

Wessex Water Scientific Services A to Z of Analysis

Guide to using the Determinand/Description Table:

Column – 1	Determinand (in bold type) /Description (in italic type) , lists alphabetically a range of determinands or parameters and some commonly used technical terms or <i>Acronyms</i> .
Column – 2	Comment , gives a brief background to the parameter or technical term
Column – 3, 4 & 5	Indicates availability of an analysis by matrix from Wessex Scientific. P = Potable clean waters (both raw & treated from boreholes/wells etc), bottled waters, swimming pools/spa pools, showers/hot water systems, cooling towers, clean rivers etc W = Industrial wastewaters/effluents, groundwater from landfill, polluted water courses/rivers etc S = sludges and/or soils

Quick find:

I	2	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R	S	T	U	V	W	Z
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Determinand/Description	Comment	P	W	S
<i>1st Draw sample</i>	P – A 1 litre sample of drinking water taken from an un-flushed domestic supply after the supply has not been used for the past 24 hours (also see 2 nd Draw).			
1,1,1-Trichloroethane (C₂H₃Cl₃)	P & W – Industrial solvent & pollutant <i>Also known as Methyl Chloroform</i>	✓	✓	
1,2-Dichloroethane (C₂H₄Cl₂) - Also known as ethylene dichloride	P – A solvent that may be found in groundwater in the vicinity of industrial sites. Where necessary it can be removed by special water treatment. A European health-based standard of 3µg/l applies to drinking water. W – Used in production of vinyl chloride monomer. An industrial pollutant.	✓	✓	
2-Methylisoborneol (MIB)	P - Some algae, particularly blue-green algae (cyanobacteria) such as <i>Anabaena</i> , produce MIB together with other odorous chemicals such as geosmin. They give a musty or earthy odour that can be quite strong and smelt at very low levels, in the <i>ng/L</i> range. They are responsible for many "taste and odor" issues in drinking water treatment and distribution. <i>See also Geosmin</i>	✓		
<i>2nd Draw sample</i>	P – A 1 litre sample of drinking water taken from an un-flushed domestic supply – usually on arrival of the sampler at the premises (also see 1 st Draw).			
Acid soluble fluoride	S – Can accumulate in the sludge fraction during wastewater treatment. A limit of 1000 mg/kg applies to any sludge to be applied to grassland. Also soil under grassland must not exceed 500 mg/kg dry solids (soil pH must be above 5.0).			✓
Acidity	W - Is a measure of the ability of a solution to neutralize an alkali to the equivalence point of pH 4.5.		✓	
Acrylamide	P - European health-based standard. A monomer not normally found in drinking water. It is produced in the manufacture of polyacrylamides occasionally used in water treatment. Its presence in drinking water is limited by control of the product specification. Standard is 0.1µg/l.	✓		
Actinomycetes	P - Actinobacteria are a group of Gram-positive bacteria often associated with musty taints in drinking water.	✓		

