998. HPLC.
Buprofezin (Formulation/Finished & Technical)		Quantitative determination of Buprofezin (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/BZN)** (HPLC Method) Based on reference: Current Science, Vol. 115, No. 5, 10 September 2018.
Emamectin (Formulation/Finished & Technical)		Quantitative determination of Emamectin (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/EMA)** (HPLC Method) Based on reference: African Journal of Pure and Applied Chemistry Vol. 5(13), pp. 457-462, 10 November, 2011.
Pendimethalin (Formulation/Finished & Technical)		Quantitative determination of Pendimethalin (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/PMN)** (HPLC Method) Based on reference: 357/TC/M/Volume – M, CIPAC 2009. HPLC.
Chlorfenapyr (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Chlorfenapyr (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/CFNR)** (HPLC Method) Based on reference: 570/TC/M/Volume - O, CIPAC 2009. HPLC.

04-07-2024
Date

-Sd-
Director

Diafenthiuron (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Diafenthiuron (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/DFN)** (HPLC Method) Based on reference: Research Journal of Recent Sciences Vol. 1(10), 55-58, October (2012).
Acetamiprid (Formulation/Finished & Technical)		Quantitative determination of Acetamiprid (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/ACM)** Based on reference: 649/TC/M/ CIPAC Volume -L, 2006. HPLC
Metalochlor (Formulation/Finished & Technical)		Quantitative determination of Metalochlor (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/MCR)** (HPLC Method) Based on reference: National Laboratory Association South Africa.
Bromoxynil + MCPA (Formulation/Finished & Technical)		Quantitative determination of Bromoxynil + MCPA (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/B+MCPA)** (HPLC Method) Based on reference: 2/TC/M3 Volume – 1C, CIPAC.
Paraquate (Formulation/Finished & Technical)		Quantitative determination of Paraquate (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/PQ)** Based on reference: 56/SL/M/ CIPAC Volume -E, 1993.

04-07-2024
Date

-Sd-
Director

Phosphorus (Fertilizer Solid & Liquid) (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Available and Total Phosphorus (Active Ingredient)	Modified Official Method of Analysis of AOAC International 18th Edition 2005 Method No. 993.31 Chapter 2, Page No 11 **(SOLEX/QCL/STM/P)** (Spectrophotometer Method)
Total Nitrogen (Fertilizer Solid & Liquid) (Formulation/Finished & Technical)		Quantitative determination of Total Nitrogen (Ureic, Ammonical and Nitrate) (Active Ingredient)	Modified Official Method of Analysis of AOAC International 18th Edition 2005 Method No. 892.01 Chapter 2, Page No: 13 and 15. **(SOLEX/QCL/STM/N)** (Kjeldahl Apparatus)
Humic Acid (Fertilizer Solid & Liquid) (Formulation/Finished & Technical)		Quantitative determination of Humic Acid (Active Ingredient)	http://www.humates.com/methodlolgy.html **(SOLEX/QCL/STM/HA)** (Spectrophotometer Method)
Sulphur (Fertilizer Solid & Liquid) (Formulation/Finished & Technical)		Quantitative determination of Sulphur (Active Ingredient)	In-house Developed & Validated Method **(SOLEX/QCL/STM/S)** (HPLC Method) Based on reference: ALS Environmental Hawarden Method Number: TM 136 Updated: 13/02/2020 Method Issue Number: 16.
Boron (Fertilizer Solid & Liquid) (Formulation/Finished & Technical)		Quantitative determination of Boron (Active Ingredient)	Gaines, T.P. and G.A. Mitchell. 1979. Common. Soil Sci. Plan Anal. 10:1099-1108. **(SOLEX/QCL/STM/B)** (Spectrophotometer Method)
Fertilizers Zinc (Zn) Ferrous (Fe) Copper (Cu) Manganese (Mn)		Quantitative determination of active ingredient (Water Soluble Zinc, Copper, Ferrous & Manganese)	Official Method of Analysis of AOAC International 18th Edition 2005, Current through revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method No. 965.09) Fertilizers Chapter 2,

04-07-2024
Date

-Sd-
Director

(Solid & Liquid) (Formulation/Finished & Technical)	Chemical Testing		Subchapter 6, Page No: 29-30 With Hach Kit Method From USEPA Approved for water and waste water analysis (Method 8007, 8008, 8009 & 8026). **(SOLEX/QCL/STM/Zn, Fe, Cu, Mn)** (Spectrophotometer Method)
Fertilizers Zinc (Zn) Ferrous (Fe) Copper (Cu) Manganese (Mn) (Solid & Liquid) (Formulation/Finished & Technical)		Quantitative determination of active ingredient (Acid Soluble and Chelated Zinc, Copper, Ferrous & Manganese)	Official Method of Analysis of AOAC International 18th Edition 2005, Current through revision, 4, 2011. Method No. 2.6.01 (AOAC Official Method No. 965.09) Fertilizers Chapter 2, Subchapter 6, Page No: 29-30 With Hach Kit Method From USEPA Approved for water and waste water analysis (Method 8007, 8008, 8009 & 8026). **(SOLEX/QCL/STM/Zn, Fe, Cu, Mn)** (Spectrophotometer Method)
Cartap Hydrochloride (Formulation/Finished & Technical)		Quantitative determination of Cartap Hydrochloride (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CTP)** Based on reference: 387/TC/M CIPAC Volume – D, 1988.
Monomehypho (Formulation/Finished & Technical)		Quantitative determination of Monomehypho (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/MONO)** Based on reference: 649/TC/M/ CIPAC Volume -L, 2006.
Fipronil (Formulation/Finished & Technical)		Quantitative determination of Fipronil (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/FIP)** Based on reference: 581/TC/M

