

# Schedule of Accreditation



Organisation Name	Euro Environmental Management Ltd.
Trading As	Fitz Scientific
INAB Reg No	389T
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Accreditation Standard	ISO 17025 T
Date of award of accreditation	02/06/2021
Scope Classification	Biological and veterinary testing
Scope Classification	Chemical testing
Services available to the public <sup>1</sup>	No

<sup>1</sup> Refer to document on interpreting INAB Scopes of Accreditation

Sites from which accredited services are delivered		
(the detail of the accredited services delivered at each site are on the Scope of Accreditation)		
	<b>Name</b>	<b>Address</b>
1	Head Office	Unit 35 Boyne Business Park, Drogheda, Louth
2	Fitz Scientific	Unit 1, Boyne Business Park, Drogheda, Louth, A92 Y397

# Scope of Accreditation

## Fitz Scientific

### Biological and Veterinary Testing

Category: A

Biology/veterinary field - Tests	Test name	Technique	Matrix	Equipment	Std. reference	
803 Culture of organisms in liquid or agar based culture media with visual or instrument monitoring for growth - .01 Culture of bacteria	Clostridium perfringens (and spores), presumptive	Isolation and enumeration by membrane filtration	Potable waters, well waters, bottled mineral waters	Membrane filtration unit	Based on Environment Agency -The Microbiology of Drinking Water (2021) - Part 6 method B using SOP 161	
	Detection and confirmation of Salmonella species	Pre-enrichment followed by selective enrichment in broth and plating on to selective agar. Confirmation of any presumptive Salmonella spp. is by biochemical and serological testing.	Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fats and oils, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared	Solus Elisa (Optima)	Solus ELISA (Optima) using SOP 455	

		dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.			
Detection, confirmation and identification of <i>Listeria</i> species	Selective pre-enrichment followed by selective enrichment in broth and plating on selective agar. Confirmation of any presumptive <i>Listeria</i> spp. is by biochemical testing.	Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.	Solus Elisa	Solus ELISA using SOP 456	
Enterococci	Isolation and enumeration by membrane filtration with confirmation by biochemical test	Potable waters, well waters, bottled mineral waters	Membrane filtration unit	Based on UK Environment Agency - The Microbiology of Drinking Water (2012) - Part 5 using SOP 153	
Enumeration of <i>Bacillus cereus</i> (presumptive)	Isolation and enumeration by spread plate method	Cereals and bakery products, Cocoa and cocoa preparations, Dairy products, Egg products, Foods, stockfoods and their additives, Soups, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut	Spread plate	Based on BS EN ISO 7932:2004 using spread plate using SOP 478	

			products, snacks, Prepared dishes, Soup, broths and sauces, Surfaces, Product contact surfaces.			
	Enumeration of coagulase positive staphylococci (Staphylococcus aureus and other species)	Isolation and enumeration by spread plate method and confirmation by Coagulase Test	Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.	Spread plate	Based on BS EN ISO 6888-1:1999 using spread plate using SOP 465	
	Enumeration of coliform organisms (presumptive)	Isolation and enumeration by pour plate method	Dairy products, Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat	Pour plate	Based on BS EN ISO 4832:2006 using pour plate using SOP 451	

		products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.			
Enumeration of Enterobacteriaceae (presumptive)		Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.	Pour plate	Based on BS EN ISO 21528-2:2017 using pour plate using SOP 454	
Enumeration of Listeria species	Isolation and enumeration by spread plate method and confirmation by biochemical testing	Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices,	Spread plate	Based on BS EN ISO 11290-2: 2017 with resuscitation stage using spread plate using SOP 480	

			Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.			
Enumeration of microorganisms – aerobic colony count at 30°C	Isolation and enumeration by pour plate method	Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fats and oils, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.	Pour plate	Based on BS EN ISO 4833-1:2013 using single pour plate using SOP 457		
Enumeration of Pseudomonas spp.(presumptive)	Isolation and enumeration by spread plate method	Cereals and bakery products, Cocoa and cocoa preparations, Dairy products, Egg products, Meat and meat products, game and poultry, Foods, stockfoods and their additives, Soups, Ices and desserts, Meat and meat	Spread plate	Based on BS EN ISO 13720:2010 using spread plate using SOP 496		

		products, game, poultry, Nuts and nut products, snacks, Prepared dishes, Soup, broths and sauces, Surfaces, Product contact surfaces.			
Enumeration of yeasts and moulds in products with water activity > 0.95		Cereals and bakery products, Confectionery, Dairy products, Egg products, Fats and oils, Fish, shellfish and molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Ices and desserts, Meat and meat products, game, poultry, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.	Spread plate	Based on BS ISO 21527-1:2008 using spread plate using SOP 466	
Enumeration of yeasts and moulds in products with water activity ≤ 0.95		Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Spices, Nuts and nut products, snacks	Spread plate	Based on BS ISO 21527-2:2008 using spread plate using SOP 479	
Enumeration of β-glucuronidase positive E. coli	Isolation and enumeration by pour plate method	Cereals and bakery products, Cocoa and cocoa preparations, Coffee and tea, Confectionery, Dairy products, Egg products, Fish, shellfish and	Pour plate	Based on BS EN ISO 16649-2:2001 using pour plate using SOP 453	

			molluscs, Foods, stockfoods and their additives, Fruit and vegetables, Soups, Herbs and spices, Ices and desserts, Meat and meat products, game, poultry, Nuts and nut products, snacks, Pet foods, Prepared dishes, Soup, broths and sauces, Surfaces, Animal feeds, Product contact surfaces.			
Pseudomonas aeruginosa, presumptive	Isolation and enumeration by membrane filtration	Potable waters, well waters, bottled mineral waters	Membrane filtration unit	Based on UK Environment Agency - The Microbiology of Drinking Water (2015) - Part 8 using SOP 446		
Salmonella	Isolation by real time PCR and confirmation by biochemical testing	Raw ground beef, pork, frankfurters, raw chicken, environmental swabs	Applied Biosystems™ QuantStudio™ 5 Real- Time PCR Instrument, SureTect™ Salmonella species PCR Assay, Incubator, autoclave, thermal cycler, balance	Alternative method - Thermo Scientific SureTect™ Salmonella species PCR Assay workflow certified by AFNOR-UNI 03/07-11/13, AOAC 051303 using SOP 559		
Total Bacterial Count at 22°C and 37°C	Isolation and enumeration by spread plate method	Potable waters, well waters, bottled mineral waters	Spread plate	Based on UK Environment Agency - The Microbiology of Drinking Water (2020) - Part 7 using SOP 493		
Total Coliforms E.Coli	Isolation and enumeration by membrane filtration with confirmation by biochemical test	Potable waters, well waters, bottled mineral waters	Membrane filtration unit	Based on UK Environment Agency - The Microbiology of Drinking Water (2016) - Part 4, with confirmation by TNA using SOP 157		



Category: A

Chemistry Field - Tests	Test name	Analyte	Range of measurement	Matrix	Equipment/technique	Standard reference/SOP
752 Chemical residue testing - .04 Pesticide residues	Determination of Pesticides	Aldrin, alpha-BHC, BHC-beta, BHC-delta, Chloropropham, Chlorothalonil, Dieldrin, Endosulfan I (Alpha), Endosulfan II (Beta), Endosulfan Sulphate, Endrin, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, gamma-BHC, Total Pesticides	0 to 0.125 ug/L	Potable Waters, Surface Waters, Groundwaters	Solvent extraction on triple quad GCMSMS - GCMS with triple quad mass spectrometric detection	EPA Method 8081 along with In house development with Manufacturer Applications Engineer using SOP 542
		Dichlobenil, Cypermethrin, Endrin aldehyde, op DDT and trans Permethrin	0 - 0.125 ug/L	Potable Waters, Surface Waters, Groundwaters	Solvent extraction on triple quad GCMSMS - GCMS with triple quad mass spectrometric detection	EPA Method 8081 along with In house development with Manufacturer Applications Engineer using SOP 542
		Metaldehyde	0 - 0.250 ug/L	Potable Waters, Surface Waters, Groundwaters	LCMSMS - HPLC Mass Spec. with Mass spectrometric detection (MSD) in multiple reaction mode (MRM)	Quantification of EPA 1694 Pharmaceuticals and Personal Care Products in Water at the ng/L Level Utilizing Online Sample Preparation with LC-MS along with in house development with Thermo Applications Engineer using SOP 557
Determination of Pesticides Negative LC Suite	2,4,5-T, 2,4-D, 2,3,6 Trichlorobenzoic acid, 2,4 DB, Benazolin, Bentazone, Bromoxynil, Clopyralid, Dicamba, Dichlorprop-P, Fenoprop, Fluroxypyr, MCPA, MCPB, Mecoprop,	0 to 0.25 ug/L	Potable Waters, Surface Waters, Groundwaters	LCMSMS - HPLC Mass Spec. with Mass spectrometric detection (MSD) in multiple reaction mode (MRM)	Quantification of EPA 1694 Pharmaceuticals and Personal Care Products in Water at the ng/L level utilizing online sample preparation with LC-MS/MS along with in house development with	

