



CERTIFICATE OF ACCREDITATION

This is to attest that

SERVICIOS ANALITICOS GENERALES S.A.C.

AV. NACIONES UNIDAS 1565, CHACRA RIOS NORTE
LIMA 1, REPUBLIC OF PERU

Testing Laboratory TL-829

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 February 1, 2025

Effective Date February 24, 2024



A handwritten signature in black ink, reading 'Raj Nathan'.

President

IAS is an ILAC MRA Signatory

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SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

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SERVICIOS ANALITICOS GENERALES S.A.C.

www.sagperu.com

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Accredited to ISO/IEC 17025:2017

Effective Date February 24, 2024

| FIELDS OF TESTING | MATERIAL/MATRIX | DETERMINANT(S)/ANALYTE(S) | METHOD REFERENCE |
|-----------------------------------|--|---|--|
| ENVIRONMENTAL - CHEMISTRY ORGANIC | Water Wastewater, Natural Water, Water for human use and consumption, Saline Water and Process Water (Sampling & Analysis) | Volatile Organic Compounds (VOC's) <i>1,1-Dichloroethene, Dichloromethane, Trans-1,2-Dichloroethylene, 1,1-Dichloroethane 2,2-Dichloropropane, Cis-1,2-Dichloroethylene, Bromochloromethane, 1,1,1-Trichloroethane, 1,1-Dichloropropene, Carbon Tetrachloride, 1,2-Dichloroethane, trichloroethylene, 1,2-Dichloropropane, Dibromomethane, Cis-1,3-Dichloropropene, Trans-1,3-Dichloropropene, 1,1,2-Trichloroethane, 1,3-Dichloropropane, tetrachloroethylene, 1,2-Dibromoethane, Chlorobenzene, 1,1,1,2-Tetrachloroethane, Styrene, Cumene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, n-Propylbenzene, Bromobenzene, 1,3,5-Trimethylbenzene, 2-Chlorotoluene, 4-Chlorotoluene, Tert-Butylbenzene, 1,2,4-Trimethylbenzene, Sec-Butylbenzene, p-Isopropyltoluene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, n-Butylbenzene, 1,2-</i> | Method 8260D – Volatile Organic Compounds by Gas Chromatography /Mass Spectrometry (GC/MS) Revision 4, June 2018 |

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|---|---|---|---|
| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Water Wastewater, Natural Water, Water for human use and consumption, Saline Water and Process Water (Sampling & Analysis) (cont'd.) | <i>Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, Hexachlorobutadiene, Naphthalene, 1,2,3-Trichlorobenzene, Chloroform, Bromodichloromethane, Dibromochloromethane, Bromoform.</i> | Method 8260D – Volatile Organic Compounds by Gas Chromatography /Mass Spectrometry (GC/MS) Revision 4, June 2018 (cont'd.) |
| | | BTEX <i>Benzene, Toluene, Ethylbenzene, m-Xylene, p-Xylene, o-Xylene</i> | Method 8260D – Volatile Organic Compounds by Gas Chromatography /Mass Spectrometry (GC/MS) Revision 4, June 2018 |
| | | Trihalomethanes <i>Chloroform, Bromodichloromethane, Dibromochloromethane, Bromoform</i> | Method 8260D – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Revision 4, June 2018. |
| | | Total Petroleum Hydrocarbons (TPH) <i>Range: C8-C40 C8-C28 C28-C40 C28-C40</i> | EPA 8015 C. Nonhalogenated Organics by Gas Chromatography. Rev 3 / February 2007. |
| | | <i>Formaldehyde</i> | ASTM D6303-98 Standard Test Method for Formaldehyde in Water. |
| | Wastewater, Natural Water, Water for human use and consumption and Saline Water (Sampling & Analysis) | Carbamate: Aldicarb | Method 200310 (Validated), Referenced in EPA Method 8270E, Rev 06. Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). 2018 |
| | | Total Petroleum Hydrocarbons (C10-C40) Diesel Range <i>DRO (C10-C28), Referenced in DS N ° 031-2010-SA: Dissolved or emulsified hydrocarbon; mineral oil.</i> | EPA 8015 C. Nonhalogenated Organics by Gas Chromatography. Rev 3 / February 2007 |

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| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Wastewater, Natural Water, Water for human use and consumption and Saline Water (Sampling & Analysis) (cont'd.) | PCBs | EPA Method 8270E, Rev 06. Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). 2018. | |
| | Natural Water, Water for human use and consumption, Waste Water, Saline Water and Process Water (Sampling & Analysis) | Total organic carbon (TOC), Dissolved organic carbon (DOC), Inorganic carbon (IC), | SMEWW-APHA-AWWA-WEF Part 5310 C, 23rd Ed. 2017. Total Organic Carbon (TOC). Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method. | |
| | | Volatile Organic Compounds (VOCs): Acrylonitrile Vinyl chloride | EPA Method 8260D – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Revision 4, June 2018. | |
| | | Bifenilos policlorados - PCBs | EPA 8082A, Rev 1. Polychlorinated Biphenyls (PCBs) by Gas Chromatography. 2007. | |
| | Soil, Sediments and Sludges | Fenólicos (Clorados y No Clorados): 2,3,4,6-Tetraclorofenol, 2,4-Dimetilfenol, 2-Clorofenol, 2,4,5-Triclorofenol, 2,4,6-Triclorofenol, 2,4-Diclorofenol, 2,6-Diclorofenol, 2-Nitrofenol, 4-Cloro-3-metilfenol, 4-Nitrofenol, Fenol, o-Cresol, p-Cresol, Pentaclorofenol | | EPA Method 8270E, Rev 06. Semi volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). 2018 |
| | | Volatile Organic Compounds (VOC's) <i>Trichloroethylene, Tetrachloroethylene</i> | | Method 8260D – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Revision 4, June 2018. |
| | | BTEX <i>Benzene, Toluene, Ethylbenzene, m-Xylene, p-Xylene, o-Xylene.</i> | | Method 8260D – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Revision 4, June 2018. |
| | | Total Petroleum Hydrocarbons (TPH) <i>C6-C10 Hydrocarbon fraction F1 (C6-C10)</i> | | EPA 8015 C. Nonhalogenated Organics by Gas Chromatography. Rev 3 / February 2007. |

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| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Soil, Sediments and Sludges (cont'd.) | PCB <i>PCB 28, PCB 52, PCB 101, PCB 118, PCB 138, PCB 153, PCB 180</i> Sum of 7 indicator PCBs <i>PCB 28, PCB 52, PCB 101, PCB 118, PCB 138, PCB 153, PCB 180</i> | EPA Method 8270E: Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). Revision 6, June 2018. |
| | | Total Petroleum Hydrocarbons (TPH): HYDROCARBON FRACTION (C5-C10) | EPA 8015 C. Nonhalogenated Organics by Gas Chromatography. Rev 3 / February 2007. |
| | | <i>Phenols</i> | EPA-SW-846, Method-9065. Phenolics (Spectrophotometric Manual 4-AAP with distillation). 1986 // IHOBE - Public Society of the Basque Government. Soil quality. Determination of phenols content in soil samples. 1998. |
| | Air (Sampling & Analysis) | Benzene Volatile Organic Compounds (VOC's) <i>2-chloro-1,3-butadiene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, 2,2-Dichloropropane, Bromochloromethane / Chlorobromomethane, Chloroform, Tetrahydrofuran, 1,1,1-trichloroethane / Methylchloroform, 1,2-Dichloroethane, 1,1-Dichloropropene, Benzene, Carbon Tetrachloride, Trichloroethylene, 1,2-Dichloropropane, Dibromomethane, 1,4-Dioxane, Methyl, Bromodichloromethane, cis-1,3-Dichloropropene, 1,2,3-Trichloropropane, trans-1,3-Dichloropropene, Toluene, 1,1,2-Trichloroethane, Ethyl, 1,3-Dichloropropane, Dibromochloromethane, Tetrachloroethylene, 1,2-Dibromoethane,</i> | ASTM D3686 – 13 & ASTM D3687-19. Standard Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method) / ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method |

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| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Air (Sampling & Analysis) (cont'd.) | <p><i>Chlorobenzene, 1,1,1,2-Tetrachloroethane, Ethylbenzene, m-Xylene, p-Xylene, Styrene, Bromoform, cis-1,4-Dichloro-2-butene, 1,1,2,2-Tetrachloroethane, trans-1,4-dichloro-2-butene, Isopropylbenzene, Bromobenzene, 2-Chlorotoluene, n-Propylbenzene, 4-Chlorotoluene, 4-Chlorotoluene, 1,3,5-Trimethylbenzene, Tert-Butylbenzene, 1,2,4-Trimethylbenzene, 1,2,4-Trimethylbenzene, 1,3-Dichlorobenzene, Sec-Butylbenzene, 1,4-Dichlorobenzene, p-Isopropyltoluene, 1,2-Dichlorobenzene, n-Butylbenzene, Nitrobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, Naphthalene, Hexachlorobutadiene, 1,2,3-Trichlorobenzene, Ciclohexano, Clorobromometano, Metilciclohexano, Metilcloroformo, n-heptano, n-hexano, n-octano, metilacrilato</i></p> | <p>ASTM D3686 – 13 & ASTM D3687-19. Standard Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method) / Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method (cont'd.)</p> |
| | | <p>Gases & Vapours: <i>Benzene (C₆H₆), Sulfur dioxide (SO₂), Nitrogen dioxide, Ozone (O₃),</i></p> | <p>UNE-EN 13528-1:2003 and UNE-EN 13528-2:2003. Ambient air quality - Diffusive samplers for the determination of concentrations of gases and vapours: Requirements and test methods: Part 1- General requirements; -Part 2 - Specific requirements and test methods / UNE-EN 13528-3:2004. Part 3: Guide to selection, use and maintenance.</p> |

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| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Air (Sampling & Analysis) (cont'd.) | Gases & Vapours: <i>Benzene (C₆H₆), Sulfur dioxide (SO₂), Nitrogen dioxide, Ozone (O₃),</i> (cont'd.) | NTP 900.036:2017 ENVIRONMENTAL QUALITY MONITORING. Air quality. Passive diffusion samplers for the determination of gas and vapour concentration. Requirements and test methods. Part 1: General requirements. 2nd Edition |
| | | Benzene (C₆H₆) | UNE-EN14662-2:2006. Ambient air quality - Standard method for measurement of benzene concentrations - Part 2: Pumped sampling followed by solvent desorption and gas chromatography |
| | | Total Hydrocarbons (HT) expressed as Hexane | ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method. |
| | | Volatile organic compounds (VOCs) | UNE-EN 13528-1:2003; UNE-EN 13528-2:2003; UNE-EN 13528-3:2004. Ambient air quality - Diffusive samplers for the determination of concentrations of gases and vapours: Requirements and test methods: Part 1- General requirements; -Part 2 - Specific requirements and test methods Part 3: Guide to selection, use and maintenance |
| | | Benzene (C ₆ H ₆) | NTP 712.107:2020 ENVIRONMENTAL QUALITY MONITORING. Method for measuring the concentration of benzene in ambient air. Part 2: Aspiration sampling followed by solvent desorption and gas chromatography. 1st edition |
| | | Formaldehyde | NOM-036-STPS-1993 Determination of formaldehyde in air. Spectrophotometric method. |

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| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Air (Analysis) | Benzene (C_6H_6) | UNE-EN14662-2:2006. Ambient air quality - Standard method for measurement of benzene concentrations - Part 2: Pumped sampling followed by solvent desorption and gas chromatography. Except sampling |
| | | Benzene. Volatile Organic Compounds (VOC's): <i>2-chloro-1,3-butadiene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, 2,2-Dichloropropane, Bromochloromethane / Chlorobromomethane, Chloroform, Tetrahydrofuran, 1,1,1-trichloroethane / Methylchloroform, 1,2-Dichloroethane, 1,1-Dichloropropene, Benzene, Carbon Tetrachloride, Trichloroethylene, 1,2-Dichloropropane, Dibromomethane, 1,4-Dioxane, Methyl, Bromodichloromethane, cis-1,3-Dichloropropene, 1,2,3-Trichloropropane, trans-1,3-Dichloropropene, Toluene, 1,1,2-Trichloroethane, Ethyl, 1,3-Dichloropropane, Dibromochloromethane, Tetrachloroethylene, 1,2-Dibromoethane, Chlorobenzene, 1,1,1,2-Tetrachloroethane, Ethylbenzene, m-Xylene, p-Xylene, p-Xylene, Styrene, Bromoform, cis-1,4-Dichloro-2-butene, 1,1,2,2-Tetrachloroethane, trans-1,4-dichloro-2-butene, Isopropylbenzene, Bromobenzene, 2-Chlorotoluene, n-Propylbenzene, 4-</i> | ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method |

