

Annex to declaration of accreditation (scope of accreditation)
Normative document: EN ISO/IEC 17025:2017
Registration number: **L 043**

of **Vitens N.V.**
Waterexpertisecentre

This annex is valid from: **30-11-2022** to **01-06-2025**

Replaces annex dated: **29-06-2022**

Location(s) where activities are performed under accreditation

Head Office

Snekertrekweg 61
8912 AA
Leeuwarden
The Netherlands

| Location | Abbreviation/ location code |
|--|-----------------------------|
| Snekertrekweg 61 8912 AA Leeuwarden The Netherlands | L |

| No. | Material or product | Type of activity ¹ | Internal reference number | Location |
|-----------------|--|---|-------------------------------------|----------|
| Sampling | | | | |
| a. | Drinking water, groundwater, surface water and process water | Sampling of taps for inorganic-, organic- and microbiological analyses. (all accredited analyses referred to in this scope which begin with the internal reference numbers VL-W-AC, VL-W-ME, VL-W-OC and VL-W-MB) | VL-W-MN01 NEN-EN-ISO 5667-5 | L |
| b. | Groundwater | Sampling of monitoring wells (including anaerobe in-line filtration of water) for inorganic- and organic analyses. (all accredited analyses referred to in this scope which begin with the internal reference numbers VL-W-AC, VL-W-ME) | VL-W-MN02 and VL-W-MN04 NTA 8017 | L |

This annex has been approved by the Board of the Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas

¹ If there is a referral to a code starting with NAW, NAP, EA or IAF, this concerns a scheme mentioned on [RvA-BR010-lijst](#).
If no date or version number is mentioned for a normative document, the accreditation concerns the most current version of the document or scheme.

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| c | Surface water | Collecting samples using a sampling beaker for inorganic-, organic- and microbiological analyses. (all accredited analyses referred to in this scope which begin with the internal reference numbers VL-W-AC, VL-W-ME, VL-W-OC and VL-W-MB) | VL-W-MN03 NEN 6600-2 | L |
| d | Drinking water and groundwater | Collecting samples for methane analyses.(analysis with the internal reference number VL-W-OC05) | VL-W-MN10 NEN-EN-ISO 5667-5 | L |
| e | Drinking water, groundwater (Matrix A) Process water, water from cooling towers and swimming pool water (Matrix B) | Sampling for <i>Legionella</i> testing with internal reference number VL-W-MB48 and VL-W-MB18 | VL-W-MN11 NEN-EN-ISO 11731 and NEN-EN-ISO 19458 | L |
| f | Swimming water | Collecting samples for inorganic-, organic- and microbiological analyses. (all accredited analyses referred to in this scope which begin with the internal reference numbers VL-W-AC, VL-W-OC and VL-W-MB) | VL-W-MN05 NEN-6600-3 | L |
| g | Drinking water, groundwater and surface water | Sampling for assimilable organic carbon (AOC) testing | VL-W-MN37 NEN 6271 | L |
| h | Drinking water, groundwater, surface water and process water | Sampling for microbiological testing (all accredited analyzes mentioned in this scope starting with the internal reference numbers VL-W-MB) | VL-W-MN36 NEN EN ISO 19458 | L |

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| Field measurements | | | | |
| 1. | Drinking water, groundwater, surface water, process water and swimming water | Determination of temperature; digital thermometer | VL-W-MN16 NEN 6414 | L |
| 2. | Drinking water, groundwater, surface water, process water and swimming water | Determination of pH; potentiometry | VL-W-MN17 in house method | L |
| 3. | Drinking water, groundwater and process water | Determination of electric conductivity; conductometry | VL-W-MN18 in house method | L |
| 4. | Drinking water and swimming water | Determination of free available chlorine and total chlorine content; spectrophotometry | VL-W-MN20 NEN-EN-ISO 7393-2 | L |
| Radioactivity measurements | | | | |
| 5. | Drinking water, groundwater and surface water | Determination of total β -activity concentration and rest- β -activity concentration of not-volatile substances | VL-W-AC11 in house method | L |
| 6. | Drinking water, groundwater, surface water | The dertermination of total α -activity concentration of not-volatile substances | VL-W-AC11 in house method | L |
| Inorganic analyses (wet-chemistry) | | | | |
| 7. | Drinking water, groundwater and surface water | Determination of suspended solids content; glass wool filtration and gravimetry | VL-W-AC19 NEN-EN 872 | L |
| 8. | Drinking water, groundwater, surface water and swimming water | Determination of turbidity; nephelometry | VL-W-AC01 in house method | L |
| 9. | Drinking water, groundwater and surface water | Determination of pH; potentiometry | VL-W-AC01 in house method | L |

