



CERTIFICATE OF ACCREDITATION

This is to attest that

ENVIRONMENTAL QUALITY ANALYTICAL SERVICES S.A. (EQUAS S.A.)

MZ. I LOTE 74 URBANIZACION NARANJITO
PUENTE PIEDRA, 15121, PERU

Testing Laboratory TL-1011

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation.

Expiry Date November 1, 2025

Effective Date June 19, 2024



International Accreditation Service
Issued under the authority of IAS management

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ENVIRONMENTAL QUALITY ANALYTICAL SERVICES S.A. (EQUAS S.A.)

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Accredited to ISO/IEC 17025:2017

Effective Date June 19, 2024

FIELDS OF TESTING	MATERIAL/MATRIX	DETERMINANT(S)/ANALYTE(S)	METHOD REFERENCE
ENVIRONMENTAL CHEMISTRY - ORGANIC	Water for Human Use and Consumption, Natural Water, Wastewater (Analysis and Sampling)	Oils and fats	EPA Method 1664, Revision B: n-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated n-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry
		Non Polar Material	EPA Method 1664, Revision B: n-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated n-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry
	Water for Human Use and Consumption, Natural Water, Wastewater, Saline water (Analysis and Sampling)	Phenols	EPA Method 420.1. Phenolics (Spectrophotometric, Manual 4 AAP With Distillation)
Soils, Sediments and Sludge (Analysis and Sampling)		Oils and fats	EPA 9071B
		Organic material	Recommended Analysis Methods for Soils of Chile. INIA. 2006. Method 7.1
		Organic carbon	Recommended Analysis Methods for Soils of Chile. INIA. 2006. Method 7.1
Soils, Sediments and sludge (Analysis and Sampling)		F1 Hydrocarbon Fraction (C6 - C10)	EPA 8015 C Nonhalogenated Organics by Gas Chromatography
		F2 Hydrocarbon Fraction (C10 - C28)	
		Hydrocarbon Fraction F3 (C28 - C40)	

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FIELDS OF TESTING	MATERIAL/ MATRIX	DETERMINANT(S)/ ANALYTE(S)	METHOD REFERENCE
ENVIRONMENTAL CHEMISTRY - ORGANIC (cont'd.)		Total Petroleum Hydrocarbons (C10 - C40)	
	Water for Human Use and Consumption, Natural Water, Wastewater, Saline Water (Analysis and Sampling)	Hydrocarbon fraction F1 (C6 - C10)	EPA 8015 C Nonhalogenated Organics by Gas Chromatography
		F2 Hydrocarbon Fraction (C10 - C28)	
		F3 Hydrocarbon Fraction (C28 - C40)	
	Total Petroleum Hydrocarbons (C6 - C40)		
ENVIRONMENTAL CHEMISTRY – INORGANIC	Water for Human Use and Consumption, Natural Water, Wastewater, Saline water (Analysis and Sampling)	Surfactant	SMEWW-APHA-AWWA-WEF Part 5540 C, 23rd Ed.
		Chlorides	SMEWW-APHA-AWWA-WEF Part 4500-Cl - C, 24th Ed.2023.
		Total alkalinity	SMEWW-APHA-AWWA-WEF Part 2320 B, 23rd Ed.
		Bicarbonates	SMEWW-APHA-AWWA-WEF Part 2320 B, 23rd Ed.
		Carbonates	SMEWW-APHA-AWWA-WEF Part 2320 B, 23rd Ed.
		Acidity	SMEWW-APHA-AWWA-WEF Part 2310 B, 23rd Ed.
		Calcium (Ca) (Total and Dissolved)	SMEWW-APHA-AWWA-WEF Part 3111 B, 24th Ed.2023.
		Antimony (Sb) (Total and Dissolved)	USEPA SW-846 Method 7062
		Molybdenum (Mo) (Total and Dissolved)	SMEWW-APHA-AWWA-WEF Part 3111-D, 24th Ed.2023
		Ammonia Nitrogen	SMEWW-APHA-AWWA-WEF Part 4500-NH3 D. 24th Ed.2023
		Ammonia	SMEWW-APHA-AWWA-WEF Part 4500-NH3 D. 24th Ed.2023
		Ammonium	SMEWW-APHA-AWWA-WEF Part 4500-NH3 D. 24th Ed.2023
		Beryllium	SMEWW-APHA-AWWA-WEF Part 3111 D, 24th Ed.2023 Directd Nitrous Oxide - Acetilene Flame Method