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|---|---|--|--|
| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Air (Analysis) (cont'd.) | <i>Chlorotoluene, 4-Chlorotoluene, 1,3,5-Trimethylbenzene, Tert-Butylbenzene, 1,2,4-Trimethylbenzene, 1,2,4-Trimethylbenzene, 1,3-Dichlorobenzene, Sec-Butylbenzene, 1,4-Dichlorobenzene, p-Isopropyltoluene, 1,2-Dichlorobenzene, n-Butylbenzene, Nitrobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, Naphthalene, Hexachlorobutadiene, 1,2,3-Trichlorobenzene, Ciclohexano, Clorobromometano, Metilciclohexano, Metilcloroformo, n-heptano, n-hexano, n-octano, metilacrilato</i> | ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method (cont'd.) |
| | Air (Field measurement) | Benzene (C ₆ H ₆) | UNE-EN14662-3:2016 Ambient air - Standard method for the measurement of benzene concentrations - Part 3: Automated pumped sampling within situ gas chromatography |
| | | Total hydrocarbons (THC) Non-methanic Hydrocarbons (NmHC) Methane (CH ₄) | Method 200228 (Validated) referenced in UNE-EN 12619:2013: Stationary source emissions - Determination of the mass concentration of total gaseous organic carbon - Continuous flame ionisation detector method |
| | Gaseous Emissions (Sampling & Analysis) | Volatile Organic Compounds (VOC's): <i>Benzene, Trichloroethylene, Toluene, Tetrachloroethylene, Chlorobenzene, Ethylbenzene, m-Xylene, p-Xylene, Styrene, o-Xylene, Bromobenzene, 2-Chlorotoluene, n-Propylbenzene, 4-Chlorotoluene, 1,3,5-</i> | EPA-40 CFR, Appendix A, Part 60 Method 18. 2019. Measurement of gaseous organic compound emissions by gas chromatography. |

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|---|---|---|---|
| ENVIRONMENTAL - CHEMISTRY ORGANIC (cont'd.) | Gaseous Emissions (Sampling & Analysis) | <i>Trimethylbenzene, Tert-Butylbenzene, 1,2,4-Trimethylbenzene, 1,3-Dichlorobenzene, Sec-Butylbenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, p-Isopropyltoluene, n-Butylbenzene, 1,2,4-Trichlorobenzene, Naftaleno, 1,2,3-Trichlorobenzene.</i> | |
| | (cont'd.) | Volatile Organic Compounds (VOCs) | NTP 900.018:2021 MONITORING OF ATMOSPHERIC EMISSIONS Measurement of gaseous organic compounds emissions by gas chromatography. 2nd Edition |
| | Emission / Stationary Sources (Field measurement) | Determination of non-methane hydrocarbons | EPA-40 CFR, Part 60, Appendix A-7, Method 25. Determination of total gaseous nonmethane organic emissions as carbon. 2023. |
| | | Determination of total hydrocarbons / total organic carbon TOC | EPA 40 CFR, Part 60, Appendix A-7, Method 25A. Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer. 2017. |
| | Biological Tissues (Sampling & Analysis) | Polycyclic aromatic hydrocarbons (PAHs) in plant and animal tissue | Method 200203 Polycyclic Aromatic Hydrocarbons (PAHs) in plant and animal tissue (Validated). Referenced in EPA Method 8270E, Rev 06. Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS). |
| | | Total Petroleum Hydrocarbons (C10-C40) in plant and animal tissue | Method 200210 Total Petroleum Hydrocarbons (C10-C40) in plant and animal tissue. Referenced in EPA Method 8015C Rev.3, Nonhalogenated Organics by Gas Chromatography. |

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| ENVIRONMENTAL - CHEMISTRY INORGANIC | Water, Wastewater, Natural Water, Water for human use and consumption, Saline Water and Process Water (Sampling & Analysis) | Color, True Color, Apparent Color | SMEWW-APHA-AWWA-WEF. Part 2120 C. Color. Spectrophotometric-Single-Wavelength Method (Proposed). 24th Ed. 2023. |
| | | Acidity | SMEWW-APHA-AWWA-WEF. Part 2310 B. Acidity. Titration Method. 24th Ed. 2023. |
| | | Bromides (Br-) | SMEWW-APHA-AWWA-WEF. Part 4500-Br B. Bromide. Phenol Red Colorimetric Method. 24th Ed. 2023. |
| | | Fixed and Volatile Solids Total Sample Dissolved Suspended | SMEWW-APHA-AWWA-WEF. Part 2540 E. Solids. Fixed and Volatile Solids Ignited at 550°C. 24th Ed. 2023. |
| | | Phosphorus: Total phosphorus, Total reactive phosphorus, Total acid-hydrolyzable phosphorus, Total organic phosphorus, Dissolved phosphorus, Dissolved reactive phosphorus, Dissolved acid-hydrolyzable phosphorus, and Dissolved organic phosphorus. | SMEWW-APHA-AWWA-WEF. Phosphorus. Part 4500-P B Sample Preparation. / Part 4500-P E. Ascorbic Acid Method. 24th Ed. 2023. |
| | | Floatable Material of Anthropogenic Origin | Method 180806. Floatable Material of Anthropogenic Origin (Validated) Referenced in: SMEWW-APHA-AWWA-WEF Part 2530 B. Particulate Floatables. 24th Ed. 2023. |
| | | Total or dissolved Sulfur | UNE-EN ISO 11885. Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) |
| | | Free Cyanide (Cianuro Libre) | EPA Method 9016, Free Cyanide in Water, Soils and Solid Wastes by Microdiffusion. Revision 4, June 2010. |

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| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Natural Water, Water for human use and consumption | <i>Cyanogen Chloride (as CN⁻)</i> | SMEWW-APHA-AWWA-WEF Part 4500-CN ⁻ J,E, 24TH Ed. 2023. Cyanide. Cyanogen Chloride. Colorimetric Method. |
| | Natural Water, Water for human use and consumption and Process Water (Sampling & Analysis) | <i>Sodium Adsorption Ratio (RAS) or SAR</i> | Government of Chile. Department of agriculture. Agricultural Research Institute. INIA. Irrigation water analysis methods (2006), INIA ACTS SERIES N° 37. 8.2 Sodium Adsorption Ratio (RAS), Method 8.2.1 Calculation from Sodium, Calcium and Magnesium / EPA Method 200.7, Rev.4.4. EMMC Version 1994. |
| | | <i>Sodium Percentage</i> | Government of Chile. Department of agriculture. Agricultural Research Institute. INIA. Irrigation water analysis methods (2006), INIA RECORD SERIES N° 37. 8.3 Percentage Sodium, Method 8.3.1 Calculation from Sodium, Potassium, Calcium and Magnesium / EPA Method 200.7, Rev.4.4. EMMC Version 1994. |
| | Wastewater, Natural Water, Water for human use and consumption, Saline Water, Process Water (Sampling & Analysis) | <i>Alkalinity. Titration Method.</i> <i>Total alkalinity</i> <i>Partial alkalinity</i> <i>Alkalinity to carbonate (CO₃⁼)</i> <i>Alcalinidad al carbonato</i> <i>Alkalinity to bicarbonate (HCO₃⁻)</i> <i>Alkalinity to hydroxide (OH⁻)</i> | SMEWW-APHA-AWWA-WEF Part 2320-B, 24th Ed. 2023. Alkalinity. Titration Method. |
| | | <i>Chlorides</i> | SMEWW-APHA-AWWA-WEF Part 4500-Cl ⁻ B, 24th Ed. 2023. Chloride. Argentometric Method. |
| | | <i>Total hardness</i> | SMEWW-APHA-AWWA-WEF Part 2340 C, 24th Ed. 2023. Hardness. EDTA Titrimetric Method. |
| | | <i>Calcium hardness</i> <i>Calcium</i> | SMEWW-APHA-AWWA-WEF Part 3500-Ca B, 24th Ed. 2023. Calcium. EDTA Titrimetric Method. |

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| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Wastewater, Natural Water, Water for human use and consumption, Saline Water, Process Water (Sampling & Analysis) (cont'd.) | Nitrites Nitrogen NO ₂ -N Nitrites NO ₂ ⁻ | SMEWW-APHA-AWWA-WEF Part 4500-NO ₂ - B. 24th Ed. 2023. Nitrogen (Nitrite). Colorimetric Method. |
| | | Total nitrogen | SMEWW-APHA-AWWA-WEF Part 4500-N C, 24th Ed. 2023. Nitrogen. Persulfate Method. |
| | | Surfactants (SAAM) | SMEWW-APHA-AWWA-WEF Part 5540 C. 24th Ed. 2023 Surfactants. Anionic Surfactants as MBAS. |
| | | Silica: SiO ₂ , Si-SiO ₃ ; SiO ₂ -SiO ₃ Free Silica SiO ₂ | SMEWW-APHA-AWWA-WEF Part 4500-SiO ₂ C. 24th Ed. 2023. Silica. Molybdosilicate Method. |
| | | Total Dissolved Solids | SMEWW-APHA-AWWA-WEF Part 2540 C, 24th Ed. 2023. Solids. Total Dissolved Solids Dried at 180°C. |
| | | Total Suspended Solids | SMEWW-APHA-AWWA-WEF Part 2540 D, 24th Ed. 2023. Solids. Total Suspended Solids Dried at 103-105°C. |
| | | Total Solids | SMEWW-APHA-AWWA-WEF Part 2540 B, 24th Ed. 2023. Solids. Total Solids Dried at 103-105°C. |
| | | Sulfate | SMEWW-APHA-AWWA-WEF Part 4500 SO ₄ ²⁻ - E. 24th Ed. 2023. Sulfate. Turbidimetric Method. |
| | | Chlorophyll A | SMEWW-APHA-AWWA-WEF Part 10150 A. Introduction, Part 10150 B. Spectrophotometric Determination of Chlorophyll A. 24th Ed. 2023. |
| | | Hydrogen Sulfide (un-ionized) | SMEWW-APHA-AWWA-WEF Part 4500-S ₂ -H. Sulfide. 24th Ed. 2023. Calculation of Un-ionized Hydrogen sulfide. |
| Biochemical Oxygen Demand - Soluble | Method 200105 (Validated), Referenced in SMEWW-APHA-AWWA-WEF Part 5210 B, 24th Ed. 2023. Biochemical Oxygen Demand (BOD). 5-Day BOD Test. | | |

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|---|---|--|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Wastewater, Natural Water, Water for human use and consumption, Saline Water, Process Water | Chemical Oxygen Demand - Soluble | Method 200106 (Validated), Referenced in SMEWW-APHA-AWWA-WEF Part 5220 D, 24th Ed. 2023. Chemical Oxygen Demand (COD). Closed Reflux, Colorimetric Method. |
| | (Sampling & Analysis) (cont'd.) | Inorganic Anions: Bromide (Br), Chloride (Cl), Fluoride (F), Fluor, Nitrate (NO ₃ ⁻ , NO ₃ -N), Nitrite (NO ₂ ⁻ , NO ₂ -N), Orthophosphate, (P, PO ₄ ⁻³), Sulfate (SO ₄ ⁻²) Bromate (BrO ₃), Chlorate (ClO ₃) and Chlorite (ClO ₂) | EPA Method 300.0:1993 Rev. 2.1. Determination of Inorganic Anions by Ion Chromatography. |
| | | Total Chlorine (field analysis) | SMEWW-APHA-AWWA-WEF Part 4500-Cl G. 24th Ed. 2023. Chlorine (Residual). DPD Colorimetric Method. |
| | | Oil and Grease | ASTM D7678 – 17(2022). Standard Test Method for Total Oil and Grease (TOG) and Total Petroleum Hydrocarbons (TPH) in Water and Wastewater with Solvent Extraction using Mid-IR Laser Spectroscopy. |
| | Natural Water, (underground water) (Sampling & Analysis) | Water Level (in situ) (nivel freático) | ISO 21413:2005 Manual methods for the measurement of a groundwater level in a well. |
| | Wastewater (Sampling & Analysis) | Oil and Grease | SMEWW-APHA-AWWA-WEF Part 5520 D, 24th Ed. 2023. Soxhlet Extraction Method. |
| | Calculation the: Chemical Demand for readily Biodegradable Oxygen (COD-FB) / Chemical Demand for slowly Biodegradable Oxygen (COD-LB) / Chemical Demand for Soluble non-Biodegradable oxygen (COD-NBS) / Chemical Demand for non-Biodegradable Particulate Oxygen (COD-NBP) | Method 200110 (Validated), Referenciado in: SMEWW-APHA-AWWA-WEF Part 5210 B, 24th Ed. 2023. Biochemical Oxygen Demand (BOD). 5-Day BOD Test. / SMEWW-APHA-AWWA-WEF Part 5220 D, 24th Ed. 2023. Chemical Oxygen Demand (COD). Closed Reflux, Colorimetric Method. | |