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<i>Aggressive</i>	P - Term used to indicate that the water has a tendency to dissolve copper (and other metals) from the inner surface of a pipe or water fitting such as a tap.			
<i>Aesthetic</i>	Associated with the senses of taste, smell and sight.			
<i>Alkali</i>	A solution containing an excess of free hydroxyl ions, with a pH greater than seven.			
Algal Counts - Associated with Chlorophyll	P – The numeration and speciation of algae from raw (drinking) water reservoirs is important to establish treatment programmes to avoid taste and odour problems.	✓		
Alkalinity (HCO₃) - Results expressed as Alkalinity (M O) this signifies the indicator Methyl Orange was used to determine the equivalence point.	P – Is a measure of the ability of a solution to neutralize acids to the equivalence point of carbonate or bicarbonate. S – The measurement of alkalinity in digester contents and effluents is important as part of the control of the anaerobic digestion process.	✓		✓
Aluminium (Al)	P - Occurs naturally in some source waters. It is removed from drinking water by conventional water treatment (coagulation and filtration). Aluminium sulphate and polyaluminium chloride may be used as water treatment chemicals at some water treatment works. A national standard of 200µg/l applies to drinking water. W – Common pollutant from industrial processing.	✓	✓	
Ammonia (as N)	P – <i>See Ammonium.</i> W - Monitored as part of the ‘nitrogen balance’ for wastewater treatment plants and pollution of receiving waters. S – Monitored as a control measure during sludge digestion.		✓	✓
Ammonium (as NH₄)	P - Ammonium salts are naturally present in trace amounts in most waters. Their presence might indicate contamination of sanitary significance and they interfere with the operation of the disinfection process. An indicator parameter with a guide value of 0.5mg/l for drinking water. W – <i>See Ammonia.</i> S – <i>See Ammonia</i>	✓		
<i>Analytical quality control - (AQC)</i>	The method used to ensure that laboratory analysis methods are performing correctly.			
Antimony (Sb)	P - This metal is rarely found in drinking water. Trace amounts can be derived from brass tap fittings and solders. A European health-based standard of 5µg/l applies to drinking water.	✓		
Arsenic (As)	P - This metal occurs naturally in only a few sources of groundwater in the UK. Specific water treatment is required to remove it. A European health-based standard of 10µg/l applies to drinking water. W – Industrial pollutant. S – Can accumulate in the sludge fraction during wastewater treatment. There is no limit for concentrations in sludge but soil under grassland must not exceed 50 mg/kg dry solids (soil pH must be above 5.0).	✓	✓	✓
Available K (potassium)	S – Measure of the potassium available in soils and sludges as a nutrient to plants.			✓
Available Mg (magnesium)	S – Measure of the magnesium available in soils and sludges as a nutrient to plants.			✓
Available P (phosphorus)	S – Measure of the phosphorus available in soils and sludges as a nutrient to plants.			✓

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Beryllium (Be)	W - Beryllium is found naturally only combined with other elements in minerals. Highly toxic industrial pollutant.		✓	
Benzene (C₆H₆)	P - Benzene is present in petrol. It is not found in drinking water but it can migrate through underground plastic water pipes if petrol is spilt in the vicinity. Some bottled waters and soft drinks which include sodium benzoate as an ingredient have been reported as containing benzene. A European health-based standard of 1µg/l applies to drinking water. W – Industrial pollutant and in ‘run-off’ from car parks & highways.	✓	✓	
Benzo(a)pyrene (BaP)	P - BaP is one of several compounds known as polycyclic aromatic hydrocarbons (PAHs). Their source in drinking water is as a result of deterioration of coal tar, which many years ago was used to line water pipes. Due to extensive water mains refurbishment and renewal it is now rare to detect this substance in drinking water. A European health-based standard of 0.01µg/l applies to drinking water.	✓		
BTEX - Benzene, toluene, Ethylbenzene, and total xylenes	P & W - Group of naturally occurring components of petroleum that are found in traces amounts in engine fuel. Environmental contaminant from leaks/spillages.	✓	✓	
BOD – Biological Oxygen Demand	P & W - BOD is a guide to the amount of pollutant dissolved in water/sewage. Bacteria feeding on the pollutants will use up the oxygen in the sample over a period of time (usually 5 days). The amount of oxygen used up by the bacteria is the BOD and is measured in milligrams per litre (mg/l). It is not a precise quantitative test, although it is widely used as an indication of the quality of water. BOD can be used as a gauge of the effectiveness of wastewater treatment plants.	✓	✓	
Boron (B)	P - Boron in surface water sources comes from industrial discharges or from detergents in treated sewage effluents. The very low concentrations found in some drinking waters are not a concern to public health. A European health-based standard of 1 mg/l applies to drinking water. W – Industrial pollutant	✓	✓	
Bromate (BrO₃)	P - Bromate can be formed during disinfection of drinking water through a reaction between naturally occurring bromide and strong oxidants (usually ozone). It may be generated in the manufacture of sodium hypochlorite disinfectant. Exceptionally, groundwater beneath an industrial site can become contaminated with bromate. A European health-based standard of 10µg/l applies to drinking water.	✓		
Bromodichloromethane (CHCl₂Br)	<i>See Trihalomethanes</i>			
Bromoform (CHBr₃)	<i>See Trihalomethanes</i>			