		PentaChloroPhenol, Picloram, Triclopyr, Total Pesticides				Manufacturer Applications Engineer using SOP 543
	Determination of Pesticides Positive LC Suite	2,6-Dichlorobenzamide, Asulam H, Atrazine, Boscalid, Bromacil, Carbaryl, Carbetamide, Chlorfenvinphos-B, Chlortoluron, Cyproconazole, Diazinon, Diflufenican, Dimethoate, Diuron, Epoiconazole, Fenpropidin, Fenpropimorph, Flutriafol, Isoproturon, Kresoxim-methyl, Linuron, Malathion, Metalaxyl, Metamitron, Metazachlor, Metoxuron, Mevinphos, Monuron, Parathion Methyl, Pendimethalin, Propazine, Propiconazole, Propyzamide, Quinmerac, Simazine, Sulfotep, Tebuconazole, Triadimefon, Triallate, Total Pesticides	0 to 0.25 ug/L	Potable Waters, Surface Waters, Groundwaters	LCMSMS - HPLC Mass Spec. with Mass spectrometric detection (MSD) in multiple reaction mode (MRM)	Quantification of EPA 1694 Pharmaceuticals and Personal Care Products in Water at the ng/L level utilizing online sample preparation with LC-MS/MS along with in house development with Manufacturer Applications Engineer using SOP 540
766 Environmental testing (inc waters) - .01 Metal analysis	Determination of Mercury by ICP-MS	Mercury	0 to 5 ug/L	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	ICP-MS	Standard Method for the Examination of Water and Wastewater Method 3125B using SOP 178
	Determination of metals by ICP-MS	Aluminium, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Caesium, Chromium, Cobalt, Copper, Gallium, Iron, Lead, Lithium,	0 to 1000 ug/L (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	ICP-MS	Standard Method for the Examination of Water and Wastewater Method 3125B using SOP 177

		Manganese, Nickel, Rubidium, Selenium, Silver, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc				
		Calcium, Magnesium, Potassium, Sodium	0 to 100 mg/L (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	ICP-MS	Standard Method for the Examination of Water and Wastewater Method 3120 B using SOP 184
	Determination of metals in soil by ICP-OES	Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel, Selenium, Silver, Strontium, Thallium, Vanadium, Zinc	As: 0 to 350 mg/kg Ba: 0 to 250 mg/kg Be: 0 to 100 mg/kg Cd: 0 to 250 mg/kg Cr: 0 to 350 mg/kg Co: 0 to 150 mg/kg Cu: 0 to 250 mg/kg Pb: 0 to 200 mg/kg Mn: 0 to 950 mg/kg Ni: 0 to 350 mg/kg Se: 0 to 150 mg/kg Ag: 0 to 150 mg/kg Sr: 0 to 150 mg/kg Tl: 0 to 150 mg/kg Zn: 0 to 550 mg/kg V: 0 to 150 mg/kg	Soil	ICP-OES	Standard Method for the examination of Water and Wastewater Method 3125B using SOP 224
766 Environmental testing (inc waters) - .04 Organic	Determination of Organic Matter	Loss on ignition	0 to 100%	Soil	Muffle furnace, drying oven, balance	USEPA method 160.4/SI No 101 of 2009 using SOP 333
	Determination of Polyaromatic Hydrocarbons	Benzo[b]fluoranthene*, Benzo[k]fluoranthene*, Benzo[ghi]perylene*, Indeno[1,2,3-cd]pyrene*, Acenaphthene, Acenaphthylene, Benzo[a]anthracene, Benzo[a]pyrene, Chrysene, Fluorene, Pyrene, Total PAH (total of those marked *)	0 to 0.030 ug/L (Benzo(a)pyrene, 0 to 0.125 ug/L (All Other Compounds)	Potable Waters	GCMSMS	Based on USEPA Method 610 (Polynuclear Aromatic Hydrocarbons) using SOP 553
	Determination of Total Organic Carbon (TOC)	Organic Carbon	0 to 50 mg/L (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents	TOC-V analyser	British Standard EN 13137:2001 using SOP 316

