



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ALGORITMOS Y MEDICIONES AMBIENTALES SPA
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ENVIRONMENTAL

Valid To: March 31, 2025

Certificate Number: 4235.01

In recognition of the successful completion of the A2LA evaluation process, including an evaluation of the organization's compliance with The NELAC Institute's National Environmental Field Activities Program (NEFAP) Field Sampling and Measurement Organization Volume 1 Standard (TNI FSMO V1 2014 Rev 2.0), accreditation is granted to this organization to perform recognized methods using the following testing technologies and in the analyte categories identified below:

FSMO Type:

Commercial, Public and Private Water System, Public and Private Wastewater System, Industrial

Mobile Units: Trucks

Water Sampling:

<u>Matrices</u>	<u>Technologies</u>	<u>Procedures(s)</u>
Drinking Water, Drinking Fountains	Grab Sampling, Automatic Samplers, Flow Monitoring	NCh 409/2 2004 Drinking Water Part 2 – Sampling; NCh ISO 5667/1 2017 Water quality - Sampling Guidance on the design of sampling programmes and sampling techniques NCh 411/3 2014 Guide on the Preservation and Handling of Samples
Water for industrial purposes	Grab sampling	P-1001, Ed.00 Technical Procedure for Water Sampling
Superficial Water, Underground Water, Marine Waters	Grab Sampling, Automatic Samplers, Flow Monitoring	NCh ISO 5667/1 2017 Water quality - Sampling Guidance on the design of sampling programmes and sampling techniques NCh 411/3 2014 Guide on the Preservation and Handling of Samples; NCh 411/4 1997 Guide for the Sampling of Natural and Artificial Lakes; NCh 411/9 1997 Guide for the Sampling of Marine Waters; NCh 411/11 1998 Guide for the Sampling of Underground Water; NCh-ISO 5667/6 2015 Guide for the Sampling of Rivers and Water Courses

<u>Matrices</u>	<u>Technologies</u>	<u>Procedures(s)</u>
Wastewater	Grab Sampling, Automatic Samplers, Flow Monitoring, Temperature Monitoring,	NCh ISO 5667/1 2017 Water quality - Guidance on the design of sampling programmes and sampling techniques NCh 411/3 2014 Guide on the Preservation and Handling of Samples; NCh 411/10 2005 Guide for the Sampling of Wastewaters; NCh 3205 2011 Flowmeters of Wastewater Requirements;

Solid Sampling:

<u>Matrices</u>	<u>Technologies</u>	<u>Procedures(s)</u>
Soil	Grab Sampling	P-1002 Ed.00 Technical Procedure for Soil Sampling based NCh 3400/1:2016 Soil Quality; Guidelines for the design of sampling programs and NCh 3400/2:2016 Soil Quality: Guidelines on sampling techniques
Sludge	Grab sampling	I-1021 Ed.00, Operational Instruction Sludge and Compost Sampling
Compost	Grab sampling	I-1021 Ed.00, Operational Instruction Sludge and Compost Sampling
Aquatic sediments, Marine Sediments, Lake Sediments	Grab sampling	P-1007 Ed.00, Technical Procedure for Sediments Sampling and Measuring
Solid Industrial waste, Solid waste, Dangerous Waste	Grab sampling	P-1009 Ed.00, Technical Procedure for Solid Waste, Solid Industrial Waste, and Dangerous Waste Sampling
Respirable Silica	Sampling and analysis	P-9007 Ed.00, Procedure for Crystallized Silica in Breathable Fraction, Unsorted Dust in Breathable Fraction and Total Unclassified Powder Sampling

Water Measurements: Drinking water, Drinking Fountains, Seawater, Superficial, Wastewater, and Underground Water

<u>Parameter/Analyte¹</u>	<u>Technology</u>	<u>Procedure(s)</u>
Alkalinity – Superficial water, Underground water, Wastewater, and drinking water, Seawater	Photometry	I-1022 Ed.00, Operational Instruction Alkalinity measurement
Chlorophyll – Superficial water, Underground water	Optical	I-1023 Ed.00, Operational Instruction Use of depth probe
Dissolved Oxygen in Water Supply Sources, Wastewater, Superficial, Underground Water Seawater, drinking water, water for industrial purposes	Electrochemical	Standard Methods for Examination of Water and Wastewater 23rd ed. 2017, 4500-O G
Dissolved Oxygen in Superficial Water, Underground Water Seawater, drinking water, water for industrial purposes, Water Supply Sources,	Optical	Standard Methods for Examination of Water and Wastewater 23rd ed. 2017; 4500-O H