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Cadmium (Cd)	<p>P - This 'heavy' toxic metal is rarely detected in drinking water and trace amounts are usually due to dissolution of impurities from plumbing fittings. A European health-based standard of 5µg/l applies to drinking water.</p> <p>W – Industrial pollutant from plating, battery production and metal refining.</p> <p>S – Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 3 mg/kg dry solids (soil pH must be above 5.0).</p>	✓	✓	✓
Calcium (Ca)	<p>P – Calcium is present in nearly water supplies and is a major constituent (as bicarbonate) of water 'hardness'. <i>Also see Hardness</i></p>	✓		
Calcium Bicarbonate (Ca(HCO₃)₂)	<i>See Hardness</i>			
Calcium Carbonate (CaCO₃)	<i>See Hardness</i>			
Carbon Tetrachloride	<i>See Tetrachloromethane (CCl₄)</i>			
Chloramine	<p>P - This substance is formed by reaction between chlorine and ammonia. It is used as a disinfectant in distribution systems because of its long-lasting properties compared to chlorine.</p>	✓		
<i>Chloramination</i>	The process of generating a chloramine disinfectant residual in water leaving a treatment works.			
Chloride (Cl)	<p>P - This a component of common salt. It may occur in water naturally but it may also be present due to local use of de-icing salt or saline intrusion. An indicator parameter with a guide value of 250mg/l for drinking water.</p> <p>W – Industrial pollutant from food processing etc and 'run-off' from the 'gritting/salting' of highways.</p>	✓	✓	
Chlorine (free & total)	<p>P – Free – same as residual.</p> <p>P – Total – sum of free and combined chlorine.</p>	✓	✓	
<i>Chlorine residual – see also free and total</i>	The small amount of chlorine or chloramines present in drinking water to maintain its quality as it passes through the water company's network of pipes and household plumbing.	✓		
Chloroform (CHCl₃)	<i>See Trihalomethanes</i>			
Chlorophyll - Associated with Algal Counts	<p>P - Chlorophyll is a green pigment found in most algae and cyanobacteria. Important part of assessing of algal 'blooms' on raw (drinking) water reservoirs.</p>	✓		
Chromium (Cr)	<p>P - This 'heavy' toxic metal is not present in drinking water. A European health-based standard of 50µg/l applies to drinking water.</p> <p>W – Industrial pollutant principally from the plating industry.</p> <p>S - Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 600 mg/kg dry solids (soil pH must be above 5.0).</p>	✓	✓	✓
<i>Clostridium perfringens</i>	<p>P - This is a spore-forming bacterium that is present in the gut of warm-blooded animals. The spores can survive disinfection. The presence of spores in drinking water indicates historic contamination that requires investigation. The standard is 0 per 100ml for drinking water.</p>	✓		
Cobalt (Co)	<p>W - Cobalt-based colours and pigments have been used since ancient times for making jewelry and paints giving a distinctive deep blue color to glass, ceramics, inks, paints, and varnishes. Toxic industrial pollutant.</p>		✓	

