



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ALGORITMOS Y MEDICIONES AMBIENTALES SPA
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ENVIRONMENTAL

Valid to: June 30, 2023

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:

ESMO Type:

Commerical, 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 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, Rev 4 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 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 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 411/10 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 Rev.05 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, Rev 00, Operational Instruction Sludge and Compost Sampling
Compost	Grab sampling	I-1021, Rev 00, Operational Instruction Sludge and Compost Sampling
Aquatic sediments, Marine Sediments, Lake Sediments	Grab sampling	P-1007, Rev 00, Technical Procedure for Sediments Sampling and Measuring
Industrial waste, Solid waste, Dangerous Waste	Grab sampling	P-1009, Rev 00, Technical Procedure for Solid, Industrial, and Dangerous Waste Sampling
Respirable Silica	Sampling and analysis	P-9007, Rev01, Procedure for Crystallized Silica in Breathable Fraction, Unsorted Dust in Breathable Fraction and Total Unclassified Powder Sampling

Water Measurements: Drinking Water, Drinking Fountains, Wastewater, Seawater, Superficial 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, Rev 00, Operational Instruction Alkalinity measurement
Chlorophyll – Superficial water, Underground water	Optical	I-1023, Rev 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 23 rd 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 23 rd 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, Rev 00, Operational Instruction Sampling Fats and oils, determination of floating matter and unnatural foams
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, Rev 00, Technical Procedure for Sediments Sampling and Measuring
Oxidation–Reduction Potential–Seawater	Electrode cell probe	I-1006, Rev 03, 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 23th ed. 2017 4500 H+B
pH in seawater	Electrometric	I-1006, Rev 03, Operational Instruction for Seawater sampling
pH Online in Wastewater, Superficial and Underground Water	Potentiometric	I-1004 Rev.02 Operational Instruction Residual Water Sampling
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 CI 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 CI G
Temperature in Superficial water, Underground water, Seawater, Wastewater, and drinking water, Water for industrial purposes	Thermistor	Standard Methods for Examination of Water and Wastewater 23th ed. 2017 2550 B
Temperature Online in Wastewater, Superficial and Underground Water	Thermistor	I-1004 Rev.02 Operational Instruction Residual Water Sampling

<u>Parameter/Analyte¹</u>	<u>Technology</u>	<u>Procedure(s)</u>
Salinity – Superficial water, Underground water, drinking water, Wastewater, Seawater	Electrode cell probe	I-1020, Rev 00, Operational Instruction Salinity Measuring
Settleable solids – Wastewater	Decanting	I-1019, Rev 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, Rev 01, Operational Instruction Total dissolved solids Measuring
Total Suspended Solids Superficial water, Underground water, Wastewater, Seawater, and drinking water, Seawater, Water for industrial purposes, Water supply sources	Optical	I-1010 Rev.02 Measurement of Total Suspended Solids
Total Suspended Solids- Seawater	Electrochemistry	I-1006, Rev 03, 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, Rev 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 Rev.03 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 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 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
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 Rev.6 Operational Instruction Groundwater Sampling

Solids Measurements: Soils, sludges, sediments, composts

<u>Parameter/Analyte¹</u>	<u>Technology</u>	<u>Procedure(s)</u>
Oxidation – Reduction Potential- Sludge, Compost, Soil	Electrode cell probe	I-1021, Rev 00, Operational Instruction Sludge and Compost Sampling
pH- Sludge, Compost, Soil	Potentiometric	I-1021, Rev 00, Operational Instruction Sludge and Compost Sampling
pH- Aquatic sediments, Marine sediments, Lake sediments	Potentiometric	P-1007, Rev 00, Technical Procedure for Sediments Sampling and Measuring
Temperature- Sludge, Compost, Soil	Thermistor	I-1021, Rev 00, Operational Instruction Sludge and Compost Sampling
Temperature – Aquatic sediments, Marine sediments, Lake sediments	Thermistor	P-1007, Rev 00, Technical Procedure for Sediments Sampling and Measuring

Air Emissions Sampling:

<u>Matrices¹</u>	<u>Parameter/Analyte</u>	<u>Methods</u>
Particulate Matter	Particulate Material	CH-5 Method, Based on EPA 5
Gases	Ammonia	EPA CTM 27
Gases	Determination of COV Emissions from Stationary Sources (Gas Chromatography)	CH-18 Method Based on EPA 18
Particulate Matter	Determination of Particulate Matter in Stationary Sources (without heating)	EPA 17
Gases	Formaldehyde Sampling and Analysis in Mineral, Wool, and Fiberglass industries	EPA 316
Gases	Hydrogen Halide, Halogen Emissions: Total Bromine, Hydrogen Bromide, Total Chlorine, Hydrogen Chloride, Hydrogen Fluoride	CH-26A Method, 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, Based on EPA 29
Particulate Matter	PM10 and PM2.5	EPA 201A
Particulate Matter	Condensable Particulate Matter	EPA 202
Gases – Particulate Matter	Polychlorinated Dibenzene-p-dioxins, Polychlorinated Dibenzofurans	CH-23 Method, Based on EPA 23
Gases	Sulfuric Acid, Sulfur Dioxide, Sulfur Trioxide Acid	EPA 8
Gases	Total Reduced Sulfur Emissions (TRS) with Impinger: Sulfur Dioxide, Carbon Disulfide, Methyl Disulfide, Methyl Mercaptan, Carbonyl Sulfide, Dimethyl Sulfide, Hydrogen Sulfide	EPA 16A

Matrices¹	Parameter/Analyte	Methods
Gases – Particulate Matter	Total Sulfur	Method I-5039, Based on EPA 8 and EPA 16A
Gases	Total Reduced Sulfur Emissions (TRS): Sulfur Dioxide, Methyl Disulfide, Methylmercaptan, Dimethyl Sulfide, Hydrogen Sulfide	EPA 16B.

Air Emissions Measurement:

Matrices¹	Parameter/Analyte	Methods
Gases	Carbon Monoxide	CH-10 Method, Based on EPA 10
Gases	Determination of COV Concentration (Flame Ionization)	CH-25A Method, Based on EPA 25A
Gases – Particulate Matter	Determination of Flow Velocity and Volumetric Flow in Chimney Gases	CH-2 Method, 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, Based on EPA 2C
Gases – Particulate Matter	Determination of Humidity Content in Chimney Gases	CH-4 Method, Based on EPA 4
Gases – Particulate Matter	Direct Measurement of Gas Volume through Pipes and Small Ducts	CH-2A Method, Based on EPA2A
Gases – Particulate Matter	Gas Analysis for Determining Correction Factor of Emission Velocity or Air Excess	CH-3B Method, Based on EPA 3B
Gases – Particulate Matter	Gas Analysis for Dry Molecular Weight Determination	CH-3 Method, Based on EPA 3
Gases – Particulate Matter	Measurement of Gas Volume Flow Rates in Small Pipes and Ducts	CH-2D Method, Based on EPA 2D
Gases	Nitrogen Oxides with Instrument Analyzer	CH-7E Method, Based on EPA 7E
Gases – Particulate Matter	Oxygen, Carbon Dioxide, Carbon Monoxide	CH-3A Method, Based on EPA 3A
Gases – Particulate Matter	Sample and Velocity Traverses (Sampling Point Identification) for Stationary Sources	CH-1 Method, Based on EPA1
Gases – Particulate Matter	Sample and Velocity Traverses (Sampling Point Identification) for Stationary Sources with Small Stacks or Ducts	CH-1A Method, Based on EPA1A
Gases	Sulfur Dioxide, with Instrument Analyzer	CH-6C Method, 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:

<u>Test</u> ¹	<u>Method</u>
Noise Measurement, Sound Pressure Level Corrected (NPC)	DS N°38/11 MMA
Noise Measurement, Equivalent Sound Pressure Level (LEQ)	P-9011, Rev.0 (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 30th day of June 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4235.01
Valid to March 31, 2023

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



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Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4235.01
Valid to June 30, 2023
Revised March 16, 2023

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