			0 to 50,000 mg/L	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Total Organic Carbon Analyser	Based on BS EN 13137:2001 using SOP 316
	Determination of Volatile Organic Compounds	Benzene, Bromobenzene, Bromochloromethane, Bromodichloromethane, Bromoform, n- Butylbenzene, sec- Butylbenzene, tert- Butylbenzene, Carbon tetrachloride, Chlorobenzene, Chloroform, 2- Chlorotoluene, 4-Chlorotoluene, Dibromochloromethane, 1,2-Dibromoethane, Dibromomethane, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2- Dichloroethene, 1,2- Dichloropropane, 1,3- Dichloropropane, 1,1- Dichloropropene, cis- 1,3-Dichloropropene, trans-1,3- Dichloropropene, Ethylbenzene, Hexachlorobutadiene, Isopropylbenzene, p- Isopropyltoluene, Naphthalene, n- Propylbenzene, Styrene, 1,1,1,2- Tetrachloroethane, Tetrachloroethene,	0 to 200 ug/L	Potable Waters, Surface Waters, Groundwaters, Trade Effluents	Headspace GCMS	EPA Method 8260B using SOP 154

		Toluene, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, m/p-Xylene, o-Xylene, 1,3,5-Trimethylbenzene				
		Trichloroethene, Trichlorofluoromethane, 1,2-dibromo-3-chloropropane	0 to 200 ug/L	Potable Waters, Surface Waters, Groundwaters	Headspace GCMS	EPA Method 8260B using SOP 154
		Vinyl Chloride	0 to 200 ug/L	Surface Water, Groundwater	Headspace GCMS	EPA Method 8260B using SOP 154
766 Environmental testing (inc waters) - .05 Inorganic	Determination of Available Phosphorous in Soil	Available Phosphorous	0 to 4 mg/L	Soil	Discrete Analyser	Standard Soil Analysis using Morgans P and colorimetry and using SOP 301
	Determination of Alkalinity	Alkalinity	0 to 300 mg/L (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Aquakem / Labmedics procedure. ID number ALKBpB 003 using SOP 102
	Determination of Ammonia	Ammonia (N) Ammonia (by calculation) Ammonium (by calculation)	0 to 20 mg/L (Ammonia as N) extended by dilution	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater F, Aquachem method AMMDIC and SSA Book Series: 5, Methods of Soil Analysis – Extraction of Exchangeable Ammonium and Nitrate and Nitrite 1996 using SOP 114
	Determination of Available Lime in Soil	Available Lime	0 to 32.50 tonne/ha (Mineral Soils) 0 to 28.75 tonne/ha (Peat)	Soil	Balance, pH meter, electrode	Based on the method of Shoemaker, McLean and Pratt (SMP), 1960 using SOP 304
	Determination of Biochemical Oxygen Demand	Biochemical Oxygen	2 to 10,000 mg/L (by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	DO meter and electrode, water bath, incubator or by Automated Analyser	Standard Method for the Examination of Water and Wastewater Method 5210 B and USEPA method/EPA NE using SOP 113