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| FIELDS OF TESTING | MATERIAL/MATRIX | DETERMINANT(S)/ANALYTE(S) | METHOD REFERENCE |
|---|---|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Wastewater, Natural Water, Water for human use and consumption and Process Water (Sampling & Analysis) | Total and Dissolved Metals: <i>Silver, Aluminum, Arsenic, Barium, Beryllium, Cadmium, Cobalt, Chrome, Copper, Mercury, Manganese, Molybdenum, Nickel, Lead, Antimony, Selenium, Thallium, Thorium, Uranium, Vanadium, Zinc</i> <i>Validated: Lithium, Bismuth, Boron, Sodium, Magnesium, Silicon, Silica, Silicate, Phosphorus, Potassium, Calcium, Titanium, Iron, Gallium, Germanium, Rubidium, Strontium, Zirconium, Niobium, Indium, Tin, Cesium, Lanthanum, Cerium, Terbium, Lutetium, Tantalum, Tungsten, Yttrium, Hafnium, Tellurium.</i> | EPA Method 200.8 Revision 5.4 (1994). Determination of trace elements in waters and wastes by Inductively Coupled Plasma - Mass Spectrometry. // Method 190911. Total Metals and Dissolved (Validated), Referenced in EPA Method 200.8. Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry. Revision 5.4. 1994. |
| | Saline Water (Sampling & Analysis) | Color <i>True Color, Apparent Color</i> | Method 180921. Color in Saline Water (Validated). Referenced in SMEWW-APHA-AWWA-WEF. Part 2120 C. Color. Spectrophotometric-Single-Wavelength Method (Proposed). 24th Ed. 2023. |
| | | Total and Dissolved Metals <i>Metals:</i> <i>Silver (Ag), Aluminum (Al), Arsenic (As), Boron (B), Barium (Ba), Beryllium (Be), Bismuth (Bi), Cadmium (Cd), Calcium (Ca), Cerium (Ce), Cobalt (Co), Chromium (Cr), Cesium (Cs), Copper (Cu), Iron (Fe), Potassium (K), Lithium (Li), Magnesium (Mg), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Lead (Pb), Antimony (Sb), Selenium (Se), Strontium (Sr), Thorium (Th), Titanium (Ti), Thallium (Tl), Uranium (U), Vanadium (V), Zinc (Zn).</i> | Method 180810. Total Metals and Dissolved by ICP in Saline Water (Validated). Referenced in EPA Method 200.8. Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry. Revision 5.4. 1994. |

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|---|---|--|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Natural water, Water for human use and consumption, Water Wastewater, Saline Water, Process water (Field measurement) | Potential REDOX | SMEWW-APHA-AWWA-WEF 2580 B. 24th Ed. 2023. Oxidation-Reduction Potential Measurement in Clear Water. |
| | Non-aqueous liquids | pH | EPA SW-846, Method 9045 D (Rev4) 2004, Soil and waste pH |
| | Soils, Sediments and Sludges (Sampling & Analysis) | Metals: <i>Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Boron (B), Beryllium (Be), Cadmium (Cd), Calcium (Ca), Chromium (Cr), Cobalt (Co), Copper (Cu), Iron (Fe), Lead (Pb), Lithium (Li), Magnesium (Mg), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Phosphorus (P), Potassium (K), Selenium (Se), Silica (SiO₂), Silver (Ag), Sodium (Na), Strontium (Sr), Thallium (Tl), Estaño, Titanium (Ti), Vanadium (V), Zinc (Zn), Thorium (Th), Uranium (U), Tungsten (W)</i> | EPA 3050-B (1996) Acid Digestion of Sediments, Sludges, and Soils // SW-846 Method EPA 6010D, Rev. 5, 2018. Inductively Coupled Plasma - Optical Emission Spectrometry (ICP-OES) |
| | | Extractable Barium | Alberta Environment 2009. SBN N°978-0-7785-7691-4. Soil Remediation Guidelines for Barite: Environmental Health and Human Health. Sección 6.2.2. Método Analítico para Bario Extraíble / Method EPA 6010D, Rev. 5, 2018. Inductively Coupled Plasma - Optical Emission Spectrometry (ICP-OES). |
| | | True total Barium | Alberta Environment 2009. SBN N°978-0-7785-7691-4. Soil Remediation Guidelines for Barite: Environmental Health and Human Health. Sección 2.2.1. Suelos (Métodos de fusión), 9.1.3 Bario total real / Method |

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|---|--|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Soils, Sediments and Sludges (Sampling & Analysis) (cont'd.) | | EPA 6010D, Rev. 5, 2018. Inductively Coupled Plasma - Optical Emission Spectrometry (ICP-OES). |
| | | <i>Inorganic Anions: Chloride (Cl⁻), Fluoride (F⁻), Nitrate (NO₃⁻, NO₃-N), Nitrite (NO₂⁻, NO₂-N), Orthophosphate (P, PO₄-3), Sulfate (SO₄⁼).</i> | EPA Method 300.0:1993 Rev. 2.1. Determination of Inorganic Anions by Ion Chromatography. |
| | | Total, fixed and volatile solids) Dry Material According D.S. 015-2017-VIVIENDA for sluge the PTAR. | SMEWW-APHA-AWWA-WEF. Part 2540 G. 24th Ed. 2023. Total, Fixed, and Volatile Solids and Semisolid Samples |
| | | Calcination loss: total solids. Dry Material | SMEWW-APHA-AWWA-WEF. Part 2540 G. 24th Ed. 2023 Total, Fixed, and Volatile Solids and Semisolid Samples |
| | | Calcination loss: total volatile solid Organic Material According D.S. 015-2017-VIVIENDA for sludge the PTAR. | SMEWW-APHA-AWWA-WEF. Part 2540 G. 24th Ed. 2023 Total, Fixed, and Volatile Solids and Semisolid Samples |
| | | Kjeldahl Total Nitrogen | SMEWW-APHA-AWWA-WEF Part 4500-Norg-C, 24th Ed. 2023 Semi-Micro-Kjeldahl Method. |
| | | Nitrogen from Nitrate (N-NO₃) | SW-846 Method EPA 9056A, Rev. 1, 2007. Determination of Inorganic Anions by Ion Chromatography |
| | | <i>Organic Nitrogen</i> | SMEWW-APHA-AWWA-WEF Part 4500-Norg-C, 24th Ed. 2023. Semi-Micro-Kjeldahl Method. |
| | | <i>Ammonia (NH₃, NH₃-N) Ammonia Nitrogen (NH₄, NH₄-N)</i> | SMEWW-APHA-AWWA-WEF Part 4500-NH ₃ C, 24th Ed. 2023. Titrimetric Method |
| | | <i>Inorganic Nitrogen (Mineral Nitrogen)</i> | Official Mexican Standard NOM-021-SEMARNAT-2000 item 7.1.8 Method AS-08 Inorganic Nitrogen (December 31, 002). Fertility, salinity and |

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|---|--|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Soils, Sediments and Sludges (Sampling & Analysis) (cont'd.) | | soil classification specifications, study, sampling and analysis |
| | | <i>Conductivity</i> (soil/water ratio 1:5) | Protocol of Analysis Methods for Soils and Sludge. Commission for Standardization and Accreditation of the Chilean Society of Soil Science on behalf of the Agricultural and Livestock Service. Method 5.1 Electrical conductivity. |
| | | Total organic carbon (TOC) | Method 190908 Total organic carbon (Validated). Referenced in Official Mexican Standard NOM-021-SEMARNAT-2000 item 7.1.7, Method AS-07. Fertility, salinity and soil classification specifications. Studies, sampling and analysis. Organic material. |
| | | Free cyanide | EPA Method 9013-A Rev. 2 (2014)// SMEWW-APHA-AWWA-WEF Part 4500-CN -F, 23rd Ed. 2017. Cyanide Extraction procedure for Solids and oils // Cyanide. Selective Electrode Method. |
| | | Humidity | Official Mexican Standard NOM-021-SEMARNAT-2000 item 7.1.5 AS-05 - Gravimetric Method (December 31, 2002). Fertility, salinity and soil classification specifications, study, sampling and analysis. |
| | | Soluble Salts (dissolved solids) | NTP 339.152: 2002 (revised 2015) SOILS. Standard test method for determining the content of soluble salts in soils and groundwater. |
| | | Sulfides | EPA: Method 9030 B / Method 9034. Acid-Soluble and Acid-Insoluble sulfides: Distillation / Titrimetric procedure for Acid-Soluble and Acid Insoluble Sulfides. 1996. |

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|---|--|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Soils, Rocks, Limestone, Quicklime, Hydrated Lime, Cement Raw Material (Raw kiln feed flour for cement manufacturing) (Sampling & Analysis) | Sulfur Trioxide (SO₃) <i>(Azufre pirítico expresado como SO₃)</i> | ASTM C25 - 19. Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime. Section 23,24 Sulfur Trioxide. |
| | Soils (Sampling & Analysis) | Sand Equivalent | ASTM D2419 - 22 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate. |
| | | <i>Conductivity (Saturation Extract)</i> | Official Mexican Standard NOM-021-SEMARNAT-2000 (December 31, 2002). Specifications of fertility, salinity and soil classification, study, sampling and analysis. item 7.2.5, Method AS-18. Conductivity in the saturation extract. |
| | | Moisture | NTP 339.127:1998 (revised 2019) Soils: Test method to determine the content soil moisture |
| | | pH measured in the saturation | Official Mexican Standard NOM-021-SEMARNAT-2000 item 7.1.2 Method AS-02. pH measured in the Saturation Extract. (December 31, 2002). Fertility, salinity and soil classification specifications, study, sampling and analysis |
| | | <i>pH 1:1 (v/v); 1:2 (p/v) Soil-water, Soil -KCl, Soil -CaCl₂;</i> | Ministry of Agriculture - National Institute of Agrarian Innovation. Manual of procedures for soil and water analysis for irrigation purposes, 2017; item. 4.1 Determination of soil pH. |
| | | Sulfate | NTP 339.178 2002 (revised 2015) SOILS. Standard test method for determining water soluble sulfate ion content for soils and ground water |

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|---|---|---|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Soils (Sampling & Analysis) (continued) | Chloride | NTP 339.177 2002 (revised 2015) SOILS. Test method for determination quantitative of soluble chlorides in soils and groundwater. |
| | | Granulometric analysis | NTP 339.128 1999 (revised 2019) SOILS. Test method for granulometric analysis |
| | | Texture and textural class | Mexican Official Standard NOM-021-SEMARNAT-2000 item 7.1.9 Method AS-09 (December 31, 2002). Fertility specifications, salinity and soil classification, study, sampling and analysis. |
| | Air (Analysis) | Hydrogen Sulfide (H ₂ S) | COVENIN 3571: 2000. Air quality. Determination of the concentration of Hydrogen Sulfide (H ₂ S) in the atmosphere. Except sampling |
| | | HIGH VOLUME FILTER METALS: <i>Aluminum, Antimony, Arsenic, Barium, Boron, Beryllium, Bismuth, Cadmium, Calcium, Cerium, Chrome, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc.</i> | EPA Compendium IO-3.4. Determination of Metals in Ambient Particulate Matter using Inductively Coupled Plasma (ICP) Spectroscopy. 1999. Except Sampling. |