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|-----|---|--|------------------------------|----------|
| 10. | Drinking water, groundwater, surface water | Determination of electric conductivity; conductometry | VL-W-AC01 NEN-ISO 7888 | L |
| 11. | Drinking water, groundwater, surface water | Determination of oxygen content; electrochemistry | VL-W-AC01 NEN-EN-ISO 5814 | L |
| 12. | Drinking water, groundwater, surface water | Determination of oxygen content; Luminescence | VL-W-AC01 NEN-ISO 17289 | L |
| 13. | Drinking water, groundwater, surface water and swimming water | Determination of carbonate (CO ₃) and hydrogen carbonate (HCO ₃) content; titrimetry | VL-W-AC01 in house method | L |
| 14. | Drinking water, groundwater and surface water | Determination of colour intensity; spectrophotometry | VL-W-AC01 in house method | L |
| 15. | Drinking water, groundwater and surface water | Determination of UV absorption; spectrophotometry | VL-W-AC01 in house method | L |
| 16. | Drinking water, groundwater, surface water | Determination of ammonium content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |
| 17. | Drinking water, groundwater, surface water | Determination of chloride content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |
| 18. | Drinking water, groundwater, surface water | Determination of nitrate content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |
| 19. | Drinking water, groundwater, surface water | Determination of nitrite content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |
| 20. | Drinking water, groundwater, surface water | Determination of ortho-phosphate content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |

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| 21. | Drinking water, groundwater and surface water | Determination of silicate content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |
| 22. | Drinking water, groundwater, surface water | Determination of sulphate content; discrete analyser spectrophotometry | VL-W-AC02 in house method | L |
| 23. | Drinking water, groundwater, surface water and swimming water | Determination of potassium permanganate demand (permanganate index); continuous flow analyses spectrophotometry | VL-W-AC04 in house method | L |
| 24. | Swimming water | Determination of urea content; continuous flow analyses spectrophotometry | VL-W-AC04 in house method | L |
| 25. | Drinking water, groundwater and surface water | Determination of total cyanide content; continuous flow analyses spectrophotometry | VL-W-AC05 in house method | L |
| 26. | Swimming water | Determination of cyanic acid content; spectrophotometry | VL-W-AC06 NEN 6493 | L |
| 27. | Drinking water, groundwater and surface water | Determination of dissolved anions; ion chromatography fluoride and bromide | VL-W-AC03 NEN-EN ISO 10304-1 | L |
| 28. | Drinking water, groundwater and surface water | Determination of dissolved anions; ion chromatography chlorate and nitrate | VL-W-AC03 in house method | L |

Inorganic analyses (metal analyses)

| | | | | |
|-----|---|--|------------------------------|---|
| 29. | Drinking water, groundwater and surface water | Determination of metals content, after acidifying with nitric acid to pH 1–2); ICP-MS aluminium, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, nickel, selenium, strontium, vanadium and zinc | VL-W-ME01 in house method | L |
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| No. | Material or product | Type of activity ¹ | Internal reference number | Location |
|-----|--|---|--|----------|
| 30. | Drinking water, groundwater and surface water | Determination of metals content after filtration (0,45 µm) and acidifying with nitric acid to pH 1–2; ICP-MS aluminium, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, nickel, selenium, strontium, vanadium and zinc | VL-W-ME01 in house method | L |
| 31. | Drinking water, groundwater, waste water and surface water | Determination of metals content, after exclusion with nitric acid; ICP-MS aluminium, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, nickel, selenium, strontium, vanadium and zinc | VL-W-ME01 and VL-W-ME12 in house method | L |
| 32. | Drinking water, groundwater and surface water | Determination of metals content after acidifying with nitric acid to pH 1-2; ICP-MS calcium, iron, potassium, magnesium, manganese and sodium | VL-W-ME04 in house method | L |
| 33. | Drinking water, groundwater and surface water | Determination of metals content after filtration (0,45 µm) and acidifying with nitric acid to pH 1–2; ICP-MS calcium, potassium, magnesium, manganese, sodium and iron | VL-W-ME04 in house method | L |
| 34. | Drinking water, groundwater, waste water and surface water | Determination of metals content, after exclusion with nitric acid; ICP-MS calcium, iron, potassium, magnesium, manganese and sodium | VL-W-ME04 and VL-W-ME12 in house method | L |
| 35. | Drinking water, groundwater and surface water | Determination of hardness; ICP-MS (determination of calcium and magnesium content, after acidifying with nitric acid to pH 1-2) | VL-W-ME04 in house method | L |
| 36. | Drinking water, groundwater and surface water | Determination of hardness; ICP-MS (determination of calcium and magnesium content, after filtration (0,45 µm) and acidifying with nitric acid to pH 1–2) | VL-W-ME04 in house method | L |
| 37. | Drinking water, groundwater and surface water | Determination of metals content (after acidifying with hydrochloric acid to pH 1–2); ICP-MS antimony, mercury, molybdenum and tin | VL-W-ME05 in house method | L |

