Envirolab Sydney Now Accredited for various trace elements collected in passive samplers (e.g. DGT® – Diffusive Gradients in Thin films).

What are the DGT passive samplers?

The DGT® passive sampler is an inexpensive plastic device, which can be deployed directly in waters (creek water, sea water and wastewaters, for example). The plastic housing holds a membrane filter, a diffusive gel layer and a binding layer. During deployment, the trace elements accumulate in a controlled way on the binding layer. At the laboratory, the passive sampler is dismantled, and the binding gel layer is extracted and analysed by an ICP-MS (inductively Coupled Plasma Mass Spectrometry for trace elements), ICP-OES (inductively Coupled Plasma Optical Spectrometry for major elements) or CV-AAS (Cold Vapor Atomic Adsorption Spectroscopy for Mercury). The accumulated amount of each analyte is then used to calculate concentration in the water

Any dissolved species for which there is a selective binding agent can be measured. In the case of trace elements, a chelating resin (Chelex®) that binds trace elements (e.g. Cadmium, Chromium, Lead, Uranium,..) is used.

This particular passive sampler measures all solution species that are labile (dissolved, available to biota). The sampler does not measure substances that are incorporated inside mineral particles and are therefore inert or unreactive. These properties make this particular passive sampler an ideal choice for monitoring trace elements for water quality.

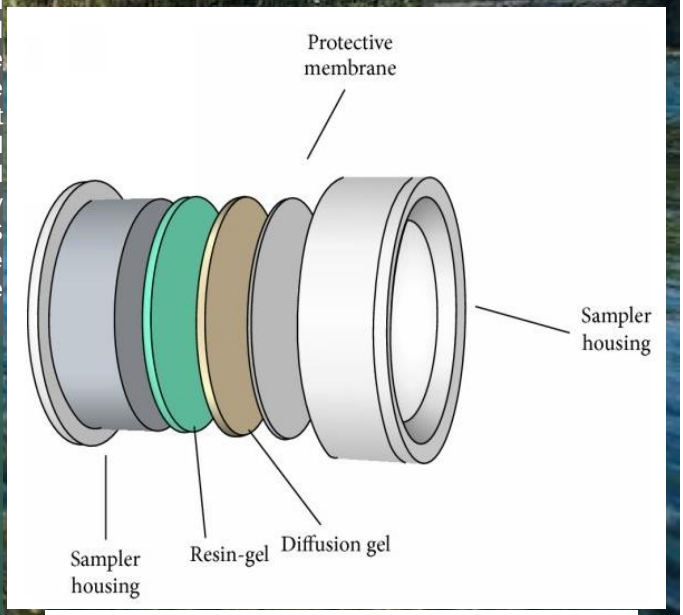
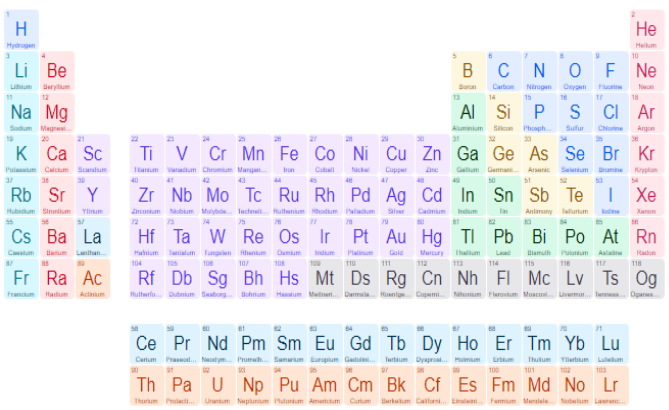


Figure 1. Schematic of a DGT® passive sampler



NATA accredited for trace elements in passive samplers

NATA

Accreditation Number 2901

The National Association of Testing Authorities (NATA) is the authority that provides independent assurance of technical competence through a proven network of best practice industry experts for customers who require confidence in the delivery of their products and services.

As a leading laboratory, we are fully accredited and qualified to perform testing for trace elements in passive samplers.
With **NATA Accreditation**, you have the confidence that you are partnering with a laboratory that will provide you with quality results. Contact us today to find out more.

Envirolab Services (Sydney) is NATA accredited for the following trace elements in passive samplers (DGT®):

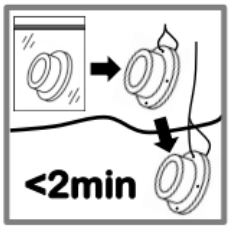
Aluminium; Antimony; Arsenic; Barium; Beryllium; Bismuth; Boron; Cadmium; Caesium; Calcium; Cerium; Chromium; Cobalt; Copper; Dysprosium; Erbium; Europium; Gadolinium; Gallium; Germanium; Gold; Hafnium; Holmium; Indium; Iron; Lanthanum; Lead; Lithium; Lutetium; Magnesium; Manganese; Mercury; Molybdenum; Neodymium; Nickel; Niobium; Palladium; Phosphorus; Platinum; Potassium; Praseodymium; Rhenium; Rhodium; Ruthenium; Samarium; Scandium; Selenium; Silver; Strontium; Sulfur; Tantalum; Tellurium; Terbium; Thallium; Thorium; Thulium; Tin; Titanium; Tungsten; Uranium; Vanadium; Ytterbium; Yttrium; Zinc; Zirconium

Reporting

Final results will be reported in µg/sample for trace elements or mg/sample for major elements. Knowing the accumulated mass and diffusion coefficients of the analyte, as well as the deployment time and temperature can enable the calculation of the average concentration during the time of exposure. Depending on the exposure time, detection limits in the range µg/L-ng/L can be achieved

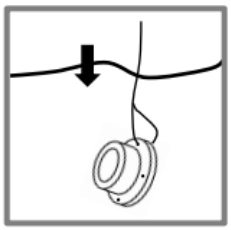
Deploying and recovering of DGT devices

Deploying DGT® devices



1. Having placed the DGT unit in its deployment holder or simply attached it to any deployment device by tying it with a fishing line threaded through the hole on the rim of the unit, deploy the unit immediately (minutes).

2 Ensure the DGT device is deployed in flowing (or moving) water, but avoid excessive turbulence, particularly bubbles. Large open waters including lakes usually have sufficient natural flow through wave action.



3. Ensure that the white face of the DGT unit is fully immersed during the deployment period.

4. Accurately record the temperature of the water during the deployment period. If the variation is within ±2°C, a mean of a start and end temperature will suffice. If the variation is greater, ideally the mean temperature should be obtained from an integrated record of temperature (data logger).

Recovering DGT® devices

1. After retrieving the DGT device from the deployment environment thoroughly rinse the DGT device with ultrapure water.

2. Place in a clean plastic bag for storage and transportation back to the lab for sample treatment.

Quality customer service is our prime objective. Our experience, together with state-of-the-art facilities ensure that you are provided with a fast turnaround of results.

Most important of all, you have a dedicated team. For further information, Simon Mills, Giovanni Agosti and David Springer are ready to answer questions and assist with your testing requirements.

Contact your closest Envirolab laboratory today

envirolab.com.au 1300 424 344 sydney@envirolab.com.au

Great Science. Great Service.