



Recommended Holding Times and Preservations for Soil and Air

Version 4, August 2020

SOIL SAMPLES				
Parameter	ALS Preferred Container	Preservation	Holding Time	Reference
INORGANICS, METALS, RADIONUCLIDES, ACID SULFATE SOILS AND PHYSICAL PARAMETERS				
General Anions and Cations: Chloride, Bromide, Fluoride, Sulfate, CEC & Exchangeable Cations	G	Chill	28 days ⁽³⁾	NEPM 2013
Asbestos	PB (double bagged)	Nil	Indefinite	AS4964-2004
Cyanide	G	Chill, Store in dark	14 days ⁽³⁾	NEPM 2013
Electrical conductivity	G	Chill	7 days ⁽³⁾	NEPM 2013
Gross alpha, Gross beta	G	Nil	180 days	ISO9696, ISO9697, ASTM D7283-06.
Hexavalent Chromium (Alkali extract)	G	Chill, Store in dark	28 days ⁽³⁾	NEPM 2013
Metals - General	G	Nil	6 months	NEPM 2013
Mercury	G	Chill, Store in dark	28 days	NEPM 2013
Methyl Mercury	Option 1	G	Chill, Store in dark	Horvat et al, 1993
	Option 2	G	Freeze, Store in dark	Horvat et al, 1993
Moisture Content	G	Chill	14 days ⁽²⁾	NEPM 2013
Nitrogen - Nitrite, Nitrate	G	Chill	7 days	AS4482.1 2005
Nitrogen – Ammonia, Oxidised Nitrogen (NOx), Total	G	Chill	28 days	Barth et al, 1989 (J R Boulding)
Organic Carbon / TOC	Option 1	G	Chill, Store in dark	NEPM 2013
	Option 2	G	Freeze for sediments	NAGD 2009
pH	G	Chill	7 days	NEPM 2013
Phosphorus – Reactive	G	Chill	7 days	AS4482.1 2005
Phosphorus - Total	G	Chill	28 days	Barth et al, 1989 (J R Boulding)
Radium 226, 228	G	Nil	180 days	ISO10703, ASTM D7283-06.
SPOCAS, TOS, Chromium Suite	Option 1	PB (exclude air)	Freeze	Indefinite
	Option 2		Chill	24 hours
	Option 3		Dry at 80°C	Indefinite
AS4969.1-2008				
Sizings and Foreign Material Tests	PB	Nil for sediments	Indefinite	NAGD 2009
Sulfide	G or PB	Chill	7 days	NEPM 2013
Sulfur - Total	Option 1	G or PB	Chill	7 days ⁽³⁾
	Option 2		Dry at 80°C	28 days
NEPM 2013 plus in house				
ORGANICS - SEMIVOLATILE COMPOUNDS (SVOCs)				
General Semi-Volatile Organic chemicals including: <ul style="list-style-type: none"> Carbamate Pesticides Explosive residues OC,OP Pesticides & PCBs Phenoxy acid Herbicides General Herbicides TRH/TPH (C10-C40), PAHs and Phenols Phthalate Esters Pyrethroids (Synthetic) SVOC Scan Tributyl Tin (TBT) 	G	Chill, Store in dark	14 days ⁽³⁾	NEPM 2013
Dioxins & Furans & PCBs (by HRMS)	G		1 year	USEPA 1613 & 1668
PBDEs	G		1 year	USEPA 1614
PFAS (Including PFOS & PFOA)	HDPE		6 months	In house - POPs
Total Organic Fluorine (TOF)	HDPE		28 days	In house
Marine sediments for Tributyl Tin, OCPs, OPPs, Phenols, PAHs and PCBs	Option 1	G	Chill, Store in dark	14 days ⁽³⁾
	Option 2		Freeze within 12 hours of sampling	56 days ⁽³⁾
NAGD 2009				
ORGANICS - VOLATILE COMPOUNDS (VOCs)				
VOCs <i>except</i> vinyl chloride and styrene	G (ZH)	Rapidly sample, minimize headspace and chill.	14 days	NEPM 2013
Vinyl chloride and styrene	G (ZH)		7 days	NEPM 2013
AMBIENT AIR, SOIL GAS AND OCCUPATIONAL HYGIENE				
ORGANICS - VOLATILE AND SEMIVOLATILE COMPOUNDS				
Parameter	Media	Preservation	Holding Time	Reference
VOCs in whole air samples	Silonite Canister	Nil	30 days	USEPA TO15r
VOCs on Sorbents	Charcoal Tubes/ Passive Badge	Nil	30 Days	NIOSH 1500/1501/1003
Semi-Volatile Organics including: <ul style="list-style-type: none"> PAHs Chlorinated Benzenes Chlorinated Phenols 	XAD-2 Resin	Protect from light. Store in the dark submit as soon as possible	7-14 Days	USEPA TO4A/TO10A/TO13A NIOSH 5515/5517
	PTFE/GFF/MCE Filters		7 Days	NIOSH 5515/5517
	PUF		7 Days	USEPA TO4A/TO13A
	HVAS		7 Days	USEPA TO4A/TO13A



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Notes:

1. TCLP and other leaching procedures need to be conducted within the solid sample holding time of the analyte of interest.
2. When a moisture determination is used for dry weight basis reporting, no holding time applies when performed on the same day as the chemical analytes of interest.
3. Holding times for extracted parameters (e.g., Chloride, Bromide, EC, Sulfate, Sulfide & Cyanide) are until extraction. Extract solution holding times also apply.

