

Basic water properties

Water from various sources is used for domestic, stock and irrigation water. Other than the microbiological indicator organisms (faecal coliforms, total coliforms), water has many other properties that need to be considered before a source of water is suitable for its intended use.

Water is the universal solvent, dissolving all sorts of chemicals (inorganic and organic) as it completes the cycle from clouds to rain, to surface runoff, to percolation to groundwater, to stream flow back to the oceans. Some of the dissolved minerals are essential elements for plant and animal metabolism, others can be detrimental to health.

Rainwater can have dissolved minerals from atmospheric chemicals, the roof and gutters, storage tank, pipes and fittings. Rainwater generally has a low pH and very few dissolved solids. Organic compounds from leaf litter in the gutters, carbon products dripped from chimneys and animal wastes can be picked up along the way, some giving the water an unpleasant or unique taste, odour and colour.

Surface water from runoff collected in farm dams, creeks, streams and rivers will have dissolved components collected during its travel over the soil surface including organics from wild and domestic animals, degraded plants and algae. Some of these suspended particles will make the water cloudy (clays, organics) others will give the water a colour (decaying vegetation) and other will not show any change.

Groundwater from springs, wells and bores will usually be clear (no suspended solids) but will have various salts dissolved from the aquifer. Basalts produce a different water quality to water from granites or sediments. Some groundwater sources are very hard and unsuitable for hot water services or washing clothes.

Water tests are usually carried out to ensure that the quality of the water meets acceptable levels, some based upon health, others related to aesthetics (taste, odour, colour) of the water. When using water in domestic appliances we need to know that the water will not cause serious scale inside pipes or on hot water elements. The basic water test measures the physical and chemical properties of the water as they relate to domestic, irrigation and animal use, but not bacteria.

Lanfax Laboratories

Independence

Lanfax Labs - an independent, commercial and research organisation with special interests in soil, water and wastewater analysis, and effluent management.

Quality Management Systems

Lanfax Labs successfully participate in a range of proficiency testing programs at the National level to ensure quality control using recognised methods and standard procedures for soil, water and plants. All tests are performed according to approved methods and proficiency testing programs.

Water Quality Analysis

Lanfax Labs provide a range of tests and assessments to Universities, Government Agencies, Local Authorities, commercial operators and individuals for:

- Drinking water, Irrigation and Stock Water
- Groundwater impact assessment
- Wastewater reuse and recycling
- Greywater and Stormwater management
- Domestic effluent and urban sewage
- Surface and river water monitoring
- Liquid Trade Waste

Soil Physical and Chemical Properties

- Lanfax Labs** provide soil sample analysis for:
- Agricultural, pastoral & horticultural use
 - Wastewater application - commercial and domestic
 - Manure and biosolids application to land
 - Salinity and Sodicity
 - Land reclamation and subdivisions

On-site Effluent Disposal

Lanfax Labs can provide domestic on-site wastewater system design to meet Local Government regulations.

Laundry Product Research

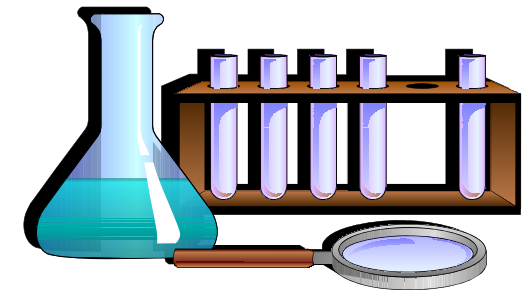
Lanfax Labs has researched phosphorus and salinity components of laundry detergents. This information is published on our website or available from the lab at no charge.

Lanfax Laboratories

Soil and Water Resource Consultants

Domestic Water

PROCEDURES FOR SAMPLE COLLECTION



Phone Lab (02) 6775 1157
Fax (02) 6775 1043

ABN: 72 212 385 096

email: lanfaxlabs@bigpond.com.au
Website: <http://www.lanfaxlabs.com.au>

Postal Address: P.O. Box 4690 Armidale NSW 2350
Laboratory: 493 Old Inverell Road Armidale 2350

January 2010

SAMPLE COLLECTION

Basic water quality test

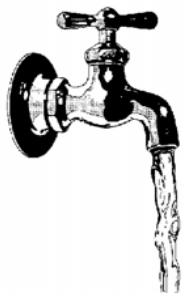
Obtain a *1 Litre* plastic bottle from our lab. We will not accept water in any other type of container.