Determination of Bromate	Bromate	0 to 100 ug/L as BrO <sub>3</sub>	Potable Waters, Surface Waters, Groundwaters	IC and Autosampler	EPA Method 300.1 using SOP 125
Determination of Chloride	Chloride	0 to 300 mg/L Chloride as Cl <sup>-</sup> (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-Cl <sup>-</sup> E using SOP 100
Determination of Colour	Colour (Apparent)	0 to 200 PtCo (Hazen) Units	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 2120 B using SOP 108
	Colour (True)	0 to 200 PtCo (Hazen) Units	Potable Waters, Surface Waters	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 2120 B using SOP 108
Determination of Exchangeable Magnesium in Soil	Exchangeable Magnesium	0 to 300 mg/L	Soil	ICP-OES, balance, pH meter, electrode	Standard Soil Analysis using Morgans extractant and using SOP 303
Determination of Exchangeable Potassium in Soil	Exchangeable Potassium	0 to 300 mg/L	Soil	ICP-OES, balance, pH meter, electrode	Standard Soil Analysis using Morgans extractant and using SOP 303
Determination of Fluoride	Fluoride	0 to 1 mg/L Fluoride (Extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater 1998 Method 4500 F <sup>-</sup> E and SSA Book Series: 5 – Methods of Soil Analysis, Calcium Chloride Extractable Fluorine 1996 using SOP 115
Determination of Hardness	Total Hardness	0 to 20 mg/L CaCO <sub>3</sub> (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Aquakem / Labmedics procedure: ID number HAR001 using SOP 111
Determination of Nitrate	Nitrate (as N by calculation) Nitrate (by calculation)	0 to 8 mg/L as N (extended by Dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-NO <sub>3</sub> H using SOP 103

Determination of Nitrite	Nitrite (as N) Nitrite (by calculation)	0 to 0.8 mg/L Nitrite as N (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-NO2- B using SOP 118
Determination of Nitrogen	Total Oxidised Nitrogen (TON)	0 to 8 mg/L TON as N (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-NO3 H and SSA Book Series: 5, Methods of Soil Analysis – Extraction of Exchangeable Ammonium and Nitrate and Nitrite 1996 using SOP 151
Determination of Orthophosphate	Orthophosphate as P	0 to 4 mg/L as P (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-P E using SOP 117
Determination of Oxygen	COD	0 to 1500 mg/L (extended by Dilution)	Surface Waters, Groundwaters, Trade Effluents	COD Reactor, spectrophotometer	Standard Method for the Examination of Water and Wastewater Method 5220 D using SOP 107
Determination of Phosphate	Total Phosphate as P Phosphate (by calculation) Phosphorous Pentoxide (by calculation)	0 to 4 mg/L as P (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-P E using SOP 166
Determination of Silica	Silica	0 to 20 mg/L Silica (extended by dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-SiO2 C using SOP 152
Determination of Sulphate	Sulphate	0 to 300 mg/L SO4 (extended by Dilution)	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Discrete Analyser	Standard Method for the Examination of Water and Wastewater Method 4500-SO42- E and SSA Book Series: 5 – Methods of Soil Analysis, Extraction of Sulphur 1996 using SOP 119
Determination of Total Kjeldahl Nitrogen	Nitrogen	0 to 100 mg/L TKN	Trade Effluent	Digestor, scrubber, distillation unit	Standard Method for the Examination of Water and