KEY - SOIL SAMPLES	
G	Glass Jar with Teflon Lined Lid
(ZH)	Zero Headspace required
PB	Plastic (Polyethylene) Bag
HDPE	Plastic (HDPE) Soil Jar

KEY - AMBIENT AIR, SOIL GAS AND OCCUPATIONAL HYGIENE	
HVAS	High Volume Air Sampler Paper
PUF	Polyurethane Filter
PTFE	Polytetrafluoroethylene Filter

APPLICABLE LOCATIONS

The bottles, preservation and holding times on the previous page are for the ALS Environmental operations at the below locations:

Adelaide

Unit 3, 1 Burma Road
Pooraka, Adelaide, SA 5095
P: +61-8-8162-5130
ALSEnviro.Adelaide@alsglobal.com

Melbourne

2-4 Westall Road
Springvale VIC 3171
P: +61-3-8549-9600
ALSEnviro.Melbourne@alsglobal.com

Sydney (Smithfield)

277-289 Woodpark Road
Smithfield NSW 2164
P: +61-2-8784-8555
ALSEnviro.Sydney@alsglobal.com

Brisbane

2 Byth Street (Corner Byth & Shand St)
Stafford QLD 4053
P: +61-7-3243-7222
ALSEnviro.Brisbane@alsglobal.com

Mudgee

Unit 1, 29 Sydney Road
Mudgee NSW 2850
P: +61-2-6372-6735
ALSEnviro.Mudgee@alsglobal.com

Sydney (Crows Nest)

Shop 2, 36 Hume Street
Crows Nest NSW 2065
P: +61-2-9437-9978
ALSEnviro.Sydney@alsglobal.com

Chinchilla

20B Malduf Street
Chinchilla QLD 4413
P: +61-7-4665-5770
ALSEnviro.Chinchilla@alsglobal.com

Newcastle

5/585 Maitland Road
Mayfield West NSW 2304
P: +61-2-4014-2500
ALSEnviro.Newcastle@alsglobal.com

Townsville

13 Carlton Street
Kirwan QLD 4817
P: +61-7-4773-0000
ALSEnviro.Townsville@alsglobal.com

Darwin

Unit 4, 16 Charlton Court
Woolner NT 0820
P: +61-8-8942-2608
ALSEnviro.Darwin@alsglobal.com

Nowra

4/13 Geary Place
North Nowra NSW 2541
P: +61-2-4423-2063
ALSEnviro.Nowra@alsglobal.com

Wollongong

Unit 1, 19 Ralph Black Drive
North Wollongong NSW 2500
P: +61-2-4225-3125
ALSEnviro.Wollongong@alsglobal.com

Gladstone

46 Callemondah Drive
Clinton Gladstone QLD 4680
P: +61-7-4978-7944
ALSEnviro.Gladstone@alsglobal.com

Perth

26 Rigali Way
Wangara WA 6065
P: +61-8-9406-1301
ALSEnviro.Perth@alsglobal.com

Mackay

Unit 2, 20 Caterpillar Drive
Paget QLD 4740
P: +61-7-4952-5795
ALSEnviro.Mackay@alsglobal.com

Roma

Lot 4, 73 Beaumont Drive
Roma QLD 4455
P: +61-7-4622-8978
ALSEnviro.Roma@alsglobal.com

Soil and Sediment Sample Chilling and Submission

Most soils should be chilled to $\leq 4^{\circ}\text{C}$ or $\leq 6^{\circ}\text{C}$ (guideline dependent) and transported to the laboratory within 24 hours. Sediments may also benefit from being frozen. ALS recommends placing samples on ice immediately upon sampling for best practice chilling with either repacking into another esky or draining of free water and replacement of ice just prior to dispatch. Chilling overnight in a fridge may also benefit. The post-chilling addition of ice bricks is also recommended where samples are air freighted or dispatched long distance and where couriers will not freight ice.

Please note that where possible samples should be submitted to the laboratory with at least half the recommended holding time remaining and it is preferable to avoid submitting holding time critical tests and full VOC suites late on Fridays without prior arrangement.

General Notes

The following soil testing services are centralized in specialist laboratory locations. These tests require additional separate jars or bags to optimise service delivery and holding time compliance.

- Dioxins, Total S, TOC, TBT and Synthetic Pyrethroids (Brisbane)
- Explosives, Herbicides, Extended Pesticides and Ultra trace Organics (Sydney)
- PFAS including PFOS & PFOA (Sydney, Brisbane and Melbourne)
- Total Organic Fluorine (Brisbane)
- Foreign Materials Testing (Newcastle)
- TRH Speciation (Perth and Melbourne)
- ASS/AMD (Perth and Brisbane)
- Asbestos (Newcastle and Melbourne)
- Sizings (Newcastle and Brisbane)