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COD – Chemical Oxygen Demand	P & W - The basis for the COD test is that nearly all organic compounds (including pollutants) can be fully oxidized to carbon dioxide, ammonia and water with a strong oxidizing agent under acidic conditions. The amount of oxygen required to oxidize the organic compounds [expressed as milligrams per liter (mg/L)], can be used to monitor water quality particularly wastewater and industrial effluents.	✓	✓	
Coliform bacteria - See also <i>Escherichia coli</i>	P - These are widely distributed in the environment often as a result of human or animal activity, but some grow on plant matter. They do not generally cause harm to health but their presence in a water supply indicates a need to investigate the integrity of the water supply system. The standard is 0 per 100ml for drinking water.	✓		
Colony counts	<i>See Plate counts.</i>			
Colour	P - Colour occurs naturally in upland water sources. It is removed by conventional water treatment. A national standard of 20mg/l on the Platinum/Cobalt (Pt/Co) scale applies to drinking water.	✓		
<i>Compound</i>	A compound consists of two or more elements in chemical combination.			
Conductivity.	P & W - Conductivity is a non-specific measure of the amount of natural dissolved inorganic substances in source waters. An indicator parameter with a guide value of 2,500µS/cm for drinking water.	✓	✓	
Copper (Cu)	P - This metal in drinking water comes mostly from copper pipes and fittings in households. In general, water sources are not aggressive towards copper but problems very occasionally occur on new housing estates. These ‘blue water’ events can be avoided by good plumbing practices. A European health-based standard of 2mg/l applies to drinking water. W – Industrial pollutant. S - Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 130 - 330 mg/kg dry solids subject to soil pH.	✓	✓	✓
Cryptosporidium	This is a parasite that causes severe gastroenteritis and can survive disinfection. In the UK, continuous monitoring is undertaken at drinking water treatment works classified by the company as being at significant risk.	✓		
Cyanide (CN) - Free and Total	P - Cyanide is not present in drinking water. A European health-based standard of 50µg/l applies to drinking water. W – Industrial pollutant.	✓	✓	
Dibromochloromethane (CHClBr₂)	<i>See Trihalomethanes</i>			
Dry Solids - See also: a) Total Dried Solids & b) Organic Matter	S – A measurement of the solids contents of a sludge after drying at 105°C.			✓
<i>E.coli</i>	<i>See Escherichia coli.</i>			
Enterococci - Also known as Faecal streptococci	P - These bacteria are present in the gut of warm-blooded animals. They should not be present in drinking water and, if present, immediate action is required to identify and remove any source of faecal contamination that is found. The standard is 0 per 100ml for drinking water.	✓		

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Epichlorhydrin	This compound can be found in trace amounts in polyamine water treatment chemicals. Its presence in drinking water is limited by control of the product specification. A European health-based standard of 0.1µg/l applies to drinking water.			
Escherichia coli - Also known as - E.Coli or Faecal coliforms	P - These bacteria are present in the gut of warm-blooded animals. They should not be present in drinking water and, if present, immediate action is required to identify and remove any source of faecal contamination that is found. The standard is 0 per 100ml for drinking water.	✓		
Faecal coliforms	See <i>Escherichia coli</i> .			
Faecal streptococci	See Enterococci			
Fluoride (F)	P - Fluoride occurs naturally in many water sources, especially groundwater. It cannot be removed by conventional water treatment so high levels must be reduced by blending with a low fluoride water source. Some water companies are required by the local health authority to fluoridate water supplies as a protection against tooth decay. The drinking water standard ensures levels are safe in either circumstance. Fluoridation of water is a Department of Health policy. A European health-based standard of 1.5mg/l applies to drinking water. S - See <i>Acid soluble fluoride for sludges</i>	✓		✓
GCMS	<i>Gas Chromatography Mass Spectrometry, an analysis technique where volatile compounds are separated on a chromatographic column and then detected by mass spectroscopy</i>			
Geosmin	P - Geosmin is a substance produced by the growth of algae, normally in surface waters which gives rise to a characteristic 'earthy' or 'musty' taste or odour. <i>See also 2-Methylisoborneol</i>	✓		
Hardness - Associated with: Calcium Calcium hardness Calcium bicarbonate Calcium carbonate Magnesium Magnesium hardness Magnesium bicarbonate Magnesium carbonate	P - Hard water is formed when rainwater dissolves calcium and magnesium salts as it percolates through limestone or similar rock. When calcium and magnesium are present in large amounts, they can cause limescale (hardness scale) or scum in water, especially when it is boiled due to the dissolved calcium and magnesium bicarbonates breaking down to form a solid carbonate limescale. Measurement of hardness in water The hardness of water is measured as milligrams per litre of calcium carbonate, mg CaCO ₃ /l, equivalent to parts per million, ppm. Hardness is also expressed as milligrams of calcium per litre - these can be converted into mg CaCO ₃ /l by multiplying the reading by 2.5. As a general indication water is classified as follows: <ul style="list-style-type: none"> • hard water contains over 200 mg of calcium carbonate per litre • moderately hard water contains 100 to 200 mg of calcium carbonate per litre • soft water contains less than 100 mg of calcium carbonate per litre. There is no UK or European maximum limit for the hardness of drinking water.	✓		