						Wastewater Method 4500-Norg using SOP 104
	Determination of Total Nitrogen		0 to 30 mg/L Total Nitrogen as N	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Total Nitrogen Analyser	Based on ASTM D8083 - 16 using SOP 547
	Determination of Turbidity	Turbidity	0 to 1000 NTU	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Turbidimeter	Standard Method for the Examination of Water and Wastewater 2130 A/B and WTW Turb 355IR/T Instruction manual using SOP 109
767 Physical test/measurement - .01 pH	Determination of pH in Soil	pH	4 to 13 pH units	Soil	pH meter, electrode	Department of Agriculture and Food guidelines Nov, 2004 using SOP 300
	Determination of pH in waters		4 to 10 pH units	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	pH meter, electrode or by Automated Analyser	Standard Method for the Examination of Water and Wastewater Method 4500 - H+ B using SOP 110
767 Physical test/measurement - .02 Conductivity	Determination of Conductivity	Conductivity	0 to 20,000 us/cm-1	Potable Waters, Surface Waters, Groundwaters, Trade Effluents, Sewage Effluents	Conductivity meter, electrode or by Automated Analyser	Standard Method for the Examination of Water and Wastewater Method 2510 B using SOP 112
767 Physical test/measurement - .03 Suspended Solids	Determination of Suspended Solids	Suspended Solids	0 to 1000 mg/L	Trade Effluent	Drying oven, balance	Examination of Water and Wastewater Method 2540 D and EPA method 160.2 for Gravimetric analysis using SOP 106
770 Gases and aerosols - .04 Industrial fumes and emissions	Determination of Chloride in water impinger solution	Chloride	0 to 1,000 mg/L	Atmospheric pollutants and effluent - stack gas samples	IC	BS EN 1911:2010 Stationary source emissions, Performance standard to meet the requirements of the Environment Agency (MCERTS) for laboratories carrying out testing of samples from stack emissions monitoring using SOP 190



	Determination of Fluoride in sodium hydroxide impinger solution	Fluoride	0 to 100 mg/L	Atmospheric pollutants and effluent - stack gas samples	IC	PD CEN/TS 17340:2020 Stationary source emissions, Performance standard to meet the requirements of the Environment Agency (MCERTS) for laboratories carrying out testing of samples from stack emissions monitoring using SOP 190
	Determination of particulate matter on air emission filter papers and rinse solutions	Particulate matter	0 to 50 mg/m3	Filter papers and rinse solutions	Gravimetric, Drying oven, 5 place calibrated balance	BS EN 13284-1:2017 using EM 108
	Determination of Sulphate in hydrogen peroxide impinger solution	Sulphate	0 to 1,000 mg/L	Atmospheric pollutants and effluent - stack gas samples	IC	BS EN 14791:2017 Stationary Source Emissions, Performance standard to meet the requirements of the Environment Agency (MCERTS) for laboratories carrying out testing of samples from stack emissions monitoring using SOP 190

Chemical Testing

Category: B

Chemistry Field - Tests	Test name	Analyte	Range of measurement	Matrix	Equipment/technique	Standard reference/SOP
770 Gases and aerosols - .04 Industrial fumes and emissions	Determination of carbon dioxide	Carbon Dioxide (CO2)	0 to 20 %	Industrial fumes and emissions	Sampling and on-line analysis by NDIR analyser	Using EM 161 - PD CEN/TS 17405:2020 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 17405:2020v to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
			0 to 20 %	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	Using EM 227 - CEN/TS 17337:2019 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and ISO 21877:2019 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007

Determination of Carbon monoxide	Carbon monoxide	0 to 1500 mg/m <sup>3</sup>	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	Using EM 227 - PD CEN/TS 17337:2019 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 17337:2019 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
		0 to 5000 ppm	Industrial fumes and emissions	Sampling and on-line analysis by NDIR (the scale range of the analyser is as detailed in the current MCERTS certificate)	Using EM 161 - BS EN 15058:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 15058:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
	Carbon monoxide (CO)	0 to 1500 mg/m <sup>3</sup>	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	ASTM D6348-03 using EM 227 to meet the requirements of BS EN 15259:2007
Determination of Dioxins and Furans with subsequent analysis by ISO/IEC 17025 accredited laboratory	Dioxins and Furans	0.0001 to 10 ng I-TEQ/m <sup>3</sup>	Industrial fumes and emissions	Isokinetic sampling	By EM 147 - BS EN 1948-1:2006 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the

						requirements of BS EN 15259:2007 and IS EN 1948-1:2006 including Environment Agency (England) MID 1948 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
Determination of gaseous chloride with subsequent analysis by ISO/IEC 17025 accredited laboratory	Hydrogen Chloride	2.6 to 5000 mg/m3	Industrial fumes and emissions	Extraction through absorbing solution and analysis by IC.	By EM 148 - BS EN 1911:2010 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS 1911:2010 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007	
Determination of gaseous fluoride with subsequent analysis by ISO/IEC 17025 accredited laboratory	Hydrogen Fluoride	0.03 to 200 mg/m3	Industrial fumes and emissions	Extraction through absorbing solution and analysis by IC.	Using EM 129 - PD CEN/TS 17340:2020 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 17340:2020 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and	