Parameter/Analyte¹	Technology	Procedure(s)
Electrical Conductivity in Drinking Water, Water Supply Sources, Wastewater, Superficial, Underground Water, Seawater, water for industrial purposes	Electrode Cell Probe	Standard Methods for Examination of Water and Wastewater 23 rd ed. 2017; 2510 B
Floating matter and unnatural foams – Superficial water, Underground water, Wastewater, and drinking water, Seawater, Water for industrial purposes, Water supply sources	Visual method	I-1017 Ed.00, Operational Instruction Sampling Fats and oils, determination of floating matter and unnatural foams
Floating oils and fats in Superficial water, underground water, wastewater, drinking water, seawater, water for industrial purposes and Drinking Fountains.	Grab Sampling	
Oxidation – Reduction Potential (ORP) – Superficial water, Underground Water, Wastewater, and drinking water	Electrode cell probe	Standard Methods for Examination of Water and Wastewater 23 rd ed. 2017; 2580. B.
Oxidation – Reduction Potential (ORP) – Aquatic sediments, Marine sediments, Lake sediments	Electrode cell probe	P-1007 Ed.00, Technical Procedure for Sediments Sampling and Measuring
Oxidation–Reduction Potential- Seawater	Electrode cell probe	I-1006 Ed.00, Operational Instruction Seawater sampling
pH in Drinking Water, Water Supply Sources, Wastewater, Superficial water, seawater, and Underground Water	Potentiometric	Standard Methods for Examination of Water and Wastewater 23 rd ed. 2017 4500 H+B
pH in seawater	Electrometric	I-1006 Ed.00, Operational Instruction for Seawater sampling
pH Online in Wastewater, Superficial and Underground Water	Potentiometric	I-1004 Ed.00 Operational Instruction Residual Water Sampling
pH in Wastewater	Potentiometric	NCh2313/1 2021. pH Determination.
Residual Free Chlorine in Drinking Water, Drinking Fountains, Wastewater, Superficial, seawater, water for industrial purposes and Underground Water	Colorimetric	Standard Methods for Examination of Water and Wastewater 23 rd ed. 2017, 4500 Cl G DPD
Total Chlorine in Drinking Water, Drinking Fountains, Wastewater, Superficial, seawater, water for industrial purposes and Underground Water	Colorimetric	Standard Methods for Examination of Water and Wastewater 23 rd ed. 2017, 4500 Cl G



