

<b>Matrix</b>	<b>ISO17025 Accredited Test Method</b>	<b>Determined parameters</b>	<b>Description of the method</b>
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, Effluent & Hydroponics	CN-TM-W02	Water EC	Conductivity is the ability of a solution to pass an electric current. In solutions the current is carried by cations and anions. 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 & Effluent	CN-TM-W04	Fluoride in water	Fluoride is allowed to react at a pH of 4.5 with the red chelate formed between cerous nitrate and alizarin fluorine blue. The absorbance of the resulting blue complex which is measured at wavelength 620nm. In house method based on: Methods for the Examination of Water and Associated Materials fluoride in Waters, Sewage and Effluents, 23rd edition 2017. ISBN 0117516260 2. Aquakem konelab methods
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 <a href="http://www.bioreba.ch/saas/CustomUpload//ELISA_test_procedure_e_f_d.pdf">http://www.bioreba.ch/saas/CustomUpload//ELISA_test_procedure_e_f_d.pdf</a>
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 <a href="http://www.bioreba.ch/saas/CustomUpload//ELISA_test_procedure_e_f_d.pdf">http://www.bioreba.ch/saas/CustomUpload//ELISA_test_procedure_e_f_d.pdf</a>
Water	CN-TM-M01	Total Coliforms and Escherichia coli	Inoculation of test portions of the sample, diluted or undiluted, into a series of tubes of a selective liquid culture medium containing lactose. Examination of the tubes after 48 h, incubation at 37°C; tubes showing turbidity with gas production indicates presence of coliforms, when E.coli is sought Kovacs reagent is added in which the formation of indole can be demonstrated. In-house method, based on Standard methods for the examination of water and wastewater. 23rd edition and ISO 9308-2:1990
Water	CN-TM-M02	Total Bacterial Count @37°C and @22°C	Inoculation by mixing with a specified culture medium in Petri dishes, measured volumes of the samples or dilutions of the sample. Incubation of one set of plates at 37°C for 48h, and another set at 22°C for 72h. Calculation of the number of colony- forming units (c.f.u.) per milliliter (ml) of the sample from the number of colonies formed in the medium. In-house method, based on ISO 6222:1999

Water	CN-TM-M03	Total Coliforms and Escherichia coli	100ml of water is filtered, under vacuum, through a cellulose acetate membrane of uniform pore diameter, usually 0.45 µm. Bacteria are retained on the surface of the membrane which is placed on a Chromagenic Coliform Agar (CCA) in a sterile petri dish and incubated 37°C. If coliforms and/or Escherichia coli are present in the water sample, characteristic colonies form that can be counted directly. In-house method, based on ISO 9308-1:2014
Food and Feed	CN-TM-P11	Total Aflatoxin	Total Aflatoxin Assay is a competitive quantitative detection of aflatoxin B1, B2, G1 and G2 based on ELISA In-house method, based on Total Aflatoxin Assay – Helica Kit information
Tea	ISO 1573:1980	Moisture Content	Heating a test Portion of the tea in an oven at 103 + 2 °C, to constant mass.
Tea	ISO 1575:1987	Total ash	Destruction of organic matter by heating at 525 + 25 °C to constant mass.
Tea	ISO 1576:1988	Water-soluble ash and water-insoluble ash	Extraction of the total ash with hot water, filtration through ashless filter Paper, ignition and weighing of the residue to determine the insoluble ash; calculation of the soluble ash by difference.
Tea	ISO 1577:1987	Acid-insoluble ash	Treatment of the total ash with hydrochloric acid Solution, filtration, ignition and weighing of the residue.
Tea	ISO 1578:1975	Alkalinity of water soluble ash	Titration of the filtrate from the determination of water-soluble ash, with standard hydrochloric acid solution, using methyl orange as indicator.
Tea	ISO 9768:1994	Water extract	Extraction of soluble matter from a test portion of the product by means of water boiling under reflux, filtration, washing, drying and weighing of the hot water insoluble residue. Calculation of the water extract
Tea	ISO 14502-1:2005	Content of total polyphenols	Polyphenols are extracted with 70 % methanol from a test portion of finely ground leaf tea at 70 °C. Instant teas are dissolved in hot water with 10 % acetonitrile (volume fraction) added to stabilize the extract. The polyphenols in the extract are determined colorimetrically