					AG2 and IS EN 15259:2007
Determination of gaseous sulphur with subsequent analysis by ISO/IEC 17025 accredited laboratory	Sulphur Dioxide	0.2 to 3500 mg/Nm <sup>3</sup> of SO <sub>2</sub>	Industrial fumes and emissions	Extraction through absorbing solution and analysis by IC.	By EM 167 - BS EN 14791:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 14791:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
Determination of Nitric Oxide	Nitric Oxide	0 to 2000 mg/m <sup>3</sup>	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	ASTM D6348-03 using EM 227 to meet the requirements of BS EN 15259:2007
Determination of nitrogen monoxide	Nitrogen Monoxide (NO)	As calculated from NO <sub>x</sub> OR 0 to 2500 ppm	Industrial fumes and emissions	Sampling and on-line analysis by chemiluminescence analyser (the scale range of the analyser is as detailed in the current MCERTS certificate)	By EM 161 - BS EN 14792:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 14792:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
		As calculated from NO <sub>x</sub> OR 0 to 2500 ppm	Industrial fumes and emissions	Sampling and online analysis by FTIR	Using EM 227 - PD CEN/TS 17337:2019 to meet the requirements of the Environment Agency (MCERTS) Performance Standard

						and also the requirements of BS EN 15259:2007 and PD CEN/TS 17337:2019 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
Determination of oxides of nitrogen	Oxides of Nitrogen (NOx)	0 to 2500 ppm	Industrial fumes and emissions	Sampling and on-line analysis by chemiluminescence analyser (the scale range of the analyser is as detailed in the current MCERTS certificate)	Using EM 161 - BS EN 14792:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 14792:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007	
		0 to 2500 ppm	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	Using EM 227 - PD CEN/TS 17337:2019 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 17337:2019 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007	

	Determination of oxygen	Oxygen	0 to 25 %	Industrial fumes and emissions	Sampling and on-line analysis by validated Zirconium cell analyser (the scale range of the analyser is as detailed in the current MCERTS certificates)	Using EM 161 - BS EN 14789:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and BS EN 14789:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
			0 to 25 %	Industrial fumes and emissions	Sampling and on-line analysis by validated Zirconium cell analyser (the scale range of the analyser is as detailed in the current MCERTS certificates)	Using EM 227 - BS EN 14789:2017 (validated zirconium cell analyser) to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 14789:2017 (validated zirconium cell analyser) to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
	Determination of Particulate matter with subsequent analysis by ISO/IEC 17025 accredited laboratory	Total Particulate Matter	0.1 to 50 mg/m3	Industrial fumes and emissions	isokinetic sampling	Using EM 101 - BS EN 13284-1:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 13284-1: 2017

						including Environment Agency (England) MID 13284-1:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
Determination of pressure	Pressure	0 to 2500 Pa	Industrial fumes and emissions	Differential pressure device method (pitot tube)		Using EM 255 - BS EN 16911-1:2013 and EA MID 16911-1 to meet the requirements of the Environment Agency (MCERTS) Performance Standard, the requirements of BS EN 15259:2007 and PD CEN TR 17078:2017 Measurement Objective 1 and IS EN 16911-1:2013 and EA MID 16911-1 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2, IS EN 15259:2007 and PD CEN TR 17078:2017 Measurement Objective 1
Determination of selected metals with subsequent analysis by ISO/IEC 17025 accredited laboratory	Antimony (Sb) Arsenic (As) Cadmium (Cd) Chromium (Cr) Cobalt (Co) Copper (Cu) Lead (Pb) Manganese (Mn) Nickel (Ni) Thallium (Tl) Vanadium (V)	0.003 mg/m <sup>3</sup> to 0.5 mg/m <sup>3</sup>	Industrial fumes and emissions	Extraction through absorbing solution		Using EM 113 - BS EN 14385:2004 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 14385:2004 including Environment Agency (England)