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<i>Heavy metal.</i>	The name given to a collection of metals that can be particularly dangerous to humans, animals etc. and the environment.			
Hydrogen Ion (pH)	<p>pH gives an indication of the degree of acidity or alkalinity of the water. A pH of 7 is neutral; values below 7 are acidic and values above 7 are alkaline.</p> <p>P - A low pH water may result in pipe corrosion. This is corrected by adding an alkali during water treatment. A specification of between 6.5 and 9.5 applies to drinking water.</p> <p>W – The pH of wastewaters can vary from very acid to strongly alkali. These can cause pipe corrosion and may lead to wastewater treatment works being ‘killed’ and pollution of receiving waters. Wastewaters are required to be between 6.0 and 10.0 at point of discharge.</p> <p>S – Important in the control of the sludge digestion process. Plant growth and nutrient release are both affected by soil pH.</p>	✓	✓	✓
<i>ICPMS - Inductively Coupled Plasma - Mass Spectrometry</i>	A single or multi-element analytical method, where a plasma source dissociates the sample into ions - these are then detected in a mass spectrometer			
<i>Indicator organism</i>	An organism which indicates the presence of contamination and hence the possible presence of pathogens.			
Iron (Fe)	<p>P - Iron is present naturally in many water sources. It is removed by water treatment. Some iron compounds are used as water treatment chemicals. However, the commonest source of iron in drinking water is corrosion of iron water mains. A national standard of 200µg/l applies to drinking water.</p> <p>W – Industrial pollutant.</p>	✓	✓	
Lead (Pb)	<p>P - This ‘heavy’ metal very occasionally occurs naturally in raw waters but the usual reason for its presence in drinking water is plumbing in older properties. If the water supply has a tendency to dissolve lead then water companies treat the water to reduce consumer exposure. The permanent remedy is for householders to remove lead pipes and fittings. A European health-based standard of 25µg/l applies, but 10µg/l will apply from 2013 onwards for drinking water.</p> <p>W – Industrial pollutant.</p> <p>S - Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 300 mg/kg dry solids (soil pH must be above 5.0).</p>	✓	✓	✓
<i>Legionella</i>	P - Common sources of <i>Legionella</i> include cooling towers, large central air conditioning systems, domestic hot water systems, fountains, and similar disseminators that draw upon a public water supply.	✓		
Lithium (Li)	P – Lithium is found in many waters but at very low levels that are not considered harmful. There is no statutory limit.	✓		
Magnesium (Mg)	<p>P - Found in most drinking waters and is a constituent (as bicarbonate) of water ‘hardness’.</p> <p><i>Also see Hardness</i></p> <p>S - <i>See Available magnesium for soils</i></p>	✓		✓