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|---|---------------------------|--|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Air (Analysis) | METALS IN LOW VOLUME FILTER (Only Analysis): <i>Silver, Aluminum, Arsenic, Boron, Barium, Beryllium, Bismuth, Calcium, Cadmium, Cerium, Cobalt, Chrome, Copper, Iron, Mercury, Potassium, Lithium, Magnesium, Manganese, Molybdenum, Sodium, Nickel, Phosphorus, Lead, Antimony, Selenium, Tin, Strontium, Titanium, Thallium, Vanadium, Zinc.</i> | SAG-190912 - Referenciado en EPA Compendium IO-3.4 (1999). Determination of Metals in Ambient Particulate Matter using Inductively Coupled Plasma (ICP) Spectroscopy. |
| | Air (Sampling & Analysis) | Hydrogen Sulfide (H₂S) | COVENIN 3571:2000. Air quality. Determination of the concentration of Hydrogen Sulfide (H ₂ S) in the atmosphere |
| | | Determination of Particulate Matter as PM_{2.5} Low Vol. | NTP 900.069:2017. ENVIRONMENTAL QUALITY MONITORING. Air quality. Reference method for the determination of fine particulate matter as PM 2.5 in the atmosphere. 1st Edition 2019-12-29 |
| | | Particulate Material PM 2.5 High volume | Method 180925. Determination of particulate material PM 2.5 High volume in the Atmosphere (Validated). Referenced in EPA CFR40 Appendix J. Part 50 Method for the Determination of Particulate Matter as PM ₁₀ in the Atmosphere |
| | | Determination of Particulate Matter as PM₁. | Method 200118. PM ₁ particulate material with type 2.229 selective PM ₁ separator (Validated). Referenced in NTP 900.069:2017 |
| | | Coarse Fraction or Coarse PM₁₀ - PM_{2.5} | Calculation method referenced in NTP 900.030:2018 and NTP 900.069:2017 |
| | | Particulate Matter (PM₁₀; PM_{2.5}) | UNE-EN 16450:2017. Ambient air - Automated measuring systems for the measurement of the concentration of particulate matter (PM ₁₀ ; PM _{2.5}) |

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|---|-------------------------------------|--|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Air (Sampling & Analysis) (cont'd.) | Anions deposited on filters: <i>NO₃⁻, SO₄²⁻, Cl⁻, NH₄⁺, Na⁺, K⁺, Mg²⁺, Ca²⁺</i> | UNE-EN 16913:2018. Ambient air - Standard method for measurement of NO ₃ ⁻ , SO ₄ ²⁻ , Cl ⁻ , NH ₄ ⁺ , Na ⁺ , K ⁺ , Mg ²⁺ , Ca ²⁺ in PM _{2,5} as deposited on filters |
| | | Total Gaseous Mercury (Sampling and Analysis) | Method 180901. Total Gaseous Mercury in Air Quality (Validated). Referenced in NIOSH 6009, Mercury 1994. |
| | | Nitrogen oxides: <i>NO_x: NO + NO₂</i> <i>Nitric Oxide (NO)</i> | Method 201120 Validated – Referenced in Peter O. Warner. Analysis of Air Pollutants, Spanish Ed 1981. Cap. 3, pp. 147-151. Determination of Nitrogen Oxides in Air Quality NO _x (NO ₂ + NO) |
| | | METALS IN HIGH VOLUME FILTER: <i>Silica (SiO₂)</i> | Method 201010 Validated - Referenced in EPA Compendium IO-3.4. (1999) Determination of Metals in Ambient Particulate Matter using Inductively Coupled Plasma (ICP) Spectroscopy |
| | | Ammonia (NH₃), Hydrogen sulfide (H₂S) | UNE-EN 13528-1:2003; UNE-EN 13528-2:2003; UNE-EN 13528-3:2004. Ambient air quality - Diffusive samplers for the determination of concentrations of gases and vapours: Requirements and test methods: Part 1- General requirements; -Part 2 - Specific requirements and test methods Part 3: Guide to selection, use and maintenance. |
| | | PM₁₀ particulate matter (low volume) | NTP 900.030:2018. ENVIRONMENTAL MANAGEMENT. Air quality. Reference method for the determination of breathable particulate matter such as PM ₁₀ in the atmosphere. |
| | | <i>Nitrogen Dioxide (NO₂)</i> | EPA N° EQN-1277-026. 1977 Sodium Arsenite Method for the Determination of Nitrogen in the Atmosphere. |

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|---|---|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Air (field measurement) (cont'd.) | Determination of Ozone (O_3) | NTP-ISO 13964:2020 Air quality. Determination of ozone in ambient air. Ultraviolet photometric method. |
| | | Determination of Ozone (O_3) (cont'd.) | ISO 13964:1998. Air quality - Determination of ozone in ambient air -Ultraviolet photometric method. |
| | | Determination of Carbon Monoxide (CO) | NTP-ISO 4224:2019 Ambient air. Determination of carbon monoxide. Non-dispersive infrared spectrometry method. 1st Edition 2020. |
| | | | EPA CFR 40, Appendix C to Part 50. Measurement Principle and Calibration Procedure for the Measurement of Carbon Monoxide in the Atmosphere (Non-Dispersive Infrared Photometry). |
| | | Determination of Nitrogen Dioxide (NO_2) | EPA CFR 40, Appendix F to Part 50. Measurement Principle and Calibration Procedure for the Measurement of Nitrogen Dioxide in the Atmosphere (Gas Phase Chemiluminescence). |
| | | NTP-ISO 7996:2019. Ambient air. Determination of the mass concentration of nitrogen oxides. Chemiluminescence method. | |
| | | Determination of Sulfur Dioxide (SO_2) | NTP ISO 10498: 2017. Determination of sulfur dioxide. Ultraviolet fluorescence method |
| | | Determination of Hydrogen Sulfide (H_2S) | Method 180806. Measurement of hydrogen sulfide in air quality (Validated). Referenced in NTP ISO 10498: 2017. Determination of sulfur dioxide. Ultraviolet fluorescence method. |
| | Gaseous Emissions (Sampling & Analysis) | Hydrogen Sulfide (H_2S)/ Total Reduced sulfur (TRS) | EPA 40 CFR, Appendix A-6 to Part 60. Method 16A - Determination of total reduced sulfur emissions from stationary sources (impinger technique). 2017. |

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|---|---|---|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Gaseous Emissions (Sampling & Analysis) (cont'd.) | Metals: <i>Silver (Ag), Arsenic (As), Barium (Ba), Beryllium (Be), Cadmium (Cd), Chromium (Cr), Cobalt (Co), Mercury (Hg), Copper (Cu), Manganese (Mn), Nickel (Ni), Phosphorus (P), Lead (Pb), Antimony (Sb), Selenium (Se), Thallium (Tl), Zinc (Zn).</i> | EPA-40 CFR, Appendix A-8 to Part 60. Method 29. Determination of Metals Emissions from Stationary Sources. 2017 |
| | | Metals: <i>Vanadium (V), Iron (Fe), Tin (Sn), Titanium (Ti)</i> | Method 180924 (Validated). Referenced in EPA-40 CFR, Appendix A-8 to Part 60. Method 29. Determination of Metals Emissions from Stationary Sources. 2019. |
| | | Determination of sulfuric acid (H₂SO₄) and sulfur dioxide (SO₂) emissions from stationary sources | EPA 40 CFR, Appendix A-6 to Part 60. Method 8 - Determination of sulfuric acid mist and sulfur dioxide emissions from stationary sources. 2019 |
| | | Sulfur dioxide in emissions (SO₂) | NTP 900.006.2021. ENVIRONMENTAL MANAGEMENT. Atmospheric Emissions. Determination of sulfur dioxide emissions from stationary sources |
| | | <i>Ammonia (NH₃)</i> | EPA CTM-027 Procedure for Collection and Analysis of Ammonia in Stationary Sources. 1997 // SMEWW Part 4500-NH ₃ -D, 24th Ed. 2023. Nitrogen (Ammonia). Ammonia-Selective Electrode Method. |
| | | Determination of Particulate Matter Emissions from Stationary Sources | -EPA-40 CFR, Appendix A-3 to Part 60. Method 5. Determination of Particulate Matter Emissions from Stationary Sources. 2020. -NTP 900.005.2021 ENVIRONMENTAL MANAGEMENT Atmospheric Emissions. Determination of particulate matter emissions from stationary sources. |

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|---|---|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Gaseous Emissions (Sampling & Analysis) (cont'd.) | Determination of Particulate Matter Emissions from Stationary Sources (cont'd.) | - EPA-40 CFR, Appendix A-1 to Part 60. Method 1- Sample and Velocity Traverses for Stationary Sources. 2023. -NTP 900.001:2021. ENVIRONMENTAL MANAGEMENT. Atmospheric Emissions. Methods for the determination of transversal sampling points for the measurement of speed in stationary sources. - EPA-40 CFR, Appendix A-1 to Part 60. Method 1A-Sample and Velocity Traverses for Stationary Sources with Small Stacks or Ducts. 2017. - EPA-40 CFR, Appendix A-1 to Part 60. Method 2-Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube). 2017. -NTP 900.002:2021. ENVIRONMENTAL MANAGEMENT. Atmospheric Emissions. Determination of chimney gas speed and volumetric flow (Type S Pilot Tube). - EPA-40 CFR, Appendix A-1 to Part 60. Method 2C - Determination of gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube). 2017. - EPA-40 CFR, Appendix A-2 to Part 60. Method 3 - Gas Analysis for the Determination of Dry Molecular Weight. 2017. - NTP 900.003:2021 MONITORING OF ATMOSPHERIC EMISSIONS. Gas analysis for the |

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|---|---|---|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Gaseous Emissions (Sampling & Analysis) (cont'd.) | Determination of Particulate Matter Emissions from Stationary Sources (cont'd.) | determination of molecular weight on a dry basis. 2nd Edition. - EPA-40 CFR, Appendix A-3 to Part 60. Method 4-Determination of Moisture Content in Stack Gases.2023. - NTP 900.004:2021. ENVIRONMENTAL MANAGEMENT. Atmospheric Emissions. Method for determining the moisture content in flue gases |
| | | Nitrogen Oxides (NO_x) , as NO ₂ , including: Nitric Oxide (NO) Nitrogen Dioxide (NO ₂) | EPA-40 CFR Part 60, Appendix A. Method 7-Determination of Nitrogen Oxide Emissions from Stationary Sources. 2023. |
| | | Nitrogen Oxides (NO_x) , as NO ₂ , including: Nitric Oxide (NO) Nitrogen Dioxide (NO ₂) | NTP 900.007:2021. ENVIRONMENTAL MANAGEMENT. Atmospheric emissions. Determination of nitrogen oxide emissions from stationary sources |
| | | Nitrogen Oxides (NO_x) , as NO ₂ , including: Nitric Oxide (NO) Nitrogen Dioxide (NO ₂) | EPA-40 CFR Part 60, Appendix A. Method 7C - Determination of Nitrogen Oxide Emissions from Stationary Sources (Alkaline Permanganate / Colorimetric Method). 2020. |
| | | Hydrogen Chloride (HCl) | EPA 40 CFR, Part 60, Appendix A-8, Method 26A. Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method. 2020. |
| | | Hydrogen Fluoride (HF) | EPA 40 CFR, Part 60, Appendix A-8, Method 26A. Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method. 2020. |