04-07-2024
Date

-Sd-
Director

			CIPAC Volume - J, 2000
Mesotrione (Formulation/Finished & Technical)		Quantitative determination of Mesotrione (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/MESO)** Based on reference: National Laboratory Association South Africa NLA-PT-T-P-23-02
Atrazine (Formulation/Finished & Technical)		Quantitative determination of Atrazine (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/ATN)** Based on reference: Journal Agricultural & Food Chemistry 41, 4, 588–595, 1993
Azoxystrobin (Formulation/Finished & Technical)		Quantitative determination of Azoxystrobin (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/AZN)** Based on reference: 571/TC/M CIPAC Volume - M, 2009
Difenconozole (Formulation/Finished & Technical)		Quantitative determination of Difenconazole (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/DFZ)** Based on reference: Malaysian Journal of Chemistry, Vol. 6, No. 1, 055 – 066, 2004
Clodinafop Propergyl (Formulation/Finished & Technical)		Quantitative determination of Clodinafop Propergyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CFP)** Based on reference: 683.225/TC/M CIPAC Volume - M, 2009
Bensulfuran Methyl (Formulation/Finished & Technical)		Quantitative determination of Bensulfuran Methyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/BEN)** Based on reference:

	Chemical Testing		502/TC/M CIPAC Volume - K, 2003
Bispyribac Sodium (Formulation/Finished & Technical)		Quantitative determination of Bispyribac Sodium (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/BISP)** Based on reference: International Letters of Natural Sciences Vol. 17, pp 30-40, 2014.
Butachlor (Formulation/Finished & Technical)		Quantitative determination of Butachlor (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/BUTA)** Based on reference: 354/TC/M CIPAC Volume - D, 1988
Clothianidin (Formulation/Finished & Technical)		Quantitative determination of Clothianidin (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CDN)** Based on reference: 738/TC/M CIPAC Volume - N, 2012
Acephate (Formulation/Finished & Technical)		Quantitative determination of Acephate (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/ACP)** Based on reference: 388/TC/M CIPAC Volume - H, 2000
Florasulam (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Florasulam (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/FLSM)**

04-07-2024
Date

-Sd-
Director

Mesosulfuron Methyl (Formulation/Finished & Technical)		Quantitative determination of Mesosulfuron Methyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/MSFM)**
Metsulfuron Methyl (Formulation/Finished & Technical)		Quantitative determination of Metsulfuron Methyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/MTSM)** Based on reference: 441/TC/M CIPAC Volume - H, pp 204 – 211.
Fluroxypyr Meptyl (Formulation/Finished & Technical)		Quantitative determination of Fluroxypyr Meptyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/FLXM)**
Carbosulfan (Formulation/Finished & Technical)		Quantitative determination of Carbosulfan (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CRBSN)** Based on reference: 417/TC/M CIPAC Volume - E, pp 35 – 41.
Chlorothalonil (Formulation/Finished & Technical)		Quantitative determination of Chlorothalonil (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CHTNL)** Based on reference: 288/TC/M CIPAC Volume - K, pp 13 – 22.
Dimethoate (Formulation/Finished & Technical)		Quantitative determination of Dimethoate (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/DM)** Based on reference: CIPAC Volume - E, pp 69.
Quzilofop-P-Ethyl (Formulation/Finished & Technical)		Quantitative determination of Quzilofop-P-Ethyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/QZP)** Based on reference: 581/TC/M CIPAC Volume - J, 2000

04-07-2024
Date

-Sd-
Director

Chlorantraniliprole (Formulation/Finished & Technical)	Chemical Testing	Quantitative determination of Chlorantraniliprole (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CNPL)** Based on reference: 570/TC/M/Volume - O, CIPAC 2009. HPLC.
Metalaxyl (Formulation/Finished & Technical)		Quantitative determination of Metalaxyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/META)** Based on reference: CIPAC Volume - E, pp 223.
Cymoxnil (Formulation/Finished & Technical)		Quantitative determination of Cymoxnil (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/CM)** Based on reference: CIPAC Volume - J, pp 22.
Flunicamid (Formulation/Finished & Technical)		Quantitative determination of Flunicamid (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/FLMD)** Based on reference: 333/TC/M2/Volume-L, CIPAC 2006. HPLC.
Thiophenate Methyl (Formulation/Finished & Technical)		Quantitative determination of Thiophenate Methyl (Active Ingredient)	In-house Developed & Validated Method (HPLC Method) **(SOLEX/QCL/STM/THIO)** Based on reference: CIPAC Volume - D, pp 162.

04-07-2024
Date

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Director