



CERTIFICATE OF ACCREDITATION

This is to attest that

ALS LIFE SCIENCES CHILE S.A - ANTOFAGASTA

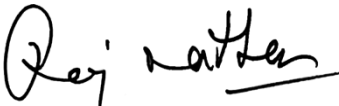
EL YODO 7764
ANTOFAGASTA, 1240000, REPUBLIC OF CHILE

Testing Laboratory TL-990

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 July 1, 2025
Effective Date November 23, 2023





President

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SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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ALS LIFE SCIENCES CHILE S.A - ANTOFAGASTA

Contact Name Roberto Gutierrez

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Accredited to ISO/IEC 17025:2017

Effective Date November 23, 2023

Test Method	Title	Determinant(s)/Analyte(s)
PHYSICAL CHEMISTRY FOR WATERS		
Drinking Water and Sources of Uptake		
ME-03-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Nephelometric method	Turbidity
ME-04-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Copper
ME-05-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Chrome
ME-06-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Fluoride
ME-07-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometric method with direct aspiration	Iron
ME-08-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Manganese
ME-09-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Magnesium

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Test Method	Title	Determinant(s)/Analyte(s)
ME-10-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with hydride generation	Selenium
ME-11-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Zinc
ME-12-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with hydride generation	Arsenic
ME-13-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Cadmium
ME-15-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with mercury atomic vapor generation	Mercury
ME-17-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Nitrite Determination by UV-VIS Molecular Absorption Spectrophotometry Method	Nitrite
ME-18-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Atomic absorption spectrophotometry method with direct aspiration	Lead
ME-23-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Determination of Monochloramine by DPD Titrimetric Method with FAS	Monochloramine
ME-24-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Platinum-Cobalt Method	True Colour
ME-25-2013	Superintendency of Sanitary Services. Manual of test methods for drinking water. Organoleptic method	Odor

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Test Method	Title	Determinant(s)/Analyte(s)
ME-26-2013	Superintendency of Sanitary Services. Manual of test methods for drinking water. Organoleptic method	Flavor
ME-27-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Determination of Ammonia by Specific Electrode Method	Ammonia, Ammonia Nitrogen
ME-28-2007	Superintendency of Sanitary Services. Manual of Test Methods for Drinking Water. Argentometric method	Chloride
ME-29-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Electrometric method	pH
ME-30-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Gravimetric Waste Drying Method	Sulfate
ME-31-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Gravimetric method	Dissolved Solids
ME-32-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. UV-Visible Molecular Absorption Spectrophotometry	Phenolic compounds
ME-33-2007	Superintendency of Sanitary Services. Manual of test methods for drinking water. Ferrous Titrimetric DPD Method (FAS)	Residual free chlorine
QWI-IO-N-NO3-01 (Issue A Modification 3)	Method based on Standard Methods for the Examination Water and Water, 24th Edition, 2023, 4500-NO3 B	Nitrate
Drinking Water, Sources of Uptake, Surface Water (Rivers, Streams and Lakes) Ground Water, Sea Water, Industrial Purposes Water, Wastewater		
QWI-IO-ALC-01 (Issue B Modification 5)	Method based on Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023, 2320-B	Bicarbonate alkalinity
QWI-IO-ALC-01 (Issue B Modification 5)	Method based on Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023, 2320-B	Hydroxide Alkalinity

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Test Method	Title	Determinant(s)/Analyte(s)
QWI-IO-ALC-01 (Issue B Modification 5)	Method based on Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023, 2320-B	Total alkalinity
2320 A and B Alkalinity	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023.	Alkalinity (Bicarbonate, Carbonate, Hydroxide, Total)
34500 B C Carmine Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Boron
QWI-IO-CE-01 (Issue B Modification 7)	Method based on Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023, 2510-B Electrometric Method	Conductivity
5210 B 5 Day BOD Test	Standards Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Biochemical Oxygen Demand
5220-D Closed Reflux, Colorimetric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Chemical Oxygen Demand
QWI-IO-Density-02 (Issue A Modification 2)	Method based on Standard Test Methods for Specific Gravity of water and brine ASTM D1429-08 Pycnometer	Density
4500 SiO2 C Colorimetric method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Silica (Reactive)
QWI-IO-SULFURO-01 (Issue C Modification 1)	Method based on Standard Methods for the Examination of Water and Wastewater 24th Edition, 2023, 4500-S-2-D Spectrophotometry of Absorption Molecular	Sulfide
3030 B and D and 3114 C Arsenic and Selenium by AAS - Continuous Hydride Generation	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Arsenic and Selenium by AAS - Continuous Hydride Generation, Atomic Absorption Spectrophotometry (Total and dissolved Metals): Arsenic
	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Arsenic and Selenium by AAS - Continuous Hydride Generation, Atomic Absorption Spectrophotometry (Total and dissolved Metals): Selenium
3030 B and D 3114 B Arsenic and Selenium by AAS - Continuous Hydride Generation	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Arsenic and Selenium by AAS - Manual Hydride Generation, Atomic Absorption Spectrophotometry (Total and dissolved Metals): Arsenic and Selenium