						MID 14385 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
		Mercury (Hg)	0.0011 mg/m3 to 0.5 mg/m3	Industrial fumes and emissions	Extraction through absorbing solution	Using EM 152 - BS EN 13211:2001 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 13211:2001 including Environment Agency (England) MID 14385 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
	Determination of Sulphur Dioxide	Sulphur Dioxide	0 to 1500 mg/m3	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	Using EM 227 - PD CEN/TS 17337:2019 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 17337:2019 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007

		Sulphur Dioxide (SO <sub>2</sub> )	0 to 1500 mg/m <sup>3</sup>	Industrial fumes and emissions	Sampling and on-line analysis by FTIR	ASTM D6348-03 using EM 227 to meet the requirements of BS EN 15259:2007
	Determination of temperature	Temperature	0 °C to 1200 °C	Industrial fumes and emissions	Thermocouple	Using EM 255 - BS EN 16911-1:2013 and EA MID 16911-1 to meet the requirements of the Environment Agency (MCERTS) Performance Standard, the requirements of BS EN 15259:2007 and PD CEN TR 17078:2017 Measurement Objective 1 and IS EN 16911-1:2013 and EA MID 16911-1 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2, IS EN 15259:2007 and PD CEN TR 17078:2017 Measurement Objective 1
	Determination of the mass concentration of ammonia with subsequent analysis by ISO/IEC 17025 accredited laboratory	Ammonia	0.2 to 4000 mg/Nm <sup>3</sup> of NH <sub>3</sub> for a 0.100 m <sup>3</sup> sample	Industrial fumes and emissions	Extraction through absorbing solution	Using EM 171 - BS EN ISO 21877:2019 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and ISO 21877:2019 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007

Determination of the mass concentration of Formaldehyde with subsequent analysis by ISO/IEC 17025 accredited laboratory	Formaldehyde (Dry stacks only)	0.05 to 5,000 mg.m3	Industrial fumes and emissions	Extraction onto charcoal tubes and analysis by GC	Using EM 232 - PD CEN/TS 13649:2014 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 13649:2014 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
Determination of the mass concentration of individual Gaseous Organic Compounds with subsequent analysis by ISO/IEC 17025 accredited laboratory.	Speciated VOCs (carbon and other suitable tubes) (Dry Stacks only): Amines and Amides Phenols Cresols Carboxylic Acids Aldehydes, etc.	0.05 to 5,000 mg.m3	Industrial fumes and emissions	Extraction onto charcoal tubes and analysis by GC	Using EM 232 - PD CEN/TS 13649:2014 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and PD CEN/TS 13649:2014 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
Determination of Total Gaseous Organic Carbon	Total Gaseous Organic Carbon (TOC/VOC)	0 to 1000 mg/m3	Industrial fumes and emissions	Sampling and on-line analysis by FID	Using EM 155 - BS EN 12619:2013 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 12619:2013 to meet

						the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007
	Determination of velocity	Velocity	2.98 to 40 m.Sec-1	Industrial fumes and emissions	Point Velocity Method	Using EM 255 - BS EN 16911-1:2013 and EA MID 16911-1 to meet the requirements of the Environment Agency (MCERTS) Performance Standard, the requirements of BS EN 15259:2007 and PD CEN TR 17078:2017 Measurement Objective 1 and IS EN 16911-1:2013 and EA MID 16911-1 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2, IS EN 15259:2007 and PD CEN TR 17078:2017 Measurement Objective 1
	Determination of water vapour	Water vapour	0.2 % to 40 %	Industrial fumes and emissions	Sampling and on-site analysis	Using EM 122 - BS EN 14790:2017 to meet the requirements of the Environment Agency (MCERTS) Performance Standard and also the requirements of BS EN 15259:2007 and IS EN 14790:2017 to meet the requirements of Irish Environmental Protection Agency Publications AG1 and AG2 and IS EN 15259:2007

