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Relevant parameters and reagents

Smart Photometer eXact Micro 20



Parameter	Reagent Id	Range Min – Max [ppm]	Health-based guideline value for drinking water (WHO, 2017) [mg/l]	Remarks
Ammonia	115932	0.02 – 2.40	Not of health concern at levels found in drinking-water.	The term ammonia includes the non-ionized (NH ₃) and ionized (NH ₄ ⁺) species. Ammonia in the environment originates from metabolic, agricultural and industrial processes and from disinfection with chloramine. Natural levels in groundwater and surface water are usually below 0.2 mg/l. Anaerobic groundwaters may contain up to 3 mg/l. Intensive rearing of farm animals can give rise to much higher levels in surface water. Ammonia contamination can also arise from cement mortar pipe linings. Ammonia in water is an indicator of possible bacterial, sewage and animal waste pollution.
Chlorine, Free (DPD-1)	115933	0.01 – 6.20	5	Present in most disinfected drinking-water at concentrations of 0.2–1 mg/l. Most individuals are able to taste or smell chlorine in drinking-water at concentrations well below 5 mg/l. The taste threshold for chlorine is below the health-based guideline value of 5 mg/l. For effective disinfection, there should be a residual concentration of free chlorine of ≥ 0.5 mg/l after at least 30 min contact time at pH < 8.0. A chlorine residual should be maintained throughout the distribution system. At the point of delivery, the minimum residual concentration of free chlorine should be 0.2 mg/l.
Chlorine total (DPD-4)	115934	0.01 – 6.20		
Fluoride	115935	0.04 – 1.50	1.5	Usually occurs in groundwater. Epidemiological evidence that concentrations above 1,5 mg/l carry an increasing risk of dental fluorosis and that progressively higher concentrations lead to increasing risks of skeletal fluorosis.
Hardness, Total HR	115936	High range: 60 to 600	Not of health concern at levels found in drinking-water.	May affect acceptability of drinking-water. Hardness in water is caused by a variety of dissolved polyvalent metallic ions, predominantly calcium and magnesium cations. It is usually expressed as milligrams of calcium carbonate per litre. The degree of hardness of drinking-water is important for aesthetic acceptability by consumers and for economic and operational considerations.
Iron, Total (TPTZ)	115937	0.03 – 6.00	Not of health concern at levels found in drinking-water.	May affect acceptability of drinking-water. Anaerobic groundwater may contain ferrous iron at concentrations up to several milligrams per litre without discoloration or turbidity in the water when directly pumped from a well. On exposure to the atmosphere, however, the ferrous iron oxidizes to ferric iron, giving an objectionable reddish-brown colour to the water. Iron also promotes the growth of “iron bacteria”, which derive their energy from the oxidation of ferrous iron to ferric iron and in the process deposit a slimy coating on the piping. At levels above 0.3 mg/l, iron stains laundry and plumbing fixtures. There is usually no noticeable taste at iron concentrations below 0.3 mg/l, although turbidity and colour may develop.
Manganese	115938	0.01 – 1.50	Not of health concern at levels found in drinking-water.	May cause acceptability problems in drinking-water. At levels exceeding 0.1 mg/l, manganese in water supplies may cause an undesirable taste in beverages and stains sanitary ware and laundry. The presence of manganese in drinking-water, like that of iron, may lead to the accumulation of deposits in the distribution system. Concentrations below 0.1 mg/l are usually acceptable to consumers. Even at a concentration of 0.2 mg/l, manganese will often form a coating on pipes, which may slough off as a black precipitate. The health-based value of 0.4 mg/l for manganese is higher than this acceptability threshold of 0.1 mg/l.
Nitrate	115939	0.12 – 30.0	50	50 mg/l as nitrate ion, to be protective against methaemoglobinaemia and thyroid effects in the most sensitive subpopulation, bottle-fed infants, and, consequently, other population subgroups.

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Nitrite	115940	0.01 – 1.80	3	3 mg/l as nitrite ion, to be protective against methaemoglobinaemia induced by nitrite from both endogenous and exogenous sources in bottle-fed infants, the most sensitive subpopulation, and, consequently, the general population
pH (fresh)	115942	6.4 – 8.4 pH	Not of health concern at levels found in drinking-water.	An important operational water quality parameter.
Phosphate	115943	0.03 - 4.0	Not of health concern at levels found in drinking-water.	Phosphate will stimulate the growth of plankton and aquatic plants (algae growth)
Sulfate	115944	2 - 210	Not of health concern at levels found in drinking-water.	May affect acceptability of drinking-water. However, because of the gastrointestinal effects resulting from ingestion of drinking-water containing high sulfate levels, it is recommended that health authorities be notified of sources of drinkingwater that contain sulfate concentrations in excess of 500 mg/l. The presence of sulfate in drinking-water may also cause noticeable taste and may contribute to the corrosion of distribution systems.
Turbidity	/	4-900 UTN		May affect acceptability of drinking-water. An important operational water quality parameter.