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| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Gaseous Emissions (Sampling & Analysis) (cont'd.) | Hydrogen Halides (HX) [HCl, HBr and HF] Halogens (X₂) [Cl ₂ y Br ₂] | EPA 40 CFR, Part 60, Appendix A-8, Method 26A. Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Isokinetic Method. 2020. |
| | Gaseous Emissions (Field measurement) | <i>Carbon Monoxide (CO)</i> | NTP 900.010:2021 MONITORING OF ATMOSPHERIC EMISSIONS. Determination of carbon monoxide emissions in stationary sources. Instrumental analyzer procedure. 2nd Edition. |
| | | <i>Carbon Monoxide (CO)</i> | EPA 40 CFR, Appendix A-4 to Part 60, Method 10. Determination of Carbon Monoxide Emissions from Stationary Sources (Instrumental Analyzer Procedure). 2017 |
| | | <i>Carbon Dioxide (CO₂)</i> | NTP 900.003:2021 MONITORING OF ATMOSPHERIC EMISSIONS. Gas analysis for the determination of molecular weight on a dry basis. 2nd Edition |
| | | <i>Oxygen (O₂)</i> | NTP 900.003:2021 MONITORING OF ATMOSPHERIC EMISSIONS. Gas analysis for the determination of molecular weight on a dry basis. 2nd Edition |
| | | <i>Carbon Dioxide (CO₂)</i> <i>Oxygen(O₂)</i> | EPA METHOD 3A- Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure) |
| | | NO_x (NO, NO₂), CO, O₂ <i>(Applies to equipment with fuel: natural gas, liquid fuel, solid fuel)</i> | US EPA OTM-38 Periodic Monitoring Method for Determination of Oxygen, Carbon Monoxide and Nitrogen Oxides from Stationary Sources using Portable Gas Analyzers. 2020. |

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|---|---|--|--|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Gaseous Emissions (Field measurement) (cont'd.) | NO_x (NO, NO₂), CO, O₂ <i>(Applies to equipment with fuel: natural gas, liquid fuel)</i> | EPA CTM-034. Determination of Oxygen, Carbon Monoxide and Oxides of Nitrogen from Stationary Sources For Periodic Monitoring (Portable Electrochemical Analyzer Procedure) / September 1999. |
| | | Velocity and Volumetric Flow in emissions | EPA-40 CFR, Appendix A-1 to Part 60. Method 2-Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube). 2017. EPA-40 CFR, Appendix A-1 to Part 60. Method 2C - Determination of gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube). 2017. NTP 900.002:2021. MONITORING OF ATMOSPHERIC EMISSIONS. Determination of velocity and volumetric flow in combustion gases (Pitot tube type S). 2nd Edition. <i>NTP 712.112:2022 ATMOSPHERIC EMISSIONS MONITORING. Determination of gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube). 1^a Edition</i> |
| | | Sulfur dioxide in emissions (SO₂) | EPA-40 CFR, Appendix A-4 to Part 60. Method 6C. Determination of sulfur dioxide emissions from stationary sources (instrumental analyzer procedure). 2017. |
| | | Opacity | Method 191105 Opacity. Referenced in IT-ATM-08.2 Non-standardized measurement methods Bacharach Opacity Measurement. European Regional Development Fund. Desarrollo Regional. |

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|---|---|---|---|
| ENVIRONMENTAL - CHEMISTRY INORGANIC (cont'd.) | Gaseous Emissions (Field measurement) (cont'd.) | Nitrogen Oxides (NOx), as NO₂, Nitric Oxide (NO) Nitrogen Dioxide (NO₂) | EPA CTM-022 Determination of Nitric Oxide, Nitrogen Dioxide and NOx Emissions from Stationary Combustion Sources by electrochemical analyzer. 1995 |
| | | Hydrogen sulfide Total hydrocarbons | Method 201210 Validated. Referenced in US EPA OTM-38. Determination of Hydrogen sulfide, Total hydrocarbons using Portable Gas Analyzers Equipped with Electrochemical Sensors. |
| | Vegetable Tissues (Sampling & Analysis) | Total Metals: <i>Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Beryllium (Be), Cadmium (Cd), Calcium (Ca), Chromium (Cr), Cobalt (Co), Copper (Cu), Iron (Fe), Lead (Pb), Lithium (Li), Magnesium (Mg), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Phosphorus (P), Potassium (K), Selenium (Se), Silver (Ag), Sodium (Na), Strontium (Sr), Thallium (Tl), Uranium (U), Vanadium (V), Zinc (Zn).</i> | EPA Method 200.3, Rev. 1, April. 1991. Metals, Total Recoverable in Biological Tissues / EPA Method 200.7, Rev.4.4. EMMC Version 1994. |
| Biological Tissues (Sampling & Analysis) | Total Metals: <i>Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Beryllium (Be), Cadmium (Cd), Calcium (Ca), Chromium (Cr), Cobalt (Co), Copper (Cu), Iron (Fe), Lead (Pb), Lithium (Li), Magnesium (Mg), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Phosphorus (P), Potassium (K), Selenium (Se), Silver (Ag), Sodium (Na), Strontium (Sr), Thallium (Tl), Uranium (U), Vanadium (V), Zinc (Zn).</i> | EPA Method 200.3, Rev. 1, April.1991. Metals, Total Recoverable in Biological Tissues / EPA Method 200.7, Rev.4.4. EMMC Version 1994. EPA Method 200.3, Rev. 1, April.1991. Metals, Total Recoverable in Biological Tissues / EPA Method 200.7, Rev.4.4. EMMC Version 1994 cont'd.) | |

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|--|--------------------------------------|---|---|
| <p>OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY ORGANIC</p> | <p>Air (Sampling & Analysis)</p> | <p>Volatile Organic Compounds: <i>2-chloro-1,3-butadiene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, 2,2-Dichloropropane, Bromochloromethane / Chlorobromomethane, Chloroform, Tetrahydrofuran, 1,1,1-trichloroethane / Methylchloroform, 1,2-Dichloroethane, 1,1-Dichloropropene, Benzene, Carbon Tetrachloride, Trichloroethylene, 1,2-Dichloropropane, Dibromomethane, 1,4-Dioxane, Methyl, Bromodichloromethane, cis-1,3-Dichloropropene, 1,2,3-Trichloropropane, trans-1,3-Dichloropropene, Toluene, 1,1,2-Trichloroethane, Ethyl, 1,3-Dichloropropane, Dibromochloromethane, Tetrachloroethylene, 1,2-Dibromoethane, Chlorobenzene, 1,1,1,2-Tetrachloroethane, Ethylbenzene, m-Xylene, p-Xylene, p-Xylene, Styrene, Bromoform, cis-1,4-Dichloro-2-butene, 1,1,2,2-Tetrachloroethane, trans-1,4-dichloro-2-butene, Isopropylbenzene, Bromobenzene, 2-Chlorotoluene, n-Propylbenzene, 4-Chlorotoluene, 4-Chlorotoluene, 1,3,5-Trimethylbenzene, Tert-Butylbenzene, 1,2,4-Trimethylbenzene, 1,2,4-Trimethylbenzene, 1,3-Dichlorobenzene, Sec-Butylbenzene, 1,4-Dichlorobenzene, p-Isopropyltoluene,</i></p> | <p>ASTM D3686 – 13 & ASTM D3687-19. Standard Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method) / ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method</p> |
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|--|-------------------------------------|--|--|
| OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY ORGANIC (cont'd.) | Air (Sampling & Analysis) (cont'd.) | 1,2-Dichlorobenzene, <i>n</i> -Butylbenzene, Nitrobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, Naphthalene, Hexachlorobutadiene, 1,2,3-Trichlorobenzene, Cyclohexano, Clorobromometano, Metilciclohexano, Metilcloroformo, <i>n</i> -heptano, <i>n</i> -hexano, <i>n</i> -octano, metilacrilato | ASTM D3686 – 13 & ASTM D3687-19. Standard Practice for Sampling Atmospheres to Collect Organic Compound Vapors (Activated Charcoal Tube Adsorption Method) / ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method (cont'd.) |
| | | Volatile organic compounds (VOCs) | JIS A 1969: 2005. Indoor Air - Sampling and Analysis of Volatile Organic Compounds by Solvent Desorption/Capillary Gas Chromatography Diffusive Sampling. |
| | Air (Analysis) | Volatile Organic Compounds: 2-chloro-1,3-butadiene, <i>cis</i> -1,2-Dichloroethene, <i>trans</i> -1,2-Dichloroethene, 2,2-Dichloropropane, Bromochloromethane / Chlorobromomethane, Chloroform, Tetrahydrofuran, 1,1,1-trichloroethane / Methylchloroform, 1,2-Dichloroethane, 1,1-Dichloropropene, Benzene, Carbon Tetrachloride, Trichloroethylene, 1,2-Dichloropropane, Dibromomethane, 1,4-Dioxane, Methyl, Bromodichloromethane, <i>cis</i> -1,3-Dichloropropene, 1,2,3-Trichloropropane, <i>trans</i> -1,3-Dichloropropene, Toluene, 1,1,2-Trichloroethane, Ethyl, 1,3-Dichloropropane, Dibromochloromethane, Tetrachloroethylene, | ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method |

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|--|--------------------------------|--|--|
| OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY ORGANIC (cont'd.) | Air (Analysis) (cont'd.) | 1,2-Dibromoethane, Chlorobenzene, 1,1,1,2-Tetrachloroethane, Ethylbenzene, m-Xylene, p-Xylene, p-Xylene, Styrene, Bromoform, cis-1,4-Dichloro-2-butene, 1,1,2,2-Tetrachloroethane, trans-1,4-dichloro-2-butene, Isopropylbenzene, Bromobenzene, 2-Chlorotoluene, n-Propylbenzene, 4-Chlorotoluene, 4-Chlorotoluene, 1,3,5-Trimethylbenzene, Tert-Butylbenzene, 1,2,4-Trimethylbenzene, 1,2,4-Trimethylbenzene, 1,3-Dichlorobenzene, Sec-Butylbenzene, 1,4-Dichlorobenzene, p-Isopropyltoluene, 1,2-Dichlorobenzene, n-Butylbenzene, Nitrobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, Naphthalene, Hexachlorobutadiene, 1,2,3-Trichlorobenzene, Cyclohexane, Chlorobromomethane, Methylcyclohexane, Methylchloroform, n-heptane, n-hexane, n-octane, methyl acrylate | ASTM D3687-19 Standard Test Method for Analysis of Organic Compound Vapors Collected by the Activated Charcoal Tube Adsorption Method (cont'd.) |
| OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY INORGANIC | Air (Sampling & Analysis) | Metals: Aluminum, Arsenic, Barium, Beryllium, Calcium, Cadmium, Cobalt, Chrome, Copper, Iron, Potassium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Lead, Antimony, | NIOSH 7301, Issue 1. ELEMENTS by ICP (Aqua Regia Ashing), 2003. |

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|--|-------------------------------------|--|---|
| OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY INORGANIC (cont'd.) | Air (Sampling & Analysis) (cont'd.) | <i>Selenium, Tin, Strontium, Titanium, Thallium, Vanadium, Zinc, Lanthanum, Lithium, Silver, Tellurium, Tungsten, Zirconium</i> | |
| | | Metals: <i>Aluminum, Arsenic, Barium, Beryllium, Boron, Bismuth, Calcium, Cadmium, Cobalt, Chrome, Copper, Iron, Potassium, Magnesium, Manganese, Molybdenum, Nickel, Sodium, Phosphorus, Lead, Antimony, Selenium, Tin, Strontium, Titanium, Thallium, Vanadium, Zinc, Gallium, Gold, Indium, Tellurium, Palladium, Platinum, Neodymium</i> | NIOSH 7303, Issue 1. ELEMENTS by ICP 7303 (Hot Block/HCl/HNO ₃ Digestion), 2003. |
| | | Mercury | NIOSH 6009 Issue 2. Mercurio - 1994 Lectura CVAES |
| | | Hydrofluoric acid | NIOSH 7906. Issue 2, 2014. PARTICULATE FLUORIDES and HYDROFLUORIC ACID 7906 by Ion Chromatography. |
| | | Volatile Acids: Hydrochloric Acid (HCl), Hydrobromic Acid (HBr), Nitric Acid (HNO₃) | NIOSH 7907. Issue 1, 2014. VOLATILE ACIDS by Ion Chromatography (Hydrogen Chloride, Hydrogen Bromide, Nitric Acid). |
| | | Non Volatile Acids: Sulfuric Acid, Phosphoric Acid | NIOSH 7908. Issue 1, 2014. NON-VOLATILE ACIDS (Sulfuric Acid and Phosphoric Acid). |
| | | Silica Crystalline (SiO₂) (Sampling and Analysis) | NIOSH 7601. Issue 3, 2003. Silica, Crystalline, by VIS |
| | | Asbestos (Sampling and Analysis) | NIOSH 7400, Issue 2, 1994. Asbestos and Other Fibers by PCM |
| | | Sulfur dioxide (SO ₂) | UNE-EN 838:2010 Workplace exposure - Procedures for measuring gases and vapours using diffusive samplers - Requirements and test methods. |
| | | Nitrogen dioxide (NO ₂) | |
| Ozono (O ₃) | | | |
| Hydrogen sulfide (H ₂ S) | | | |
| Ammonia (NH ₃) | | | |