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ENVIRONMENTAL CHEMISTRY – INORGANIC (cont'd.)		Sulfates	SMEWW-APHA-AWWA-WEF Part 4500 E, 24th Ed.2023 Sulfate. Turbidimetric Method
	Water for Human Use and Consumption, Natural Water, (Analysis and Sampling)	Total hardness	SMEWW-APHA-AWWA-WEF Part 2340 C (Not including Section 3a), 23rd Ed.
		Calcic hardness	SMEWW-APHA-AWWA-WEF Part 3500-Ca B (Not including Section 3a), 24th Ed.2023
	Water for Human Use and Consumption (Analysis and Sampling)	Copper (Cu) (Total and Dissolved)	SMEWW-APHA-AWWA-WEF Part 3111 B, 24th Ed.2023
		Iron (Fe) (Total and Dissolved)	SMEWW-APHA-AWWA-WEF Part 3111B, 24th Ed.2023
		Zinc (Zn) (Total and Dissolved)	SMEWW-APHA-AWWA-WEF Part 3111B, 24th Ed.2023
		Lead (Pb) (Total and Dissolved)	SMEWW-APHA-AWWA-WEF Part 3111B, 24th Ed.2023.
		Total Dissolved Solids	SMEWW-APHA-AWWA-WEF Part 2540 C (Except plate preparation for measuring volatile solids), 24th Ed.2023. Solids. Total Dissolved Solids Dried at 180°C
		Electrical Conductivity	SMEWW-APHA-AWWA-WEF Part 2510 B, 23rd Ed. 2017 Conductivity. Laboratory Method
		pH	SMEWW-APHA-AWWA-WEF Part 4500-H+ B, 24th Ed.2023. pH Value. Electrometric Method
		Total Solids	SMEWW-APHA-AWWA-WEF Part 2540 B (Except plate preparation for measuring volatile solids), 23rd Ed. 2017 Solids. Total Solids Dried at 103°C - 105°C.
	Saline Water (Analysis and Sampling)	Antimony	USEPA SW-846 Method 7062 Antimony and Arsenic (Atomic Absorption, Borohydride Reduction)
		Arsenic	SMEWW-APHA-AWWA-WEF Part 3114 C, 24th Ed.2023. Arsenic and Selenium by Hydride Generation/Atomic

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FIELDS OF TESTING	MATERIAL/ MATRIX	DETERMINANT(S)/ ANALYTE(S)	METHOD REFERENCE
ENVIRONMENTAL CHEMISTRY – INORGANIC (cont'd.)	Saline Water (Analysis and Sampling) (cont'd.)		Absorption Spectrometric Method
		Barium	SMEWW-APHA-AWWA-WEF Part 3111 C, 24th Ed.2023. Extraction / Air - Acetilene Flame Method
		Boron	SMEWW-APHA-AWWA-WEF Part 4500-B C, 24th Ed.2023. Boron. Carmine Method
		Cadmium	SMEWW-APHA-AWWA-WEF Part 3111 C, 24th Ed.2023. Extraction / Air - Acetilene Flame Method
		Cyanide Wad	SMEWW-APHA-AWWA-WEF Part 4500-CN- I,E 24th Ed.2023. Cyanide. Weak Acid Dissociable Cyanide, Colorimetric Method
		Copper	SMEWW-APHA-AWWA-WEF Part 3111 C, 24th Ed.2023. Extraction / Air - Acetilene Flame Method
		Color	SMEWW-APHA-AWWA-WEF Part 2120 C, 23rd Ed. 2017 Color. Spectrophotometric - Single - Wavelelength Method (Proposed)
		Electrical Conductivity	SMEWW-APHA-AWWA-WEF Part 2510 B, 23rd Ed. 2017 Conductivity. Laboratory Method
		Chrome	SMEWW-APHA-AWWA-WEF Part 3111 C, 24th Ed.2023. Extraction / Air - Acetilene Flame Method
		Hexavalent Chromium	SMEWW-APHA-AWWA-WEF Part 3500-Cr B, 24th Ed.2023. Chromium. Colorimetric Method
Biochemical oxygen demand	SMEWW-APHA-AWWA-WEF Part 5210 B, 23rd. Ed. 2017 Biochemical Oxygen Demand (BOD). 5 Day BOD Test		