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Magnesium Bicarbonate (Mg(HCO₃)₂)	<i>See Hardness</i>			
Magnesium Carbonate (MgCO₃)	<i>See Hardness</i>			
Manganese (Mn)	<p>P - This metal is present naturally in many sources and is usually removed during treatment. A national standard of 50µg/l applies to drinking water.</p> <p>W – Industrial pollutant.</p>	✓	✓	
MTBE	<p>P & W - Methyl Tertiary Butyl Ether - is made from methanol and a by-product of the oil refining process, it is added to petroleum spirit to enhance the efficiency of the combustion process. Environmental pollutant from leaks/spillages.</p>	✓	✓	
Mercury (Hg)	<p>P - Mercury is not found in sources of drinking water. A European health-based standard of 1µg/l applies to drinking water.</p> <p>W – Can be present in wastewaters from industrial processing.</p> <p>S – Rare in soils but can be present in sludge from industrial sources.</p>	✓	✓	✓
MLSS – Mixed Liquor Suspended Solids	<p>W - Same as Suspended Solids (see below) but for wastewater treatment samples within the range 1,000 to 10,000 mg/L.</p>		✓	
Molybdenum (Mo)	<p>W - Readily forms hard, stable carbides and often used in high-strength steel alloys. Also used in high-pressure and temperature resistant greases. Industrial pollutant.</p>		✓	
Neutralisation value	<p>S - Is a measure of the carbonate or lime content of a sludge or soil.</p>			✓
Nickel (Ni)	<p>P - This 'heavy' metal occurs naturally in some groundwater and where necessary special treatment can be installed to remove it. Another source of nickel in drinking water is the coatings on modern taps and other plumbing fittings. A European health-based standard of 20µg/l applies to drinking water.</p> <p>W – Present in wastewaters from domestic sources (see above) and industrial processes such as plating.</p> <p>S - Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 80 - 180 mg/kg dry solids subject to soil pH.</p>	✓	✓	✓
Nitrate (as NO₃ for potable waters) (as N in wastewaters)	<p>P - Nitrate occurs naturally in all source waters although higher concentrations tend to occur where fertilisers are used on the land. Nitrate can be removed by ion exchange water treatment or through blending with other low nitrate sources. A European health-based standard of 50mg/l applies to drinking water.</p> <p>W – Monitored as part of the 'nitrogen balance' for wastewater treatment plants and pollution of receiving waters.</p>	✓	✓	
Nitrite (NO₂)	<p>Nitrite is sometimes produced as a by-product when chloramine is used as the essential residual disinfectant in a public water supply. Chloramine is the residual disinfectant of choice in large distribution systems because it is more stable and long-lasting than chlorine. Careful operation of the disinfection process ensures levels of nitrite are kept below the standard. A European health based standard of 0.5mg/l applies to drinking water.</p>	✓	✓	

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Nitrogen (Total)	S – A measure of the total nitrogen content in sludges and soils.			✓
<i>Nutrients</i> Ammonia/Ammonium Chloride Nitrate Nitrite Orthophosphate Sulphate Total Oxidised Nitrogen	A range of parameters measured in drinking and wastewaters to monitor compliance with regulatory standards, efficiency of treatments or environmental pollution. (see individual determinands for more details)	✓	✓	
Odour (see also Taste)	P - Odour can arise as a consequence of natural processes in surface waters, particularly between late spring and early autumn. Water treatment with activated carbon or ozone will remove natural substances causing taste. The standard relates to the evaluations of a panel of people assessing samples in the laboratory.	✓		
<i>Oocyst</i>	An oocyst is the resistant form in which <i>Cryptosporidium</i> occurs in the environment, and which is capable of causing infection.			
Organic Matter <i>See also: Dried Solids</i>	S – A measurement of the solids contents of a sludge after ashing of the Dried Solids sample at 550°C.			✓
<i>Organoleptic</i>	Characteristics of a substance as detected by our senses, for example taste, odour or colour.			
Oxidisability	<i>See Permanganate value</i>			
PAH	<i>See Polycyclic aromatic hydrocarbons</i>			
<i>Parameters</i>	The substances, organisms and properties listed in this table.			
<i>Pathogen</i>	An organism which can infect humans and cause disease.			
<i>PCV</i>	See ‘Prescribed concentration or value’			
Permanganate Value (mgO₂/L)	P – The PV is the measure of urea and organic matter and is important in good pool hygiene management.	✓		
<i>Pesticide</i>	Any fungicide, herbicide, insecticide or related product (excluding medicines) used for the control of pests or diseases.			
Pesticides – organochlorine compounds (aldrin, dieldrin, heptachlor, heptachlor epoxide)	P - These pesticides are no longer used in the UK because they are persistent in the environment. They are not found in drinking water. A European chemical standard of 0.03µg/l for each compound applies to drinking water. W – Contaminants from polluted sites.	✓	✓	
Pesticides – other than organochlorine compounds	This diverse and large group of organic compounds are used as weed killers, insecticides and fungicides. Many water sources contain traces of one or more pesticide as a result of both agricultural and non-agricultural uses, mainly on crops and for weed control on highways and in gardens. Where needed, water companies have installed water treatment (activated carbon and ozone) so that pesticides are not found in drinking water. Water companies must test for those pesticides used widely in their area of supply. Pesticide monitoring thus varies according to risk. A European chemical standard of 0.1µg/l for each individual substance and 0.5µg/l for the total of all pesticides applies to drinking water.	✓		
pH	<i>See Hydrogen ion</i>			