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|-----|--|--|--|----------|
| 38. | Drinking water, groundwater and surface water | Determination of metals content after filtration (0,45 µm) and acidifying with hydrochloric acid to pH 1–2; ICP-MS antimony, mercury, molybdenum and tin | VL-W-ME05 in house method | L |
| 39. | Drinking water, groundwater, waste water and surface water | Determination of metals content after exclusion with nitric acid; ICP-MS molybdenum | VL-W-ME05 and VL-W-ME12 in house method | L |
| 40. | Drinking water, groundwater and surface water | Determination of silver and copper content with complex reagent; ICP-MS | VL-W-ME17 in house method | L |

Organic analyses

| | | | | |
|-----|---|--|------------------------------|---|
| 41. | Drinking water, groundwater and surface water | Determination of total organic carbon (TOC) and dissolved organic carbon (DOC) content; TOC-analyser with high-temperature combustion and NDIR detection | VL-W-OC02 NEN-EN-1484 | L |
| 42. | Drinking water and groundwater | Determination of methane content; GC-FID with static headspace | VL-W-OC05 in house method | L |

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| 43. | Drinking water, groundwater and surface water | Determination of volatile hydrocarbons content; GC-MS after purge&trap 1,1-dichloroethene, 1,2-(trans)-dichloroethene, 1,1-dichloroethene, 1,2-(cis) dichloroethene, bromochloromethene, trichloromethene, 1,1,1-trichloroethene, cyclohexane, tetrachloromethene, benzene, 1,2-dichloroethene, cyclohexene, 1,1-dichloropropane, trichloroethene, 1,2-dichloropropane, bromodichloromethene, 1,2-(trans) dibromoethene, 1,3-(cis) dichloropropene, methylbenzene, Methylisothiocyanaat (MITC), 1,3-(trans) dichloropropene, 1,2-(cis) dibromoethene, 1,1,2-trichloroethene, tetrachloroethene, 1,3-dichloropropane, dibromochloromethene, monochlorobenzene, ethylbenzene, 1,3+1,4-dimethylbenzene, 1,2-dimethylbenzene, fenylethene, tribromomethene, isopropylbenzene, 1,2,3-trichloropropane, n-propylbenzene, 1,3-ethylmethylbenzene, 1,4-ethylmethylbenzene, 1,3,5-trimethylbenzene, 1,2-ethylmethylbenzene, tribromoethene, 1,2,4-trimethylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,3-trimethylbenzene, 1,2-dichlorobenzene, chloroethane, 2-chloropropene, dichloromethane, Methylisothiocyanaat (MTBE), tetrahydrofuran, 1,1-dichloropropene, tetrahydrothiophene, 1,2-dibromoethene, 2-chlorotoluene, 3-chlorotoluene, 4-chlorotoluene, 2,4-dichlorotoluene, 2,5-dichlorotoluene, 2,6-dichlorotoluene, 2,3-dichlorotoluene, 3,4-dichlorotoluene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,3,5-trichlorobenzene, t-butylbenzene, s-butylbenzene, p-isopropyltoluene, n-butylbenzene, hexachloroethene, hexachlorobutadiene and naphthalene | VL-W-OC07 in house method | L |
| 44. | Drinking water, groundwater and surface water | Determination of polycyclic aromatic hydrocarbons (PAH) content; HPLC-FLU after on-line solid phase extraction naphthalene, acenaphthene, fluorene, fenanthrene, anthracene, fluoranthene, pyrene, benz-(a)-anthracene, chrysene, benz-(b)-fluoranthene, benz-(k)-fluoranthene, benz-(a)-pyrene, dibenz-(a,h)-anthracene, benz-(g,h,i)perylene and indeno-(1,2,3-c,d)-pyrene | VL-W-OC10 in house method | L |