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ENVIRONMENTAL CHEMISTRY – INORGANIC (cont'd.)	Saline Water (Analysis and Sampling) (cont'd.)	Mercury	SMEWW-APHA-AWWA-WEF Part 3112 B, 24th Ed.2023. Cold-Vapor Atomic Absorption Spectrometric
		Nitrates	SMEWW-APHA-AWWA-WEF Part 4500-NO3- E, 24th Ed.2023. Nitrogen (Nitrate). Cadmium Reduction Method
		Lead	SMEWW-APHA-AWWA-WEF Part 3111 C, 24th Ed.2023. Extraction / Air - Acetilene Flame Method
		Total Suspended Solids	SMEWW-APHA-AWWA-WEF Part 2540 D, 24th Ed.2023. Solids. Total Suspended Solids Dried at 103 - 105°C
		Zinc	SMEWW-APHA-AWWA-WEF Part 3111 C, 24th Ed.2023. Extraction / Air - Acetilene Flame Method
	Natural Waters Wastewater Water for Human Use and Consumption Saline Water Process Water (Measurement)	Dissolved Oxygen	SMEWW-APHA-AWWA-WEF Part 4500-O C, 24th Ed.2023. Dissolved). Azide Modification
		Chlorine Residual / Free	SMEWW-APHA-AWWA-WEF Part 4500-Cl G, 24th Ed.2023. Chloride (Residual). Dpd Colorimetric Method
	Soils, Sediments and Sludge (Analysis and Sampling)	Free Cyanide	EPA Method 9013 A/SMEWW-APHA-AWWA-WEF Part 4500-CN- F, 24th Ed.2023.
		Hexavalent chromium	EPA 3060 A / EPA 7196A
		Arsenic (As)	I.LAB.86. Validated. EPA SW-846 Method 3050B / USEPA SW-846 Method 7000 B
		Mercury (Hg)	EPA SW-846 Method 7471 B
		Chromium (Cr)	EPA SW-846 Method 3050B / EPA SW-846 Method 7000 B

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ENVIRONMENTAL CHEMISTRY – INORGANIC (cont'd.)	Soils, Sediments and Sludge (Analysis and Sampling) (cont'd.)	Aluminium (Al)	EPA 3050B / EPA 7000B
		Calcium (Ca)	EPA 3050B / EPA 7000B
		Cobalt (Co)	EPA 3050B / EPA 7000B
		Copper (Cu)	EPA 3050B / EPA 7000B
		Iron (Fe)	EPA 3050B / EPA 7000B
		Magnesium (Mg)	EPA 3050B / EPA 7000B
		Manganese (Mn)	EPA 3050B / EPA 7000B
		Molybdenum (Mo)	EPA 3050B / EPA 7000B
		Nickel (Ni)	EPA 3050B / EPA 7000B
		Silver (Ag)	EPA 3050B / EPA 7000B
		Potassium (K)	EPA 3050B / EPA 7000B
		Selenium (Se)	EPA 3050B / EPA 7000B
		Sodium (Na)	EPA 3050B / EPA 7000B
		Zinc (Zn)	EPA 3050B / EPA 7000B
		Bicarbonates	Recommended Analysis Methods For The Soils Of Chile. Inia. Rev. 2006. Method 12.1
		Carbonates	Recommended Analysis Methods For The Soils Of Chile. Inia. Rev. 2006. Method 12.1
		Available phosphorus	Recommended Analysis Methods for Soils of Chile. INIA. 2006. Method 7.1
	Emissions	Nitrogen dioxide (NO ₂)	EPA CTM 022 1995
		Nitrogen oxide (NO _x)	EPA CTM 022 1995
		Carbon monoxide (CO)	EPA CTM 030 1997
		Nitrogen dioxide (NO ₂)	EPA CTM 030 1997
		Nitrogen oxide (NO _x)	EPA CTM 030 1997
		Oxygen (O ₂)	EPA CTM 030 1997
		Carbon monoxide (CO)	EPA CTM 034
		Nitrogen dioxide (NO ₂)	EPA CTM 034
		Nitrogen oxide (NO _x)	EPA CTM 034
		Oxygen (O ₂)	EPA CTM 034

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ENVIRONMENTAL CHEMISTRY – INORGANIC (cont'd.)	Emissions (cont'd.)	Sulfur dioxide (SO ₂)	EPA METHOD 6C
		Carbon monoxide (CO)	EPA Method 10 Determination of Carbon Monoxide from Stationary Sources (Instrumental Analyzer Procedure)
ENVIRONMENTAL MICROBIOLOGY	Water for Human Use and Consumption, Natural Water (Analysis and Sampling)	Helminth eggs	I.LAB.100. VALIDATED - (Referenced in the modified Bailenger method. Analysis of residual water for use in agriculture. WHO 1997)
	Saline Water (Analysis and Sampling)	Fecal Coliforms	SMEWW-APHA-AWWA-WEF Part 9221 E (Item 1), 24th Ed.2023. Multiple-tube Fermentation Technique for Members of the Coliform Group. Thermotolerant (Fecal) Coliform Procedure. Thermotolerant Coliform Test (EC Medium)
		Total Coliforms	SMEWW-APHA-AWWA-WEF Part 9221 B, 24th Ed.2023. Multiple-tube Fermentation Technique for Members of the Coliform Group. Standard Total Coliform Fermentation Technique
	ENVIRONMENTAL HYDROBIOLOGY	Epicontinental Sediments (Analysis and Sampling)	Macro zoobenthos / Macroinvertebrates
Surface Water, Saline Water (Analysis and Sampling)		Quantitative Phytoplankton	SMEWW-APHA- AWWA-WEF Part 10200 C.1, F.2.(a,c.1). 23rd Ed. 2017 Plankton. Phytoplankton Counting Techniques
		Qualitative Phytoplankton	SMEWW-APHA- AWWA-WEF Part 10200 C.1, F.2.c.1. / Part 10900. 23rd Ed. 2017 Plankton. Phytoplankton Counting Techniques // Identification of Aquatic Organisms
		Quantitative Zooplankton	SMEWW-APHA- AWWA-WEF Part 10200 C.1, G. 23rd Ed. 2017 Plankton. Concentration Techniques. Zooplankton Counting Techniques.