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Test Method	Title	Determinant(s)/Analyte(s)
3030 B and 3111 B Dissolved Metals by AAS - Direct Air-acetylene Flame	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Metals by AAS - Direct Air-acetylene Flame, Atomic Absorption Spectrophotometry (dissolved Metals): Antimony, Bismuth, Cesium, Gold, Iridium, Palladium, Rhodium, Thallium, Cadmium, Calcium, Zinc, Cobalt, Copper, Iron, Lithium, Magnesium, Manganese, Silver, Lead, Nickel, chromium, potassium, sodium, strontium, tin
3030 D and 3111 B Total Metals by AAS - Direct Air-acetylene Flame	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Metals by AAS - Direct Air-acetylene Flame, Atomic Absorption Spectrophotometry (Total Metals): Antimony, Bismuth, Cesium, Gold, Iridium, Palladium, Rhodium, Thallium, Cadmium, Calcium, Zinc, Cobalt, Copper, Iron, Lithium, Magnesium, Manganese, Silver, Lead, Nickel, Chromium, Potassium, Sodium, Strontium, Tin
3030 B and 3111 D Dissolved Metals by AAS - Direct nitrous Oxide-Acetylene Flame	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Metals by AAS - Direct Nitrous Oxide-acetylene Flame, Atomic Absorption Spectrophotometry (dissolved Metals): Barium, Beryllium, Molybdenum, Vanadium, Calcium, Silica, Aluminum
3030 D and 3111 D Total Metals by AAS- Direct nitrous Oxide-Acetylene Flame	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Metals by AAS- Direct Nitrous Oxide-acetylene Flame, Atomic Absorption Spectrophotometry (Total Metals): Barium, Beryllium, Molybdenum, Vanadium, Calcium, Silica, Aluminum
QWI-IO-Metales 02 (Issue A Emission 1)	Method based on Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023, 3030 B and D and 3111 D	Atomic Absorption Spectrophotometry Total and dissolved Metals: Tin, Strontium, Magnesium
4500 Cl F PD Ferrous Titrimetric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Residual chlorine
4500 Cl ⁻ B Iodometric Method I	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Chloride
2120 B Visual Comparison Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Colour

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Test Method	Title	Determinant(s)/Analyte(s)
2150 B Threshold Odor Test	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Odor
3500 Cr B Colorimetric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Hexavalent chromium
3030 B and 3111 D Dissolved Metals by AAS - Direct nitrous Oxide-Acetylene Flame	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Chromium
3030 D and 3111 D Total Metals by AAS- Direct Air-acetylene Flame	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Chromium
3030 B and 3111 B Dissolved Metals by AAS - Direct Air-acetylene Flame,	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Silicon.
3030 D and 3111 B Atomic Absorption Spectrophotometry	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Silicon.
4500 F- C Ion Selective Electrode Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Fluoride - Ion selective electrode
4500 P B and C Vanadomolybdophosphoric Acid Colorimetric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Phosphorus
5520 F Hydrocarbons	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Fixed Hydrocarbons
3030 B and D, 3112 B Mercury by AAS - Cold-vapor atomic	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Mercury
3030 D, 3112 B Mercury by AAS - Cold-vapor atomic	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Mercury
4500 NH3 D Ammonia-Selective Electrode Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Ammonia Nitrogen
4500 NO3 B Ultraviolet Spectrophotometric Screening Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Nitrate Nitrogen
4500 NO2 B Colorimetric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Nitrite Nitrogen
4500 H+ B Electrometric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	pH
3030 B and D and 3500 K B Potassium by AAS Flame Emission	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Potassium