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|--|-----------------|---|---|
| OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY INORGANIC (cont'd.) | Air (Analysis) | Metals <i>Aluminum, Arsenic, Barium, Beryllium, Calcium, Cadmium, Cobalt, Chrome, Copper, Iron, Potassium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Lead, Antimony, Selenium, Tin, Strontium, Titanium, Thallium, Vanadium, Zinc, Lanthanum, Lithium, Silver, Tellurium, Tungsten, Zirconium</i> | NIOSH 7301, Issue 1. ELEMENTS by ICP (Aqua Regia Ashing), 2003. Except Sampling. |
| | | Metals <i>Aluminum, Arsenic, Barium, Beryllium, Boron, Bismuth, Calcium, Cadmium, Cobalt, Chrome, Copper, Iron, Potassium, Magnesium, Manganese, Molybdenum, Nickel, Sodium, Phosphorus, Lead, Antimony, Selenium, Tin, Strontium, Titanium, Thallium, Vanadium, Zinc, Gallium, Gold, Indium, Tellurium, Palladium, Platinum, Neodymium</i> | NIOSH 7303, Issue 1. ELEMENTS by ICP 7303 (Hot Block/HCl/HNO ₃ Digestion), 2003. Except Sampling. |
| | | Silica Crystalline (SiO ₂) <i>(Only Analysis)</i> | NIOSH 7601. Issue 3, 2003. Silica, Crystalline, by VIS. (EXCEPT SAMPLING). |
| | | Asbestos <i>(Only Analysis)</i> | NIOSH 7400, Issue 2, 1994. Asbestos and Other Fibers by PCM (EXCEPT SAMPLING). |
| | | Determination of filter weight and weight of respirable particles. <i>(Only Analysis)</i> | Method 180910. Determination of weight and weight filter respirable particles (validated) Referenced in NIOSH 0600, Issue 3. Particulates Not Otherwise Regulated, Respirable - 1998 (EXCEPT SAMPLING). |
| | | Determination of weight and weight particle filter totals (inhalable powder) <i>(Only Analysis)</i> | Method 180911. Determination of weight and weight particle filter totals (inhalable powder) - (validated). Referenced in NIOSH 0500, Issue 2. Particulates Not |

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| OCCUPATIONAL HEALTH & SAFETY - CHEMISTRY INORGANIC (cont'd.) | Air (Analysis) (cont'd.) | | Otherwise Regulated, Total - 1994. (EXCEPT SAMPLING). |
| | Air (Field measurement) | Clean rooms: Particle count | ISO 14644-1: 2015. Clean rooms and local annexes controlled. Part 1. Classification of air cleaning by concentration of particles. |
| ENVIRONMENTAL-SENSORY | Wastewater, Natural Water, Water for human use and consumption and Saline Water (Sampling & Analysis) | Odor | SMEWW-APHA-AWWA-WEF 2150 B. 24th Ed. 2023. Odor. Threshold Odor Test. |
| | Water for human use and consumption (Sampling & Analysis) | Flavor | SMEWW-APHA-AWWA-WEF 2160 B. 24th Ed. 2023. Taste. Flavor Threshold Test (FTT). |
| ENVIRONMENTAL - MICROBIOLOGY | Wastewater, Natural Water, Water for human use and consumption and Saline Water (Sampling & Analysis) | <u>Microcystin-LR</u> | SAG-180917 Rev. 0 (Validated) 2018. Immunoassay method for the quantification of microcystin-LR |
| | | Virus (Somatic Coliphages) | SAG-230329 Virus (somatic Coliphages) referenciado en SM 9224 B, 23rd Ed. 2017. Detection of Coliphages. Somatic Coliphage Assay. |
| | | Salmonella <i>Detection of Salmonella spp</i> | UNE-EN ISO 19250: 2013 Water Quality - Detection of Salmonella spp. |
| | | Vibrio cholerae | SMEWW-APHA-AWWA-WEF Part 9278. Procedures. Item 1, 2.d.1,(except for the latex test), 4, 5, 6 (No identification of serogroup O139). 24th Ed. 2023. |
| | | Fecal Streptococcus (Membrane Filter Techniques) | SMEWW-APHA-AWWA-WEF Part 9230 C 24th Ed. 2023. Fecal Enterococci-Membrane Filter Techniques. |
| | | Fecal Streptococcus (Multiple-Tube Technique) | SMEWW-APHA-AWWA-WEF Part 9230 B, 24th Ed. 2023. Fecal Enterococci. Multiple-Tube Technique. |

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| ENVIRONMENTAL - MICROBIOLOGY (cont'd.) | Wastewater, Natural Water, Water for human use and consumption and Saline Water (Sampling & Analysis) (cont'd.) | Fecal Enterococcus (<i>Membrane Filter Techniques</i>) | SMEWW-APHA-AWWA-WEF Part 9230 C 24th Ed. 2023. Fecal Enterococci. Membrane Filter Techniques |
| | | Fecal Enterococcus (<i>Multiple-Tube Technique</i>) | SMEWW-APHA-AWWA-WEF Part 9230 B, 24th Ed. 2023. Fecal Enterococci. Multiple-Tube Technique. |
| | Wastewater, Natural Water, Water for human use and consumption and Saline Water <i>Process Water</i> (<i>Distilled water, Deionized water</i>) (Sampling & Analysis) | Fecal Coliform (<i>Thermotolerant</i>) (<i>Multiple-Tube Technique</i>) | SMEWW-APHA-AWWA-WEF Part 9221 E-1, 24th Ed. 2023. Multiple-Tube Fermentation Technique for Members of the Coliform Group. Thermotolerant (Fecal) Coliform Procedure. Thermotolerant coliform test (EC medium) |
| | | Fecal Coliform (<i>Thermotolerant</i>) (<i>Membrane Filter Techniques</i>) | MEWW-APHA-AWWA-WEF Part 9222 D, 24th Ed. 2023. Membrane Filter Technique for Members of the Coliform Group. Thermotolerant (Fecal) Coliform Membrane Filter Procedure. |
| | | Total Coliform (<i>Membrane Filter Techniques</i>) | SMEWW-APHA-AWWA-WEF Part 9222 B, 24th Ed. 2023. Membrane Filter Technique for Members of the Coliform Group. Standard Total Coliform Membrane Filter Procedure. Procedure using Endo Media. |
| | | Total Coliform (<i>Multiple-Tube Technique</i>) | 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. |
| | | Escherichia coli (<i>Multiple-Tube Technique</i>) | SMEWW-APHA-AWWA-WEF part 9221 G. (Item 2), 24 th Ed. 2023. Multiple-Tube Fermentation Technique for Members of the Coliform Group. Other Escherichia coli Procedures. Escherichia coli Test (Indole Production) |

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|--|--|---|--|
| ENVIRONMENTAL - MICROBIOLOGY (cont'd.) | Wastewater, Natural Water, Water for human use and consumption and Saline Water <i>Process Water (Distilled water, Deionized water, Reverse osmosis water)</i> (Sampling & Analysis) (cont'd.) | <i>Escherichia coli (Membrane Filter Techniques)</i> | SMEWW-APHA-AWWA-WEF Part 9222 H. Membrane Filter Technique for Members of the Coliform Group. Partitioning E. coli from MF Total Coliform Using EC-MUG Broth. 24th Ed. 2023. |
| | | <i>Heterotrophic Bacteria (Pour Plate Method)</i> | SMEWW-APHA-AWWA-WEF Part 9215B, 24th Ed. 2023. Heterotrophic Plate Count. Pour Plate Method. |
| | | <i>Heterotrophic Plate Count. Membrane Filter Procedure.</i> | SMEWW-APHA-AWWA-WEF Part 9215 D, 24th Ed. 2023. Heterotrophic Plate Count. Membrane Filter Method. |
| | <i>Water for human use and consumption Process Water (Distilled water, Deionized water, Reverse osmosis water)</i> (Sampling & Analysis) | <i>Pseudomonas aeruginosa Detection and enumeration of Pseudomonas aeruginosa</i> | ISO 16266. Water quality - Detection and enumeration of Pseudomonas aeruginosa - Method by membrane filtration. |
| | Water for human use and consumption (Sampling & Analysis) | <i>Staphylococcus aureus</i> | SMEWW-APHA-AWWA-WEF Part 9213 B (Ítem 6), 24th Ed. 2023. Recreational Waters. Swimming Pools. Test for Staphylococci or Staphylococcus aureus |
| | Soils, Sediments, Sludges and Biosolids (Sampling & Analysis) | <i>Total Coliform</i> | SM 9221 B. 24th Ed. 2023. Multiple-Tube Fermentation Technique for Members of the Coliform Group. Standard Total Coliform Fermentation Technique. EPA Method 1680. Ítem 11 y Ítem 14. |
| | | <i>Escherichia coli</i> | EPA Method 1680 Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using Lauryl Tryptose Broth (LTB) and EC Medium, 2014 // SM Part 9221 G. (Ítem 2). 24th Ed. 2023. Multiple-Tube Fermentation. Technique for Members of the Coliform Group. Other Escherichia coli |

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|---|---|-----------------------------|---|
| ENVIRONMENTAL - MICROBIOLOGY (cont'd.) | Soils, Sediments, Sludges and Biosolids (Sampling & Analysis) (cont'd.) | | Procedures. Escherichia coli. Test (Indole Production) |
| | | <i>Salmonella sp.</i> | EPA Method 1682 Method 1682: Salmonella in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport-Vassiliadis (MSRV) Medium, 2006. |
| | | <i>Fecal Coliforms</i> | EPA Method 1680: Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using Lauryl Tryptose Broth (LTB) and EC Medium, 2014. |
| OCCUPATIONAL HEALTH & SAFETY - MICROBIOLOGY OCCUPATIONAL | Air (Sampling & Analysis) | <i>Bacterium</i> | NIOSH 0800 BIOAEROSOL SAMPLING (Indoor Air). Culturable organisms: bacteria, fungi, thermophilic actinomycetes. |
| | | <i>Fungi</i> | NIOSH 0800 BIOAEROSOL SAMPLING (Indoor Air). Culturable organisms: bacteria, fungi, thermophilic actinomycetes. |
| | | <i>Aerobics</i> | NIOSH 0800 BIOAEROSOL SAMPLING (Indoor Air). Culturable organisms: bacteria, fungi, thermophilic actinomycetes. |
| | Living Surfaces Regular and Irregular Inert Surfaces (Sampling & Analysis) | <i>Mold and yeast count</i> | ICMSF Food Microorganisms. Its meaning and methods of enumeration. P.166-167 2nd Ed. Reprint 2000. Mould and yeast counts. Method of counting molds and yeasts by sowing in plate in the whole medium. RM N°461-2007 MINSA. 8.2; 8.4. Technical Guide for the Microbiological Analysis of Surfaces in contact with Food and Beverages |

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|--|--|---|--|
| OCCUPATIONAL HEALTH & SAFETY - MICROBIOLOGY OCCUPATIONAL (cont'd.) | Living Surfaces Regular and Irregular Inert Surfaces (Sampling & Analysis) | Mesophilic Aerobic Count | ISO 4833-1:2013, / <u>Amd 1: 2022</u> Microbiology of the food chain -- Horizontal method for the enumeration of microorganisms -- Part 1: Colony count at 30 degrees C by the pour plate technique-- <u>Amendment 1: Clarification of scope</u> // RM N°461-2007 MINSAs. 8.2; 8.4. Technical Guide for the Microbiological Analysis of Surfaces in Contact with Food and Beverages |
| | | Escherichia coli count | Compendium of Methods for the Microbiological Examination of Foods / APHA. 5th Ed. 2015, Cap. 9, Parte 9.933. Enterobacteriaceae, Coliforms, and Escherichia coli as Quality and Safety Indicators. VRBA/MUG Method for E.coli and coliforms // RM N°461-2007 MINSAs. 8.2; 8.4. Technical Guide for the Microbiological Analysis of Surfaces in Contact with Food and Beverages. |
| ENVIRONMENTAL – PHYSICAL MEASUREMENTS | Wastewater, Natural Water, Water for human use and consumption (Field measurement) | Flow | ISO 748:2021 Hydrometry- Measurement of liquid flow in open channels - Velocity area methods using point velocity measurements. |
| | | Flow | NTP 214.060:2016. WASTEWATER. Sampling protocol for non-domestic wastewater that is discharged into the sewer system- Annex D, Flow measurement methods. |
| | Wastewater, Natural Water, Water for human use and consumption (Field measurement) (cont'd.) | Transparency | DIN EN ISO 7027-2:2019-06 Water quality - Determination of turbidity - Part 2: Semi-quantitative methods for the assessment of transparency of waters (ISO 7027-2:2019) |
| Buildings (Field Measurement) | Vibrations in buildings | DIN 4150-3:2016 Vibrations in buildings – Part 3: Effects on structures | |

