

EVALUATION OF MEASUREMENT UNCERTAINTY (MU)

SGS INDUSTRIES & ENVIROMENT, ENVIRONMENTAL TESTING:

GIPPSLAND LABORATORY, VIC

Evaluation of Chemistry Measurement Uncertainty (MU) was calculated at the 95% confidence interval, coverage factor $k = 2$ using batch control sample results. The following MU values are derived from as mentioned batch control samples ranging from 10 to 100 times the limit of reporting (LOR). As analyte results decrease and approach the LOR, estimated MU will increase. At concentrations

< 5xLOR, MU will be reported as the LOR concentration. i/s indicates insufficient data for MU Evaluation.

Microbiological measurement uncertainty (MU) is evaluated by analysis of client unknowns and PT samples by a minimum of two analysts and calculated from the standard deviation of the reproducibility of the final results which is then used to evaluate the uncertainty associated with the method.

Last Review Date: 27/05/2025

Method Number	Method Description	Test/Analyte	Water
			Relative MU % unless otherwise stated
AN101	pH soil sludge sed water	pH	0.2 pH units
AN106	Conductivity and TDS by Calculation	Conductivity	5.5
AN109	Colour Pt/Co Hazen makeup spectrophotometric	Colour	8.8
AN113	Total Dissolved Solids	TDS @ 180°C	9.2
AN113	Total Solids	TS	8.3
AN114	Total Suspended Solids	TSS	19.3
AN119	Turbidity	Turbidity	1.3
AN126	Chloride in Water Colourimetric UV-Vis (Gippsland)	Chloride	13.2
AN132	Sulfate Turbidimetric UV-Vis (Gippsland)	Sulfate	15.5
AN135	Alkalinity in Aqueous Solution (Total as CaCO ₃)	Total Alkalinity	19.3
AN140	Acidity	Acidity	18.5
AN141	Fluoride (ion selective)	Fluoride	17.3
AN160	Reactive Phosphorus by UV-Vis (Gippsland)	FRP	9.5
AN165	Nitrate by UV Vis (Gippsland)	Nitrate as N	6.5
AN166	Nitrite by UV Vis (Gippsland)	Nitrite as N	10.8
AN172	Ammonia by UV Vis (Gippsland)	Ammonium as N	8.8
AN181	Chemical Oxygen Demand	COD	13.6
AN183	Biochemical Oxygen Demand	BOD	15.8
AN197	Reactive Silica UV-Vis (Gippsland)	Silica	13.8
AN240	Redox Potential (Eh)	Redox Potential	3.7

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AN245	Anions by Ion Chromotography	Sulfate	24.1
		Chloride	8.9
		Nitrate	25.1
		Ortho Phosphorus	8.4
		Fluoride	32.8
AN270	Reactive Silica by DA	Reactive Silica	15.2
AN277	Nitrite by DA	Nitrite	15.1
AN278	Filterable Reactive Phosphorus by DA	FRP	4.1
AN279	Total Phosphorus by DA	Total P	14.0
AN281	Total Kjeldahl Nitrogen by DA	TKN	18.0
AN291	Ammonia by DA	Ammonia	11.2
AN503	Deposit Gauge Dust Deposition	Total Insoluble Solids	4.8
		Total Soluble Solids	15.5
AN701	Heterotrophic (Std or Total) Plate Count-Pour Plate Technique	Heterotrophic Plate Count	0.49 log ₁₀ cfu/mL
AN708	Pseudalert Test Kit Pseudomonas Aeruginosa	Pseudomonas Aeruginosa	0.24 log ₁₀ MPN/100mL
AN735	E.coli and Faecal Coliforms by Colilert-18 (Defined Substrate Technology)	Coliforms	0.24 log ₁₀ MPN/100mL
		E. coli	0.14 log ₁₀ MPN/100mL
		Faecal coliforms	0.32 log ₁₀ MPN/100mL
AN736	Total Legionella	Legionella	0.35 log ₁₀ org/mL
AN750	Enterolert Test Kit Enterococci	Enterococci	0.27 log ₁₀ MPN/100mL
AN900 & AN906	Sampling of Water & Wastewater	Sampling	12.4