



Ultra-Trace Nutrients in Catchment, Desalination and Recycled Waters

With Guidance from Queensland Health Scientific Services, (Australia's leading laboratory in ultra-trace nutrient analysis), ALS has established a clean laboratory specifically for the analysis of ultra trace Nutrients. This 'clean room' with equipment totally dedicated for ultra trace preparation and analysis, combined with separate sample containers and storage are designed to provide the highest data quality and the lowest LORs.

Background

The ALS testing for Trace Level Nutrients utilises existing methodologies and APHA references. Key differences from routine methodologies are that ALS utilises a different set of preservation protocols based upon Australian Standards and that ALS methods have been thoroughly optimised to obtain the highest precision and the lowest LORs.

Additional benefits of this approach are that smaller samples can be taken in the field, which is particularly useful where field filtration is required. From the analysis perspective, achieving trace LORs requires excellent protocols and disciplines such as the total separation from regular environmental water samples (e.g. Industrial, STP or Routine Surface and Ground waters). This separation is particularly important in preparation and analysis with tests such as ammonia, where samples of tens and even hundreds of parts per million are not uncommon. If these high level samples were run adjacent to 'clean' sample for trace analysis, false positive results could occur as a result of airborne or gaseous phase ammonia contamination. ALS protocols and facilities are designed avoid such occurrences.

New Ultra trace Limits of Reporting

TEST PARAMETER	ALS METHOD CODE	METHOD REFERENCE	ULTRA TRACE LOR (mg/L)
Ammonia as N – Ultra Trace	EK255-CM	APHA 4500 NH3- H	0.002
Nitrite as N - Ultra-Trace	EK257-CM	APHA 4500 NO2- B	0.001
Nitrate as N - Ultra-Trace	EK258-CM	APHA 4500 NO3- - I	0.001
Nitrite + Nitrate as N (NOx as N) – Ultra Trace	EK259-CM	APHA 4500 NO3- - I	0.001
Reactive Phosphorus as P – Ultra Trace	EK271-CM	APHA 4500 P - G	0.001
Total Kjeldahl Nitrogen as N – Ultra Trace	EK261-CM	APHA 4500-N _{org} D	0.01
Total Nitrogen - Ultra Trace	EK262-CM	APHA 4500 PJ	0.01
Total Phosphorus – Ultra Trace	EK267-CM	APHA 4500 P J	0.005

Please note - LORs may vary slightly according to specific matrix.

Method Scope / Suitability

This analysis is intended for clean Drinking, Desalination, Recycled or Catchment Water Monitoring samples, unless prior screening of analyte concentrations has occurred (by site).

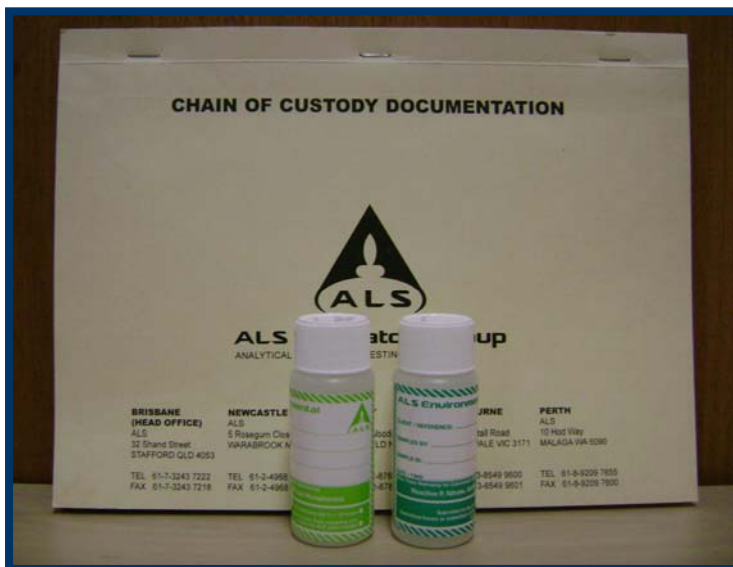
Sample Containers and Holding Times

- Reactive Phosphorus, Nitrate, Nitrate and Ammonia require one full 60mL plastic container for the full suite or part there-of and this sample should be filtered in the field
- Total Nitrogen and/or Total Phosphorus required one full 60mL plastic container.

The 60mL bottles have been designed to minimise field filtration, optimise freezing times and reduce the ALS operations impact on the environment. Samples should be submitted to the lab preferably within 24 hours of sampling to optimise holding time compliance. In addition, if samples are submitted greater than 12 hours from the time of sampling it is recommended that samples be frozen overnight and dispatched to ALS frozen to allow holding times to be met.

It should also be noted that dissolved Silica can be analysed from the same sample container however it is recommended that this not be the case if the samples are to be frozen, and in the event freezing is required for holding time compliance, a separate non frozen bottle be submitted for Silica analysis.

Specific tick boxes (identifying field filtration) are provided on ALS labels as shown below.



ALS Environmental	
CLIENT / REFERENCE: _____	
SAMPLED BY: _____	
SAMPLE ID: _____	
DATE / TIME: _____	
Ultra Trace Nutrients for Catchment Monitoring	
Reactive P, Nitrate, Nitrite, Ammonia, Silica	
Field Filtered <input type="checkbox"/>	Submitted to the analysing lab in < 12 hours <input type="checkbox"/>
Submitted frozen or submitted <24 hours from sampling and frozen by ALS upon receipt <input type="checkbox"/>	

ALS Environmental	
CLIENT / REFERENCE: _____	
SAMPLED BY: _____	
SAMPLE ID: _____	
DATE / TIME: _____	
Ultra Trace Nutrients for Catchment Monitoring	
Total Nitrogen & Total Phosphorous	
Submitted to the analysing lab in < 12 hours <input type="checkbox"/>	
Submitted frozen or submitted <24 hours from sampling and frozen by ALS upon receipt <input type="checkbox"/>	

For further details, please contact ALS Sydney on (02) 8784 8555 or your local ALS Client Services team.

For further information on specialist Services please visit the ALS website: www.alsglobal.com

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08 8359 0890	07 3243 7222	03 6331 2158	07 4963 9300	03 8549 9600	02 4968 9433	08 9209 7655	02 8784 8555	07 4796 0600