Parameter/Analyte¹	Technology	Procedure(s)
Temperature in Superficial water, Underground water, Seawater, Wastewater, Drinking Fountains and drinking water, Water for industrial purposes	Thermistor	Standard Methods for Examination of Water and Wastewater 23rd ed. 2017, 2550 B
Temperature Online in Wastewater, Superficial and Underground Water	Thermistor	I-1004 Ed.00 Operational Instruction Residual Water Sampling
Temperature – Wastewater	Thermistor	NCh2313/2. Of95. Temperature Determination
Salinity – Superficial water, Underground water, drinking water, Wastewater, Seawater	Electrode cell probe	I-1020 Ed.00, Operational Instruction Salinity Measuring
Settleable solids – Wastewater	Decanting	I-1019 Ed.00, Operational Instruction Settleable solids Measuring
Total dissolved solids- Superficial water, Underground water, Seawater, Wastewater, and drinking water, Water for industrial purposes, Water supply sources	Electrode cell probe	I-1018 Ed.00, Operational Instruction Total dissolved solids Measuring
Total Suspended Solids Superficial water, Underground water, Wastewater, Seawater, and drinking water, Water for industrial purposes, Water supply sources	Optical	I-1010 Ed.00, Measurement of Total Suspended Solids
Total Suspended Solids- Seawater	Electrochemistry	I-1006 Ed.00, Operational Instruction Seawater sampling
Transparency – Superficial water, Underground water, Wastewater, and drinking water, Seawater, Water for industrial purposes, Water supply. sources	Secchi disk method	I-1016 Ed.00, Operational Instruction Use of Secchi disk
Turbidity Superficial water, Underground water, Wastewater, and drinking water, Seawater, water for industrial purposes, Water supply sources	Nephelometric	I-1011 Ed.00, Measurement of Turbidity on Field
Water Flow Superficial water, Underground water, Seawater, drinking water, Water for industrial purposes, Water supply sources, wastewater	Velocity-Area method	ASTM D 3858 – 95(2014) Standard test method for Open-Channel flow measurement of Water by velocity-Area Method
Water Flow in Wastewater, Superficial, and Underground Water	Volumetric, Metered	According to Manufacturer’s Manual Equipment HACH AS959 and Manufacturer’s Manual Equipment ISCO 6712
Water flow – Wastewater	Ultrasonic	NCh 3205/2011 flow meters in wastewater
Water Table level – Underground water, Water for industrial purposes	Longitudinal	ASTM D 4750 – 87(2001) Standard test Method for determining subsurface liquid levels in borehole or monitoring well
Water level – Superficial water	Longitudinal	ASTM D5413 – 93(2013) Standard Test Methods for Measurement of Water Levels in Open-Water Bodies

Parameter/Analyte¹	Technology	Procedure(s)
Water level – Superficial water	Pressure	ASTM D5413 – 93(2013) Standard Test Methods for Measurement of Water Levels in Open-Water Bodies
Water Table Level Underground water, Water for industrial purposes	Longitudinal	I-1003 Ed.01 Operational Instruction Groundwater Sampling

Solids Measurements: Soils, sludges, sediments, composts

Parameter/Analyte[†]	Technology	Procedure(s)
Oxidation – Reduction Potential- Sludge, Compost, Soil	Electrode cell probe	I-1021 Ed.00, Operational Instruction Sludge and Compost Sampling
pH- Sludge, Compost, Soil	Potentiometric	I-1021 Ed.00, Operational Instruction Sludge and Compost Sampling
pH- Aquatic sediments, Marine sediments, Lake sediments	Potentiometric	P-1007 Ed.00, Technical Procedure for Sediments Sampling and Measuring
Temperature- Sludge, Compost, Soil	Thermistor	I-1021 Ed.00, Operational Instruction Sludge and Compost Sampling
Temperature – Aquatic sediments, Marine sediments, Lake sediments	Thermistor	P-1007 Ed.00, Technical Procedure for Sediments Sampling and Measuring

Air Emissions Sampling:

Matrices¹	Parameter/Analyte	Methods
Particulate Matter	Particulate Material	CH-5 Method Rev.3, 2020 based on EPA 5.
Gases	Ammonia	EPA CTM 27, 1997
Gases	Determination of COV Emissions from Stationary Sources (Gas Chromatography)	CH-18 Method Rev.1, 1998 based on EPA 18.
Particulate Matter	Determination of Particulate Matter in Stationary Sources (without heating)	EPA 17, 2017
Gases	Formaldehyde Sampling and Analysis in Mineral, Wool, and Fiberglass industries	EPA 316, 2020
Gases	Hydrogen Halide, Halogen Emissions: Total Bromine, Hydrogen Bromide, Total Chlorine, Hydrogen Chloride, Hydrogen Fluoride	CH-26A Method Rev.1, 2010 based on EPA 26A.
Gases – Particulate Matter	Metals: Al, Sb, As, Ba, Be, Cd, Zn, Co, Cu, Cr, P, Mn, Hg, Ni, Ag, Pb, Se, Tl, Te, V, Zr	CH-29 Method Rev.1, 2010 based on EPA 29.
Particulate Matter	PM10 and PM2.5	EPA 201A, 2020
Particulate Matter	Condensable Particulate Matter	EPA 202, 2017
Gases – Particulate Matter	Polychlorinated Dibenzene-p-dioxins, Polychlorinated Dibenzofurans	CH-23 Method Rev.1, 2010 based on EPA 23.
Gases	Sulfuric Acid, Sulfur Dioxide, Sulfur Trioxide Acid	EPA 8, 2019