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Test Method	Title	Determinant(s)/Analyte(s)
3030 D and 3500 K B Potassium by AAS Flame Emission	Standard Methods for the Examination of Water and Wastewater 24th Edition, 2023	Total Potassium
3030 B and D, 3500 Na B Sodium by AAS Flame Emission	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Sodium
3030 D and 3500 Na B Sodium by AAS Flame Emission	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Sodium
3030 D and 3500 Li B Lithium by AAS Flame Emission	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Dissolved Lithium
3030 D and 3500 Li B Lithium by AAS Flame Emission	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total Lithium
2540 C Total Dissolved Solids Dried at 180 °C	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total dissolved solids
2540 F Settleable Solids	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Settling solids
2540 D Total Suspended Solids Dried From 103 °C to 105 °C	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total suspended solids
2540 B Total Solids Dried from 103 °C a 105 °C	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Total solids
4500 SO4 D, C Vanadomolybdophosphoric Acid Colorimetric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Sulfate
5540 B and C Surfactant Separation by Sublation, Anionic Surfactants as MBAS	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Anionic Surfactants
2550 B Laboratory and Field Methods	Standard Methods for the Examination of Water and Wastewater, 24th Edition	Temperature
2130 B Nephelometric Method	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Turbidity
QWI-ORG-AyG-01 (Issue B Modification 5)	Method based on Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023, 5520-B	Oils and fats
QWI-ORG-AyG-01 (Issue B Modification 5)	Method based on: Standard Methods for Examination of Water and Wastewater 5520 B, D, 24th Edition, 2023	Oils and Fats Partition Method

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Test Method	Title	Determinant(s)/Analyte(s)
QWI-IO-PE-01 (Issue B Modification 2)	Based on ISO 696:1975 Surface active agents Measurement of foaming power – Modified Ross – Miles method	Foam Power
5530 C Chloroform Extraction	Standard Methods for the Examination of Water and Wastewater, 24th Edition, 2023	Phenol
Wastewater		
NCh2313/15 Of.2009	Determination of total phosphorus	Total Phosphorus
NCh2313/16 Of.2010	Determination of ammoniacal nitrogen – Potentiometric method	Ammonia Nitrogen
NCh2313/19 Of.2001	Determination of phenol number – Spectrometric method of 4-aminoantipyrine after distillation	Phenol Index
NCh2313/21 Of.2010	Determination of foaming power	Foam Power
NCh2313/24.Of.1997	Determination of chemical oxygen demand (COD)	Chemical Oxygen Demand
NCh2313/27 Of.1998	Determination of anionic surfactants - Method for active substances of methylene blue (SAAM)	Anionic Surfactants
NCh2313/1:2021	Determination of pH	pH
NCh2313/02 Of.1995	Determination of temperature	Temperature
NCh2313/03 Of.1995	Determination of total suspended solids dried at 103-105 °C	Total Suspended Solids
NCh2313/04 Of.1995	Determination of Settling Solids - Volumetric Method	Settling Solids
NCh2313/05 Of.2005	Determination of Biochemical Oxygen Demand (BOD5)	Biochemical Oxygen Demand
NCh2313/07:2021	Part A Determination of Fixed Hydrocarbons	Fixed Hydrocarbons
NCh2313/09 Of.1996	Determination of Arsenic - Atomic absorption spectrophotometry method with continuous generation of hydrides	Atomic Absorption Spectrophotometry: Arsenic
NCh2313/10 Of.2020	Flame Atomic Absorption Spectrophotometry Method	Atomic Absorption Spectrophotometry (Total Heavy Metals): Cadmium (Cd), Copper (Cu), Chromium (Cr), Iron (Fe), Manganese (Mn), Nickel (Ni), Lead (Pb), Zinc (Zn)
NCh2313/11 Of.1996	Hexavalent Chromium Determination - Atomic Absorption Spectrophotometry Method	Hexavalent chromium