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| FIELDS OF TESTING | MATERIAL/ MATRIX | DETERMINANT(S)/ ANALYTE(S) | METHOD REFERENCE |
|---|--|---|---|
| ENVIRONMENTAL – ACOUSTIC | Environmental noise (Field measurement) | Noise <i>Determination of environmental noise</i> | ISO 1996-2:2017(E) Acoustic – Description, Measurement and assessment of environmental noise. Part 2: Determination of sound pressure levels. |
| ENVIRONMENTAL – CLIMATOLOGY | Meteorological parameters (Field measurement) | Meteorological parameters: <i>Environmental temperature, RH, Atmospheric pressure, Wind speed, Direction of the wind, Precipitation</i> | ASTM D5741-96(2017). Standard Practice for Characterizing Surface Wind Using a Wind Vane and Rotating Anemometer. |
| OCCUPATIONAL HEALTH & SAFETY – PHYSICAL MEASUREMENTS | Occupational noise (Field measurement) | Noise <i>Determination of exposure to noise at work</i> | UNE – EN ISO 9612 (2009). Acoustics - Determination of occupational noise exposure - Engineering method. |
| | Work environmental (Field measurement) | Ergonomics of thermal stress in hot environments | ISO 7243:2017(E) Ergonomic of the thermal environment – Assessment of heat stress using the WBGT (wet bulb globe temperature) index. |
| | | Ergonomics of thermal stress of cold stress | ISO 11079:2007 Ergonomics of the thermal environment - Determination and interpretation of cold stress when using required clothing insulation (IREQ) and local cooling effects. |
| | | Lighting | UNE-EN 12464-1:2022. Light and lighting - Lighting of work places - Part 1: Indoor work places. UNE-EN 12464-2=2016 Lighting of workplaces. Part 2: External workplaces |
| | Occupational Health (Field measurement) | Vibration <i>Measurement and evaluation of human exposure to hand-transmitted vibration</i> | UNE – EN ISO 5349-2:2002 EN ISO 5349-2:2001/A1 Mechanical vibration - Measurement and evaluation of human exposure to hand-transmitted vibration - Part 2: Practical guidance for measurement at the workplace. |
| | | Vibration <i>Mechanical vibration and shock - Evaluation of human exposure to whole-body vibration</i> | NTP-ISO 2631-1:2011 (revised 2022) Mechanical vibration and shock. Evaluation of human exposure to whole-body vibration. Part 1: General requirements |

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| FIELDS OF TESTING | MATERIAL/ MATRIX | DETERMINANT(S)/ ANALYTE(S) | METHOD REFERENCE |
|--|--|--|---|
| OCCUPATIONAL HEALTH & SAFETY - PHYSICAL MEASUREMENTS (cont'd.) | Occupational Health (Field measurement) (cont'd.) | Vibration <i>Vibration in buildings.</i> | NTP-ISO 2631-2:2012 (revised 2022) Mechanical Vibration and Shock. Evaluation of human exposure to whole-body vibration. Part2: Vibration in buildings (1 Hz to 80 Hz) |
| | Air (Field measurement) | Electromagnetic Field (Magnetic Field Intensity) | IEEE 644-2019. IEEE Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines. |
| | | Volatile Organic Compounds, O₂, CO, H₂S, LEL, Methane (CH₄), Formaldehyde (HCHO), CO₂, Ozone, Chlorine (Cl₂), Chlorine Dioxide (ClO₂), Ammonia (NH₃) | Method 200130 Electrochemical technique with photoionization Detector. MultiRAE User's Guide Rev C May 2013 P/N: M01-4003-000 RAE, Systems Inc. |
| PLASTIC MATERIALS - CHEMISTRY INORGANIC | Plastic materials intended for food contact (Analysis) | Metals Determination of the specific migration of metals: Aluminum, Barium, Zinc, Copper, Cobalt, Iron, Lithium, Manganese, Nickel, Antimony, Arsenic, Cadmium, Chromium, Lead, Mercury, Lanthanum, Europium, Gadolineum, Terbium | NTP 399.163-5:2023 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 5: Determination of the content and specific migration of metals in dyes and pigments NTP 399.163-1:2023 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 1: General provisions and requirements. 3rd Edition. NTP 399.163-2:2021 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 2: Food classification, simulants and test methods. 4 th Edition. |
| | | Determination of the specific migration of metals: Aluminum, Barium, Zinc, Copper, Cobalt, Iron, Lithium, Manganese, Nickel, Antimony, Arsenic, Cadmium, Chromium, Lead, Mercury, Lanthanum, Europium, | NTP 399.163-5:2023 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 5: Determination of specific metal content and migration in dyes and pigments. |
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| FIELDS OF TESTING | MATERIAL/MATRIX | DETERMINANT(S)/ANALYTE(S) | METHOD REFERENCE |
|---|--|---|--|
| PLASTIC MATERIALS - CHEMISTRY INORGANIC (cont'd.) | Plastic materials intended for food contact (Analysis) (cont'd.) | <i>Gadolinium, Terbium // Boron, Tin, Silver</i> | // MERCOSUR/GMC/RES. N°15/10. MERCOSUR Technical Regulations on dyes in plastic containers and equipment intended to be in contact with food (Repeal of RES. GMC No. 28/93), ANNEX, No. 3. Tests for printed plastic containers and equipment and/or containing dyes in their formulation, intended to come into contact with food, Item 3.2 Determination of specific migration of metals and other elements. NTP 399.163-1:2023 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 1: General provisions and requirements. 3rd Edition. NTP 399.163-2:2021 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 2: Food classification, simulants and test methods. 4 th Edition. |
| | | Total (global) migration test in Materials and articles in contact with foodstuffs. <i>(Food simulants: Acetic acid 3% m/V, 10% ,20%, 50% V/V Ethanol</i> | NTP 399.163-6:2016/ENM 1:2017 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD Part 6: Total migration tests on packaging. Amendment 1. 1st Edition. NTP 399.163-1:2023 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 1: General provisions and requirements. 3rd Edition. NTP 399.163-2:2021 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 2: Food classification, simulants and test methods. 4 th Edition. |

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| FIELDS OF TESTING | MATERIAL/MATRIX | DETERMINANT(S)/ANALYTE(S) | METHOD REFERENCE |
|--|--|---|--|
| PLASTIC MATERIALS - CHEMISTRY INORGANIC (cont'd.) | Plastic materials intended for food contact (Analysis) (cont'd.) | <i>Total (global) migration test in Materials and articles in contact with foodstuffs. In evaporable simulants</i> <i>(Food simulants: Acetic acid 3% m/V, 10% ,20%, 50%, 95% V/V Ethanol, Isooctano, Purified water</i> | UNE-EN 1186-3:2023 Materials and articles in contact with foodstuffs - Plastics - Part 3: Test methods for overall migration in evaporable simulants UNE-EN 1186-1:2002 Materials and articles in contact with foodstuffs. Plastics. Part 1: Guide to the selection of conditions and test methods for overall migration. |
| | Ink and pigment for food contact plastics Analysis | Determination of the content of heavy metals in dyes and pigments: <i>Antimony, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Zinc.</i> | NTP 399.163-5:2023. PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 5: Determination of the content and specific migration of metals in dyes and pigments. NTP 399.163-1:2023 PLASTIC CONTAINERS AND ACCESSORIES IN CONTACT WITH FOOD. Part 1: General provisions and requirements. 3rd Edition |
| PLASTIC MATERIALS - CHEMISTRY ORGANIC | Plastic materials intended for food contact | Residual Vinyl Chloride | ISO 6401:2022 Plastics — Poly(vinyl chloride) — Determination of residual vinyl chloride monomer using gas-chromatographic method. |
| TOYS AND DESKTOP ITEMS - TOXICOLOGY - CHEMISTRY INORGANIC | Toys, toy parts and stationery based on: Coatings for paints, varnishes, lacquers, printing inks, polymers, foams or the like. Polymeric and similar materials. Paper and paperboard. Natural and synthetic textiles, Crystal, Ceramic, metallic materials. Wood, fiberboard, bone and leather. Compressed pill tablets, materials | Metal migration in toys and desktop items: <i>Arsenic, Aluminum, Antimony, Barium, Boron, Cadmium, Copper, Chromium, Cobalt, Tin, Strontium, Lead, Mercury, Manganese, Selenium, Nickel, Zinc.</i> | UNE-EN 71-3:2020+A1:2021 Safety of toys - Part 3: Migration of certain elements. |

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|---|---|---|---|
| TOYS AND DESKTOP ITEMS - TOXICOLOGY - CHEMISTRY INORGANIC (cont'd.) | intended to leave a trace. Flexible modeling materials, including modeling clay and plaster. Liquid paints, finger paint, lacquers, varnishes, liquid ink and similar materials. Glue sticks. (Analysis) | | |
| ENVIRONMENTAL TOXICOLOGY - CHEMISTRY INORGANIC | Solid Waste (Sludge toxicity) or other solids, semi-solids or liquids, Soils, Sediments (Sampling & Analysis) | Metals in TCLP (Toxicity Characteristic Leaching Procedure) Metals: <i>Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Boron (B), Beryllium (Be), Cadmium (Cd), Calcium (Ca), Chromium (Cr), Cobalt (Co), Copper (Cu), Iron (Fe), Lead (Pb), Lithium (Li), Magnesium (Mg), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Phosphorus (P), Potassium (K), Selenium (Se), Silica (SiO₂), Silver (Ag), Sodium (Na), Strontium (Sr), Thallium (Tl), Estaño, Titanium (Ti), Vanadium (V), Zinc (Zn), Thorium (Th), Uranium (U), Tungsten (W)</i> | EPA 1311 Rev.0:1992. Toxicity Characteristic Leaching Procedure / Method EPA 6010D, Rev. 5, 2018. Inductively Coupled Plasma - Optical Emission Spectrometry (ICP-OES). |
| | Liquid wastes, Solid waste, Multiphasic wastes, Sludge, Soil extracts Sediments (sampling & analysis) | Reactivity - Hydrocyanic Acid (HCN) | USEPA, SW-846: Test Methods for Evaluating Solid Wastes, Physical Chemical Methods, Chapter 7, Cap. 7.3.1 y 7.3.2 / EPA 9014 Rev.1:2014. Cyanide in Waters and Extracts using Titrimetric and Manual Spectrophotometric Procedures. |
| | | Reactivity - Hydrogen Sulfide (H ₂ S) | USEPA, SW-846: Test Methods for Evaluating Solid Wastes, Physical Chemical Methods, Chapter 7, Cap. 7.3.1 y 7.3.2 / EPA 9034: 1996. Titrimetric Procedure for Acid-Soluble and Acid Insoluble Sulfides. |