Label the bottle while it is dry with the following details:

- Name of owner
- Location
- Source of water (tank, bore, spring, dam)
- Date, time of sampling

Access by tap

(rainwater, well, bore)



Open the tap from which you will obtain the sample, allow the water to run for several minutes until the water coming from the tap is a true sample of the supply, rather than the water that has been standing in the pipes. You need to run the water for some time to get a sample from a deep bore.

Do not rinse the bottle, but fill to the very top. Gently squeeze the sides of the bottle to expel a small amount of water and while holding the sides in,

tightly cap the bottle. This excludes air from the bottle. Keep the sample in a cool place and return it to the lab within 24 hours, preferably sooner.

SURFACE WATER - dam, creek or spring

The sampling procedure for dam, creek or other stored water is to hold the open bottle firmly, quickly dunk the upturned bottle under the surface of the water pointing it upstream. Turn the bottle upright to fill without collecting the surface scum and remove it from water body.

Gently squeeze the sides of the bottle to expel a small amount of water and while holding the sides in, tightly cap the bottle. This excludes air from the bottle. Keep the sample in a cool place and return it to the lab within 24 hours, preferably sooner.

Other tests are available on demand

Tests for pesticides, herbicides or organics are contracted to appropriately registered lab. Contact Lanfax Labs for details.

Basic water quality for domestic, stock, irrigation (does not include for drinking which may require a bacterial analysis) Prices include GST

pH, EC, Total Dissolved Solids (calc.), salinity hazard, total alkalinity, anions (fluoride, bromide chloride, nitrite, nitrate), Metals (iron, copper, manganese, aluminium, zinc), major cations (sodium, calcium, potassium, magnesium) sodium adsorption ratio (SAR), hardness, sulphur, phosphorus,	\$140
total solids (TS), total dissolved solids (TDS), total suspended solids (TSS)	\$40.00 set
volatile solids (ash) (wastewater and sludges only)	\$36.00
pH, electrical conductivity (EC), total alkalinity, salinity hazard,	\$30.00 set
free residual chlorine and total chlorine (in field test only)	\$16.50 set
fluoride, chloride, fluoride	\$44.00 set
lead, chromium, antimony, silver	\$44.00 ea
aluminium, boron, calcium, cadmium, copper, iron, potassium, magnesium, manganese, sodium, phosphorus, sulphur, zinc, sodium adsorption ratio, hardness	\$88.00 set
chloride, fluoride, nitrite, nitrate, phosphate, sulphate (ion chromatography)	\$66.00 set
total phosphorus (unfiltered sample) (TP)	\$50.00
total nitrogen includes ammonia, nitrite, nitrate, TKN)	\$77.00 set
total Kjeldahl nitrogen (TKN)	\$50.00
Total Oil and Grease (TOG)	\$65.00
Chemical Oxygen Demand (COD)	\$55.00

Biochemical oxygen demand -5 days ## Special collection and transport requirements

BOD ₅ for natural waters	\$70
BOD ₅ for waste water or effluent	\$70
Bacteria analysis *sample must be less than 30 min old or stored on ice and in-lab within 6 hours, collection vessel must be sterile.	
Faecal coliform count (24 hr)	\$60
Faecal coliforms and total coliforms (set)	\$80
Special wastewater test (basic+solids +TP+TKN+NH ₃ +NO _x)	\$330
Discounts apply to large number of samples or monitoring programs	

Indicate test required, tick third column
Complete details and submit with sample

Name

Contact Phone No.

Fax number for sample results

Email address

Address

Town Post code

Source of water:
rainwater spring well bore dam creek

Intended use of water
domestic plants stock irrigation

Water for drinking purposes may need testing for bacteria
(January 2010)