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NCh2313/12 Of.1996	Atomic absorption spectrophotometry method with cold vapor generation	Atomic Absorption Spectrophotometry: Mercury
NCh2313/13 Of.1998	Determination of Molybdenum by atomic absorption spectrophotometry with flame	Atomic Absorption Spectrophotometry: Molybdenum
NCh2313/18 Of.1997	Determination of dissolved sulfate by residue calcination	Dissolved Sulfate
NCh2313/30 Of.1999	Determination of selenium - Atomic absorption spectrophotometry method by continuous generation of hydrides	Atomic Absorption Spectrophotometry (Total and dissolved Metals): Selenium
NCh2313/32 Of.1999	Determination of chloride – Method argentometric of Mohr	Chloride
NCh2313/33 Of.1999	Determination of fluoride – Potentiometric method after distillation	Fluoride
CHEMISTRY FOR AIR, GASES AND PARTICULATE MATTER		
Filters Impacted with Particulate Matter (Personal Filters, PM10, PM2.5)		
QWI-IO-SiO ₂ -01 (Issue C Modification 0)	Method based on NIOSH Manual of Analytical Methods 2nd (Method No. 7602). Fourier Transform Infrared Spectrometry (FTIR)	Crystallized silica
QWI-IO-WEIGH-01 (Issue B Modification 3)	Method based on NIOSH Manual Analytical Methods 2nd (Method No. 0600) Gravimetric method	Particulates Not Otherwise Regulated, Respirable
QWI-IO-WEIGH-01 (Issue B Modification 3)	Method based on NIOSH Manual of Analytical Methods 2nd (Method No. 0500) Gravimetric method	Particulates Not Otherwise Regulated, Total
QWI-IO-METALES-01 (Issue C Modification 2)	Method based on based on Metals in Air-General Method (AA), Method 1050, Workers' Compensation Board of British Columbia, 1989; British Columbia Ministry of Environment, Lands	Atomic Absorption Spectrophotometry (Total Metals): Aluminum, Cadmium, Cobalt, Copper, Chrome, Iron, Manganese, Molybdenum, Nickel, Lead, Zinc, Arsenic, Mercury, Silver, Selenium, Silicon
QWI-IO-CH5PE-01 (Issue A Modification 0)	Method Based on CH-5 Method: Determination of Particular Emissions from Stationary Sources.	Particular Emissions
MICROBIOLOGY		
Drinking Water and Sources of Uptake		
NCh2043 Of.1998	Determination of Total coliforms by Chromogenic substrate method	Total coliforms

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Test Method	Title	Determinant(s)/Analyte(s)
Drinking Water, Sources of Uptake, Surface Water (Rivers, Streams, Lakes), Sea Water, Ground Water, Industrial Purposes Water and Wastewater		
9221 E Multiple-Tube Fermentation Technique for Members of The Coliform Group	Standard Methods for Examination of the Water and Wastewater, 24th Edition, 2023	Fecal coliforms (Determination)
9221 F Multiple-Tube Fermentation Technique for Members of The Coliform Group	Standard Methods for Examination of the Water and Wastewater, 24th Edition, 2023	<i>Escherichia coli</i> (Determination)
9221 B Multiple-Tube Fermentation Technique for Members of The Coliform Group	Standard Methods for Examination of the Water and Wastewater, 24th Edition, 2023	Total coliforms (Determination)
9215 B Pour Plate Procedure	Standard Methods for Examination of the Water and Wastewater, 24th Edition, 2023	Heterotrophs (Determination)
Wastewater		
NCh2313/22 Of.1995	Determination of fecal coliforms in EC medium (Thermotolerant)	Fecal coliforms (Thermotolerant)
NCh2313/23 Of.1995	Determination of fecal coliforms in A-1 medium (Thermotolerant)	Fecal coliforms (Thermotolerant)
Sludge and Soils		
QWI-MB Ct / F / E. Coli-LODO-NMP (Issue A, Modification 6)	Method Based on: - Test Methods for the Examination of Composting and Compost, edition 2001, chapter 7.01.A - NCh1620/1:2020	Total coliforms
QWI-MB CT / F / E. Coli-LODO-NMP (Issue A, Modification 6)	Method Based on: Test Methods for the Examination of Composting and Compost, edition 2001, chapter 7.01. 3 - NCh1620/1:2020	Fecal coliforms
QWI-MB CT / F / E. Coli-LODO-NMP (Issue A, Modification 6)	Method Based on: Test Methods for the Examination of Composting and Compost, edition 2001, chapter 7.01. 3 - NCh1620/1:2020	<i>Escherichia coli</i>