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| 45. | Drinking water, groundwater and surface water | Determination of dikegulac content; HPLC MS/MS | VL-W-OC20 in house method | L |
| Flexible scope² | | | | |
| 46. | Water | Determination of pesticide content (acetamides, organochlorine pesticides (OCP) and organophosphorus and nitrogen-containing pesticides (ONPB) and PCB's using GC-MS/MS. | VL-W-OC23 | L |
| 47. | Water | Determination of (chloro)phenols content after derivatization using GC-MS/MS | VL-W-OC04 | L |
| 48. | Water | Determination of aromatic amines content using GC-MS/MS | VL-W-OC33 | L |
| 49. | Water | Determination of polar anthropogenic organic compounds using HPLC-MS/MS | VL-W-OC37 | L |
| 50. | Water | Determination of pesticide content (acetamides, organochlorine pesticides (OCP) and organophosphorus and nitrogen-containing pesticides (ONPB) and PCB's using GC-MS/MS. | VL-W-OC23 | L |
| Microbiological analyses | | | | |
| 51. | Surface water | Enumeration of (thermo-tolerant) coliform bacteria; membrane filtration | VL-W-MB02 NEN 6570 (1982) and NEN 6571 (1982) | L |
| 52. | Drinking water and groundwater (Matrix A) | Enumeration of <i>Legionella</i> ; membrane filtration, medium A, B and confirmation with UV or PCR | VL-W-MB48 en VL-W-MB 18 NEN-EN-ISO 11731 (procedure 8,9,10) (isolation NEN-EN-ISO 11731, confirmation NEN-EN-ISO 11731) | L |
| 53. | Process water, water from cooling towers and swimming pool water (Matrix B) | Enumeration of <i>Legionella</i> ; membrane filtration, medium C (MWY) and confirmation with UV or PCR | VL-W-MB48 en VL-W-MB 18 NEN-EN-ISO 11731 (procedure 8,9,10) (isolation NEN-EN-ISO 11731, confirmation NEN-EN-ISO 11731) | L |

² This flexible scope requires the laboratory to maintain a current list of the methods applied under this flexible scope.

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| 54. | Legionella isolates from water | Determination of Legionella; real-time PCR <i>L. pneumophila 1, L. pneumophila 2-15 en L. non-pneumophila</i> | VL-W-MB18 In house method | L |
| 55. | Drinking water, groundwater, surface water, process water and swimming water | Enumeration of sulphite reducing clostridia; membrane filtration | VL-W-MB49 NEN-ISO 6461-2 | L |
| 56. | Drinking water, groundwater and surface water | Enumeration of aeromonas-bacteria at 30°C; membrane filtration | VL-W-MB07 NEN 6263 | L |
| 57. | Surface water | Enumeration of Escherichia coli; membrane filtration | VL-W-MB09 NEN 6261 (1990) | L |
| 58. | Drinking water, groundwater and swimming water | Enumeration of coliform bacteria and Escherichia coli; membrane filtration and MALDI-TOF confirmation. | VL-W-MB10 and VL-W-MB45 NEN-EN-ISO 9308-1 (2000) (conformation in house method) | L |
| 59. | Drinking water, ground water, surface water, process water and swimming water | Enumeration of enterococci; membrane filtration | VL-W-MB12 NEN-EN ISO 7899-2 | L |
| 60. | Drinking water, groundwater and surface water | Enumeration of cultivable micro-organisms; colony count using R ₂ A-Agar at 25°C; plate count technique | VL-W-MB13 NEN 6276 | L |
| 61. | Drinking water, ground water, surface water, process water, swimming water, waste water and icewater | Enumeration of cultivable micro-organisms at 22°C en 36°C; colony count using yeast extract agar; pour plate technique | VL-W-MB19 NEN-EN ISO 6222 (including sample preservation) | L |
| 62. | Drinking water, ground water, surface water and process water | Enumeration of F-specific RNA bacteriophages; direct plating method | VL-W-MB20 NEN-EN ISO 10705-1 | L |

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| 63. | Drinking water, ground water and surface water | Enumeration of aeromonas-bacteria at 37°C; membrane filtration | VL-W-MB06 in house method | L |
| 64. | Drinking water, ground water, surface water, process water and swimming water | Confirmation of Clostridium perfringens colonies; Real Time Polymerase Chain Reaction technique | VL-W-MB26 in house method | L |
| 65. | Drinking water, ground water and surface water | Enumeration of somatic coli-phages in water | VL-W-MB25 NEN-EN-ISO 10705-2 | L |
| 66. | Bacterie-isolates | Confirmation of bacterial- isolates: mass-spectrometry Legionella, E.coli, coliforms | VL-W-MB45 in house method | L |
| 67. | Drinking water, ground water, surface water, process water and swimming water | Enumeration of Clostridia perfringens; membrane filtration | VL-W-MB34 NEN-EN-ISO 14189 | L |