Water is a basic human right

Water that is readily available and safe for consumption is important for public health, and a thriving economy. But what can be done to ensure water resources for South Africa?

Water often acts as a sink for the multitude of chemicals we use each day. These chemicals include plastics and organic contaminants, as well as an array of compounds that are not only used in agriculture and industry, but also in our daily lives. This mixture of chemicals, including personal care products, pharmaceuticals, pesticides and industrial effluents, make their way into the municipal sewage system and treatment plants and affect our water sources.

THE ROLE OF NMISA IN WATER SAFETY

As a type-3A public entity of the Department of Trade, Industry and Competition (the **dtic**), the National Metrology Institute of South Africa (NMISA) is mandated to maintain the national measurement of water standards for South Africa and to ensure the global equivalence of these standards.

The Institute impacts the lives of South African citizens, high-level calibration and traceability support to industry, to the improvement of quality of life. The quality of drinking water affects all South Africans and, as with all measurements, requires the measurement traceability that NMISA provides.

The effective treatment of wastewater, as well as wastewater quality monitoring, can be scientifically challenging. With the Department of Water and Sanitation reinstating the Blue and Green Drop Programmes in 2021, there is added incentive for municipal wastewater treatment plants to ensure effective management processes, specifically regarding quality compliance and end-point monitoring.

NMISA provides a confidential proficiency testing service that permits laboratories to assess the accuracy of test results by following their routine methods, which enables them to test the effectiveness of their methods and quality assurance programmes.

The proficiency testing (PT) reports assist laboratories to identify areas of continuous improvement within their current quality systems. The "organic contaminants in water" protocol has been designed to support routine analytical testing by laboratories for organic contaminants in drinking water and pays special attention to pesticides and polycyclic aromatic hydrocarbons (PAHs).

NMISA participates in water-testing initiatives undertaken on a continental level. The Institute has contributed to the Southern African Development Community Cooperation in Measurement Traceability (SADCMET) Water PT scheme since 2009, by providing confirmatory reference values for approximately 15 elements (Al, As, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb and Zn) in the gravimetrically prepared drinking water test samples of African laboratories. The SADCMET Water PT usually involves more than 70 laboratories (representing 19 African countries) from the testing field who participate annually and send their results for evaluation.

NMISA provides a confidential proficiency testing service that permits laboratories to assess the accuracy of test results.

These results are measured against reference values provided by NMISA. These results are measured against reference values provided by NMISA and two independent laboratories to confirm the gravimetric reference values determined by the coordinating laboratory, before the critical evaluation of participants' results, and suggestions for improvement (where applicable), are reported back to them.

NMISA is an ISO17043:2010 accredited proficiency testing scheme provider (SANAS PTS0015), contributing directly to the Sustainable Development Goals (adopted by the our government) that relate to universal and equitable access to safe and affordable drinking water for all.

Water is essential to life

The accurate measurement of water quality is critical for the safety of water that we drink or that is used to irrigate the crops of the food we eat.

NMISA offers analytical and proficiency testing scheme services. Proficiency testing schemes are a recognised form of assessing the technical competence of laboratories performing analyses.

SERVICES OFFERED BY NMISA

Analytical services

- Analysis of perfluorinated compounds (PFCs), polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), dioxins and selected pesticides in sludges and sediment
- Analysis of PFCs and selected pesticides in waste and drinking water
- Trace element analysis in water, including toxic elements

Proficiency testing

- Annual proficiency testing schemes for organic contaminants in drinking water (at the end of November)
- Custom solutions for laboratories proficiency testing scheme needs

Read more about proficiency testing schemes and other NMISA offerings by visiting our website, www.nmisa.org, or send an e-mail to pt@nmisa.org

Website: **www.nmisa.org**
Facebook: **National Metrology Institute of South Africa**
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