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<p>Phosphorus (P) (see also Orthophosphate) (See also Available phosphorus for soils)</p>	<p>P – Used in drinking water treatment, in the form as orthophosphate, to reduce plumbo solvency. W – Used extensively in washing powders and major pollutant in water courses. S – Important nutrient in sludge and soils but excess can lead to ‘diverse’ pollution of water courses.</p>	✓	✓	✓
<p>Plate Counts @ 22° and 37° C Also referred to as TVCs or colony counts</p>	<p>P - These are general techniques for detecting a wide range of bacteria, the types and numbers being dependent on the conditions of the test. These counts, if done regularly, can help to inform water management, but they have no direct health significance. The standard is ‘no abnormal change’ for drinking water.</p>	✓		
<p>Polycyclic aromatic hydrocarbons (PAHs)</p>	<p>This a group name for several substances present in petroleum-based products such as coal tar (see Benzo(a)pyrene listed above for more information). A European health-based standard of 0.1µg/l for the sum of all the substances applies to drinking water.</p>	✓	✓	
<p>Potassium (K) (See also Available Potassium for soils)</p>	<p>Naturally occurring in most water supplies at very low levels.</p>	✓		
<p><i>Prescribed concentration or Value (PCV)</i></p>	<p>The numerical value assigned to drinking water standards defining the maximal or minimal legal concentration or value of a parameter.</p>			
<p><i>Private supplies</i></p>	<p>Water taken from private sources or supplied by non-licensed suppliers; supplies of water provided otherwise than by a statutorily appointed water undertaker.</p>			
<p><i>Pseudomonas aeruginosa</i></p>	<p><i>Pseudomonas aeruginosa</i> is a common bacterium which can cause disease in humans. It is found in soil, water, skin flora and most man-made environments throughout the world. It thrives not only in normal atmospheres, but also with little oxygen, and has thus colonised many natural and artificial environments such as swimming pools. It uses a wide range of organic material for food; in animals, the versatility enables the organism to infect damaged tissues or people with reduced immunity.</p>	✓		
<p><i>Public supplies</i></p>	<p>Water supplied by a company licensed for that purpose.</p>			
<p><i>Raw water</i></p>	<p>Water prior to receiving treatment for the purpose of drinking.</p>			
<p><i>Residual disinfectant – see chlorine (free and total)</i></p>	<p>The small amount of chlorine or chloramines present in drinking water to maintain its quality as it passes through the water company’s network of pipes and household plumbing.</p>	✓		
<p>Selenium (Se)</p>	<p>P - This metal is an essential element and a necessary dietary component. Amounts in drinking water are usually well below the standard. A European health-based standard of 10µg/l applies to drinking water. W – Industrial pollutant S - Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 5 mg/kg dry solids (soil pH must be above 5.0).</p>	✓	✓	✓