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|--|--|--|---|
| ENVIRONMENTAL TOXICOLOGY - CHEMISTRY INORGANIC (cont'd.) | Aqueous liquid waste, Non-aqueous liquid waste, Solid waste, (sampling & analysis) | Corrosivity | SW-846 EPA Method 1110A: 2004 Corrosivity Toward Steel |
| | Liquid wastes, Multiphasic wastes, Sludge, (sampling & analysis) | Corrosivity - pH | SW-846 EPA Method 9040C:2004. pH Electrometric measurement. |
| | Solid waste Soil (sampling & analysis) | Corrosivity -pH | EPA SW-846, Method 9045 D (Rev4) 2004. Soil and waste pH. |
| | Solid waste, Sludge, (sampling & analysis) | Ignitability | SW-846 EPA 1030 Rev.1:2014. Ignitability of Solids. |
| | Liquid wastes, (sampling & analysis) | Ignitability | ASTM D8175-18 Standard Test Method for Finite Flash Point Determination of Liquid Wastes by Pensky-Martens Closed Cup Tester |
| ENVIRONMENTAL TOXICOLOGY - CHEMISTRY ORGANIC | Solid Waste (Sludge toxicity) or other solids, semi-solids or liquids, Soils, Sediments (Sampling & Analysis) | <i>Volatile Organic Compounds in TCLP (Toxicity Characteristic Leaching Procedure)</i> <i>1,1-Dichloroethene, Dichloromethane, Trans-1,2- Dichloroethylene, 1,1-Dichloroethane, 2,2- Dichloropropane, Cis-1,2-Dichloroethylene, Bromochloromethane, 1,1,1-Trichlorethane, 1,1-Dichloropropene, Carbon Tetrachloride, 1,2-Dichloroethane, trichloroethylene, 1,2-Dichloropropane, Dibromomethane, Cis-1,3-Dichloropropene, Trans-1,3- Dichloropropene, 1,1,2 Trichloroethane, 1,3-Dichloropropane, tetrachloroethylene, 1,2-Dibromoethane, Chlorobenzene, 1,1,1,2-Tetrachloroethane, Styrene, Cumene, 1,1,2,2</i> | EPA 1311 Rev.0:1992. Toxicity Characteristic Leaching Procedure. / Method 8260D – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Revision 4, June 2018. |

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|--|--|---|---|
| ENVIRONMENTAL TOXICOLOGY - CHEMISTRY ORGANIC (cont'd.) | Solid Waste (Sludge toxicity) or other solids, semi-solids or liquids, Soils, Sediments (Sampling & Analysis) (cont'd.) | <i>Tetrachloroethane, 1,2,3- Trichloropropane, n- Propylbenzene, Bromobenzene, 1,3,5- Trimethylbenzene, 2- Chlorotoluene, 4-Chlorotoluene, Tert-Butylbenzene, 1,2,4- Trimethylbenzene, Sec- Butylbenzene, p-Isopropyltoluene, 1,3 Dichlorobenzene, 1,4-Dichlorobenzene, n-Butylbenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, Hexachlorobutadiene, Naphthalene, 1,2,3-Trichlorobenzene, Chloroform, Bromodichloromethane, Dibromochloromethane, Bromoform</i> | EPA 1311 Rev.0:1992. Toxicity Characteristic Leaching Procedure. / Method 8260D – Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Revision 4, June 2018. (cont'd.) |
| | | Pesticides in TCLP (Toxicity Characteristic Leaching Procedure) <i>Methamidophos, Malathion, Parathion, Pentachlorophenol, Lindane, Heptachlor, Aldrin, Heptachlor epoxide, Chlordane-Trans, Endosulfan I, Chlordane-Cis, Dieldrin, DDE-p, p (4,4-DDE), Endrin, Endosulfan II, DDD-p, p (4,4'-DDD), DDT-p, p (Dichloro Diphenyl Trichloro ethane)</i> | EPA 1311 Rev.0:1992. Toxicity Characteristic Leaching Procedure. / EPA Method 8270E, Rev 06. Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) - 2018. |
| ENVIRONMENTAL TOXICOLOGY - MICROBIOLOGY | Solid waste, Multiphasic wastes (sampling & analysis) | Total Coliform | SM 9221 B. 24th Ed. 2023 Multiple-Tube Fermentation Technique for Members of the Coliform Group. Standard Total Coliform Fermentation Technique. EPA Method 1680. Item 11 y Item 14. |

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|---|---|-----------------------------------|---|
| ENVIRONMENTAL TOXICOLOGY - MICROBIOLOGY (cont'd.) | Solid waste, Multiphasic wastes (sampling & analysis) (cont'd.) | Salmonella sp | EPA Method 1682 Method 1682: Salmonella in Sewage Sludge (Biosolids) by Modified Semisolid Rappaport Vassiliadis (MSRV) Medium, 2006. |
| | | Escherichia coli | EPA Method 1680 Fecal Coliforms in Sewage Sludge (Biosolids) by Multiple-Tube Fermentation using Lauryl Tryptose Broth (LTB) and EC Medium, 2014 // SM Part 9221 G. (Item 2). 24th Ed. 2023. Multiple-Tube Fermentation. Technique for Members of the Coliform Group. Other Escherichia coli Procedures. Escherichia coli. Test (Indole Production) |
| FOODS - MICROBIOLOGY | Foods (Sampling & Analysis) | Mold count | ICMSF Food Microorganisms. Its meaning and methods of enumeration. P.166-167 2nd Ed. Reprint 2000. Mould and yeast counts. Method of counting molds and yeasts by sowing in plate in the whole medium |
| | | Yeast count | ICMSF Food Microorganisms. Its meaning and methods of enumeration. P.166-167 2nd Ed. Reprint 2000. Mould and yeast counts. Method of counting molds and yeasts by sowing in plate in the whole medium |
| | | Mesophilic Aerobic Count | ISO 4833-1:2013, / Amd 1: 2022 Microbiology of the food chain -- Horizontal method for the enumeration of microorganisms -- Part 1: Colony count at 30 degrees C by the pour plate technique-- Amendment 1: Clarification of scope |
| | | Total Coliform Enumeration | ISO 4831:2006. Except item 9.1, Microbiology of food and animal feeding stuffs -- Horizontal method for the detection and enumeration of coliforms -- Most probable number technique. |

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| FIELDS OF TESTING | MATERIAL/MATRIX | DETERMINANT(S)/ANALYTE(S) | METHOD REFERENCE |
|---------------------------------------|---------------------------------------|---|--|
| FOODS - MICROBIOLOGY (cont'd.) | Foods (Sampling & Analysis) (cont'd.) | <i>Staphylococcus aureus</i> <i>Enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species)</i> | ISO 6888-1:2021/ Amd 1:2023 Microbiology of the food chain- Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) Part 1: Method using Baird - Parker agar medium- Amendment 1. |
| | | <i>Escherichia coli</i> <i>Presumptive listing of Escherichia coli</i> | ISO 7251:2005, Microbiology of food and animal feeding stuffs -- Horizontal method for the detection and enumeration of presumptive Escherichia coli -- Most probable number technique. Except 9.1 |
| | | <i>Salmonella sp.</i> | ISO 6579-1:2017/AMD 1:2020, Microbiology of the food chain — Horizontal method for the detection, enumeration, and serotyping of Salmonella — Part 1: Detection of Salmonella spp. — Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR/V and SC. Except 9.1 and Annex D |
| CHEMICAL PRODUCTS - BIOCIDES ACTIVITY | Disinfectants, Cleaning products | Bactericidal activity (microbial confrontation) | UNE-EN 1040:2006 Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of basic bactericidal activity of chemical disinfectants and antiseptics - Test method and requirements (phase 1). |
| | | Fungicidal activity (microbial confrontation) | UNE-EN 1275:2007 Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of basic fungicidal or basic yeasticidal activity of chemical disinfectants and antiseptics - Test method and requirements (phase 1). |

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| FIELDS OF TESTING | MATERIAL/MATRIX | DETERMINANT(S)/ANALYTE(S) | METHOD REFERENCE |
|---|---|---|--|
| ELECTRIC AND MAGNETIC FIELD LEVELS GENERATED BY AC POWER SYSTEMS | Non-ionizing radiation: Measurement procedures with regard to public exposure | <i>Electric and magnetic fields</i> | UNE-EN 62110:2013/AC. Electric and magnetic fields generated by alternating current power systems. Procedures for measuring the levels of exposure of the general public |
| MEASUREMENT OF DC MAGNETIC, AC MAGNETIC AND AC ELECTRIC FIELDS | Non-ionizing radiation: 1 Hz to 100 kHz with regard to exposure of human beings | <i>Electric and magnetic fields</i> | IEC 617862:2014 Measurement of DC magnetic, AC magnetic and AC electric fields from 1 Hz to 100 kHz with regard to exposure of human beings - Part 2: Basic standard for measurements |
| ELECTRICAL INSULATING LIQUIDS | Dielectric oil (sampling & analysis) | PCBs | ASTM D4059 - 00 (Reapproved 2018). Standard Test Method for Analysis of Polychlorinated Biphenyls in Insulating Liquids by Gas Chromatography |
| | | PCBs | EPA SW-846 Method 9079 Screening Test Method for Polychlorinated Biphenyls in Transformer Oil |
| SOIL MECHANICS PHYSICO-CHEMICAL TESTS | Soils (Sampling & Analysis) | Liquid limit, plastic limit, and plasticity index of soils. | NTP 339.129:1999 (revised 2019) SOILS. Test method to determine the liquid limit, plastic limit and soil plasticity index. ASTM D4318-17e1 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils. |
| | | Classification of soils (SUCS) | NTP 339.134:1999 (revised 2019) SOILS. Method for soil classification for engineering purposes (unified soil classification system, SUCS) ASTM D2487-17e1 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) |
| | | Soil compaction (MODIFIED PROCTOR) | NTP 339.141 1999 (revised 2019) SOILS. Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56 000 ftlb/ft ³ (2 700 kN-m/m ³)) |

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|---|---|--|--|
| SOIL MECHANICS PHYSICOCHEMICAL TESTS (continued) | Soils (Sampling & Analysis) (cont'd.) | | ASTM D1557 - 12 (2021) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2,700 kN-m/m ³)) |
| | | Relative specific weight or Specific Gravity of soils | NTP 339.131 1999 (revised 2019) SOILS. Test Method to determine the relative specific weight of solid particles in a soil. ASTM D854-14 Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer |
| | | pH | NTP 339.176: 2002 (revised 2015). Soils. Standardized test method for the determination of the pH value in soils and groundwater. |
| | | Moisture | NTP 339.127 1998 (revised el 2019) SOILS. Test method to determine the moisture content of a soil. |
| | | Classification of soils AASHTO | NTP 339.135:1999 (revised 2019) SOILS Method for classifying soils for use on transport road. |
| | Soils (Sampling & Analysis) (cont'd.) | Organic Matter | AASHTO T 267, Standard Method of Test for Determination of Organic Content in Soils by Loss of Ignition. |
| Soil and rock | Moisture | ASTM D2216-19 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass | |
| Aggregates for concrete: Fine aggregate, Coarse aggregate | Inalterability of aggregates (Durability) | NTP 400.016:2020 AGGREGATES. Determination of the inalterability of aggregates by means of sodium sulfate or magnesium sulfate. | |
| | Resistance to degradation (abrasion) | NTP 400.019:2020 AGGREGATES. For resistance to degradation of small size coarse aggregate by abrasion and impact in the Los Angeles machine. Standard test method. | |

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|---|--|--|--|
| SOIL MECHANICS PHYSICOCHEMICAL TESTS (continued) | Aggregates for concrete: Fine aggregate, Coarse aggregate (cont'd.) | Resistance to degradation (abrasion) | ASTM C131/C131M-20 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. |
| | | (cont'd.) | |
| | | <i>Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.</i> | <i>ASTM D4791-19 Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.</i> |
| | | Sulfate | NTP 400.042:2016 AGGREGATES. Standard test method for quantitative determination of water-soluble chloride and sulfate ion content for aggregates in concrete. |
| | Aggregates for concrete: Coarse aggregate | Chloride | NTP 400.042:2016 AGGREGATES. Standard test method for quantitative determination of water-soluble chloride and sulfate ion content for aggregates in concrete. |
| | | Granulometric analysis. fine and coarse aggregates | NTP 400.012:2021 AGGREGATES. Sieve analysis of fine and coarse aggregate. Test method. |
| | Aggregates for concrete: Fine aggregate | Relative density (specific weight) and absorption coarse aggregate | NTP 400.021:2020 AGGREGATES. Relative density (specific weight) and absorption of coarse aggregate. Test method. |
| | | Sand Equivalent | ASTM D2419 - 22 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate. |
| | Water for concrete | Organic impurities in fine aggregate (Color) | NTP 400.024:2020 AGGREGATE. Test method to determine organic impurities in fine aggregate for concrete. |
| | | Álcalis (Na ₂ O + 0.658 K ₂ O) | ASTM C114 - 18 Métodos de prueba estándar para el análisis químico del cemento hidráulico. Ítem 19.2.1.2 (Validado). |