<u>Matrices</u>¹	<u>Parameter/Analyte</u>	<u>Methods</u>
Gases	Total Reduced Sulfur Emissions (TRS)with Impinger: Sulfur Dioxide, Carbon Disulfide, Methyl Disulfide, Methyl Mercaptan, Carbonyl Sulfide, DimethylSulfide, Hydrogen Sulfide	EPA 16A, 2017
Gases – Particulate Matter	Total Sulfur	Method I-5039 Ed.00, Based on EPA 8 and EPA 16A
Gases	Total Reduced Sulfur Emissions (TRS): Sulfur Dioxide, Methyl Disulfide, Methylmercaptan, Dimethyl Sulfide, Hydrogen Sulfide	EPA 16B, 2020

Air Sampling:

<u>Matrices</u>¹	<u>Parameter</u>	<u>Methods</u>
Air Quality	Air Quality - Odor	NCh 3386:2015, Static Sampling by Olfactometry, Based on VDI 3880-2011-10

Air Emissions Measurement:

<u>Matrices</u>¹	<u>Parameter/Analyte</u>	<u>Methods</u>
Gases	Carbon Monoxide	CH-10 Method Rev.1, 1998 based on EPA 10.
Gases	Determination of COV Concentration (Flame Ionization)	CH-25A Method Rev.1, 1998 based on EPA 25A.
Gases – Particulate Matter	Determination of Flow Velocity and Volumetric Flow in Chimney Gases	CH-2 Method Rev.1, 1996 based on EPA2.
Gases – Particulate Matter	Determination of Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube)	CH-2C Method Rev.1, 1996 based on EPA 2C.
Gases – Particulate Matter	Determination of Humidity Content in Chimney Gases	CH-4 Method Rev.1, 1996 based on EPA 4.
Gases – Particulate Matter	Direct Measurement of Gas Volume through Pipes and Small Ducts	CH-2A Method Rev.1, 1996 based on EPA2A.
Gases – Particulate Matter	Gas Analysis for Determining Correction Factor of Emission Velocity or Air Excess	CH-3B Method Rev.1, 1996 based on EPA 3B.
Gases – Particulate Matter	Gas Analysis for Dry Molecular Weight Determination	CH-3 Method Rev.1, 1996 based on EPA 3.
Gases – Particulate Matter	Measurement of Gas Volume Flow Rates in Small Pipes and Ducts	CH-2D Method Rev.1, 1996 based on EPA 2D.
Gases	Nitrogen Oxides with Instrument Analyzer	CH-7E Method Rev.1, 1996 based on EPA 7E.
Gases – Particulate Matter	Oxygen, Carbon Dioxide, Carbon Monoxide	CH-3A Method Rev.1, 1996 based on EPA3A.
Gases – Particulate Matter	Sample and Velocity Traverses (Sampling Point Identification) for Stationary Sources	CH-1 Method Rev.1, 1996 based on EPA1.

Matrices¹	Parameter/Analyte	Methods
Gases – Particulate Matter	Sample and Velocity Traverses (Sampling Point Identification) for Stationary Sources with Small Stacks or Ducts	CH-1A Method Rev.1, 1996 based on EPA 1A.
Gases	Sulfur Dioxide, with Instrument Analyzer	CH-6C Method Rev.1, 1996 based on EPA 6C.

MECHANICAL

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this organization to perform recognized methods using the following test methods identified below:

Test¹	Method
Noise Measurement, Sound Pressure Level Corrected (NPC)	DS N°38/11 MMA
Noise Measurement, Equivalent Sound Pressure Level (LEQ)	P-9011 Ed.00 (Technical Procedure for Measuring Noise Generated by Sources not Regulated by DS 38/11 MMA)

¹ This Laboratory performs field testing activities for these test methods.





Accredited Laboratory

A2LA has accredited

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Santiago, CHILE

for technical competence in the field of

Environmental Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of A2LA R219 – *Specific Requirements – TNI Field Sampling and Measurement Organization Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 25th day of August 2023.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4235.01
Valid to March 31, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.