

Matrix	ISO17025 Accredited Test Method	Determined parameters	Description of the method
Water, Effluent & Hydroponics	CN-TM-W01	Water pH	The potential between two electrodes is measured using a high impedance voltmeter. In-house method, based on ISO 10523:2008
Water, Waste Water, Fertigation Solutions & Fertilizer	CN-TM-W03	Chloride in water	Chloride reacts with mercury(II)thiocyanate to form a soluble non ionic compound. The thiocyanate ions released react in acid solution with iron(III)nitrate to form a red/brown iron(III)thiocyanate complex. The resulting intensity of the stable colour produced is measured spectrophotometrically at a wavelength of 480nm and is related to the chloride concentration by means of a calibration curve. In-house method, based on EPA Method 325.1
Water, Waste Water, Fertigation Solutions & Fertilizer	CN-TM-W06	Ammonia in water and fertilizer solutions	Ammonia reacts with hypochlorite ions generated by the alkaline hydrolysis of sodium dichloro-isocyanurate to form monochloramine. This reacts with salicylate ions at around pH 12.6 to form a blue compound. The absorbance of this compound is measured spectrophotometrically at wavelength 660nm and is related to the ammonia concentration by means of a calibration curve. In-house method, based on EPA 353.1
Water, Waste Water, Fertigation Solutions & Fertilizer	CN-TM-W07	Nitrates in water and fertilizer solutions	Nitrate is quantitatively reduced to nitrite by a redox reaction with a granulated cadmium metal in the presence of a suitable buffer. The nitrite thus produced is then reacted with the Griess reagent to form a strongly coloured azo dye that is measured spectrophotometrically at 540nm. In-house method, based on EPA 353.1
Water, Effluent & Hydroponics	CN-TM-W08	Major and minor elements in water by ICP-OES	Major and minor elements are determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) which excites the atoms. When the excited atoms return to low energy position, emission rays are released. The element type is determined based on the position of the photon wavelength. The concentration of each element is determined based on the rays' intensity. In-house method, based on ISO 11885:2007
Water & Waste Water	CN-TM-W14	Heavy Metals in water by ICP-OES	Samples are nebulized and the aerosol that is produced is transported to the plasma torch where excitation occurs using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES). Characteristic emission spectra are produced and dispersed by a grating spectrophotometer. The intensities of the lines are monitored by a detector. In-house method, based on ISO 11885:2007

Soil	CN-TM-S02	Soil pH in water (dry soils)	pH is determined by using a high impedance voltmeter. The potential between two electrodes is measured using the voltmeter on a soil suspension of 1:2 (soil:water). In-house method, based on ISO 10390:2005
Soil	CN-TM-S07	Major and minor elements in soil after extraction by Mehlich 3	By using Mehlich 3 extract major and minor elements are extracted and determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) to excite the atoms. When the excited atoms return to low energy position, emission rays are released. The element type is determined based on the position of the photon wavelength. The concentration of each element is determined based on the rays' intensity. In-house method, based on: Mehlich, A. (1984). Mehlich-3 soil test extractant. A modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416
Fertilizer, Gypsum & Agricultural Liming Material	CN-TM-F02	Major and trace elements in agricultural liming material and fertilizers	A suitable amount of sample is digested using weak acid. The solution is measured for concentration of elements using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) to excite the atoms. When the excited atoms return to low energy position, emission rays are released. The element type is determined based on the position of the photon wavelength. The concentration of each element is determined based on the rays' intensity. In-house method, based on: P.G.W. Scott et al. (2008). AgriLASA Fertilizer Manual, AgriLASA Fertilizer subcommittee, Pretoria, South Africa
<i>Gramineae</i>	CN-TM-PT01	Maize Chlorotic Mottle Virus (MCMV)	With a double antibody sandwich enzyme-linked immunosorbent assay (DAS-ELISA) specific antibodies are used to detect antigens from the virus. In-house method, based on http://www.bioreba.ch/saas/CustomUpload//ELISA_test_procedure_e_f_d.pdf
Plant, Soil & Water	CN-TM-PT02	Ralstonia Solanacearum	With an enzyme-linked immunosorbent assay (ELISA) specific antibodies are used to detect antigens from the virus. In-house method, based on http://www.bioreba.ch/saas/CustomUpload//ELISA_test_procedure_e_f_d.pdf