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ENVIRONMENTAL HYDROBIOLOGY (cont'd.)	Surface Water, Saline Water (Analysis and Sampling) (cont'd.)	Qualitative Zooplankton	SMEWW-APHA- AWWA-WEF Part 10200 C.1, G. / Part 10900. 23rd Ed. 2017 Plankton. Concentration Techniques. Zooplankton Counting Techniques. // Identification of Aquatic Organisms
	Water for Human Use and Consumption, Natural Water (Analysis and Sampling)	Free-living organisms Phytoplankton (Algae) + Zooplankton (Protozoa, rotifers, copepods and nematodes)	SMEWW-APHA- AWWA-WEF Part 10200 C.1, F.2(a,c.1). / SMEWW-APHA- AWWA-WEF Part 10200 C.1, G. 23rd Ed. 2017 Plankton. Concentration Techniques. Sedimentation-Settling. Phytoplankton Counting Techniques. // Plankton. Zooplankton Counting Techniques.
ENVIRONMENTAL – ACOUSTIC	Environmental noise	Environmental noise	NTP ISO 1996-2:2021 NTP ISO 1996-1:2020
			NTP 854,001-1 2012 (rev 2017) NTP 854,001-2 2012 (rev 2017)
ENVIRONMENTAL – AIR	Occupational Monitoring (sampling and analysis)	Inhalable Powder	NIOSH Method 0500, issue 2 2019
		Breathable Dust	NIOSH Method 0600, issue 3 2020
		Lead	EPA Compendium Method IO-3.2
		Benzene	ASTM D3686-20 Standard Test method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method
	Air (Analysis and Sampling)	Arsenic	EPA Compendium Method IO-3.2 Determination of Metals in Ambient Particulate Matter using Atomic Absorption (AA) Spectroscopy.
		Benzene	UNE-EN 14662-2 Standard method for measuring benzene concentrations
		Non-Methane Hydrocarbons	ASTM D3687 / ASTM D3686 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube

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ENVIRONMENTAL – AIR (cont'd.)	Air (Analysis and Sampling) (cont'd.)		Adsorption Method. Total Hydrocarbons expressed as Hexane
		Total Hydrocarbons Expressed in Hexane	ASTM D3687 / ASTM D3686 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method. Total Hydrocarbons expressed as Hexane
		Copper (Cu) PM10 Low volume	EPA Compendium Method IO-3.2 Determination of Metals in Ambient Particulate Matter using Atomic Absorption (AA) Spectroscopy
		Cadmium (Cd) PM10 Low volume	EPA Compendium Method IO-3.2 Determination of Metals in Ambient Particulate Matter using Atomic Absorption (AA) Spectroscopy
		Chrome (Cr) PM Low volume	EPA Compendium Method IO-3.2 Determination of Metals in Ambient Particulate Matter using Atomic Absorption (AA) Spectroscopy
		Iron (Fe) PM10 Low volume	EPA Compendium Method IO-3.2 Determination of Metals in Ambient Particulate Matter using Atomic Absorption (AA) Spectroscopy
	Zinc (Zn) PM10 Low volume	EPA Compendium Method IO-3.2 Determination of Metals in Ambient Particulate Matter using Atomic Absorption (AA) Spectroscopy	
	Meteorology (Measurement)	Wind Speed Wind Direction	ASTM D 5741 - 96 (2017) Standard Practice for Characterizing Surface Wind Using a Wind Vane and Rotating Anemometer
ENVIRONMENTAL - WATER	Natural Water Wastewater (Measurement)	Flow rate	UNE-EN ISO 748:2009 Hydrometry - Measurement of liquid flow in open channels using current-meters or floats

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INORGANIC CHEMISTRY	Toys, Part of Toys and Stationery Supplies	Aluminium (Al)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Arsenic (As)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Antimony (Sb)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Barium (Ba)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Cadmium (Cd)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Cobalt (Co)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Copper (Cu)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Lead (Pb)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Manganese (Mn)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Nickel (Ni)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
		Selenium (Se)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements
Zinc (Zn)	NTP 324.001 - 3: 2018 Safety of Toys. Part 3: Migration of contaminant elements		