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<i>Sewage</i>	Sewage is contaminated water. It may contain anything from large objects such as pieces of wood to chemicals dissolved in the water. Sewage is produced by domestic house-holds, commercial premises and industry. Sewage will be different in each area depending on what and how many premises are discharging to the system.			
<i>Sewerage</i>	The sewerage system is the network of pipes and pumping stations that transports the sewage.			
Silver (Ag)	P – Very rarely found in potable waters. WHO state that available data is inadequate to permit derivation of health-based guideline value. Can be used as a water treatment chemical in water cooling towers. W – Industrial pollutant from film processing, plating and other industrial processing.	✓	✓	
Sodium (Na)	Sodium is a component of common salt. It is present in seawater and brackish groundwater. Some treatment chemicals contain sodium. Concentrations in drinking water are extremely low, but some water softeners can add significant amounts to drinking water where they are installed in homes or factories. A national standard of 200mg/l applies to drinking water.	✓	✓	
Sulphate (SO₄)	P - Sulphate occurs naturally in all waters and is difficult to remove by treatment. An indicator parameter with a guide value of 250mg/l for drinking water. W – Industrial pollutant.	✓	✓	
SSVI (Stirred Specific Volume Index)	S - Used for sludge characterization for the efficient operation and control of the activated sludge process.			✓
Suspended Solids - also includes Suspended Solids – ashed Suspended Solids @ pH7 Suspended Solids - settleable	W - The quantity of small solid particles (which remain in suspension in water as a colloid or due to the motion of the water) is determined by a filtration / gravimetric procedure. It is used as an indicator of water quality [Typical range upto 1,000 mg/L]. Ashed – weight of deposit remaining after suspended solids paper has been heated to 550°C. @ pH7 – pH of sample adjusted to 7 before determining suspended solids. This simulates what happens at a wastewater treatment works and may change the solubility of some compounds. Used for establishing Trade Effluent charges. Settleable - simulates the first stage of treatment at a wastewater treatment works.		✓	
Taste (see also Odour)	P - Taste can arise as a consequence of natural processes in surface waters, particularly between late spring and early autumn. Water treatment with activated carbon or ozone will remove natural substances causing taste. The standard relates to the evaluations of a panel of people assessing samples in the laboratory.	✓		
TDS	<i>See Total Dried Solids</i>			
Tetrachloroethane (C₂Cl₄) Associated with Trichloroethene	P - A solvent that may occur in groundwater in the vicinity of industrial sites. Where necessary it is removed by specialist treatment. A European health-based standard of 10µg/l for the sum of both substances applies to drinking water. W – Industrial pollutant	✓	✓	

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Tetrachloromethane (CCl₄) Also known as Carbon Tetrachloride	P - This is a solvent that may occur in groundwater in the vicinity of industrial sites. Where necessary it is removed by specialist water treatment. A national standard of 3µg/l applies to drinking water. W – Industrial pollutant	✓	✓	
THM s	<i>See Trihalomethanes.</i>			
Tin (Sn)	W - Industrial pollutant from plating and metal processing.		✓	
Total Dissolved Solids @ 150 or 180° C (TDS) (See Dry solids for sludges)	P & W - Weight of deposit remaining after a sample is evaporated to dryness at the specified temperature – results expressed as mg/L.	✓	✓	
Total indicative dose	P - This is a measure of the effective dose of radiation the body will receive from consumption of the water. It is calculated only when screening values for gross alpha or gross beta (radiation) are exceeded. An indicator parameter with a guide value of 0.10mSv/year for drinking water.	✓		
Total organic carbon	P - Is the amount of carbon bound in an organic compound and is often used as a non-specific indicator of water quality. An indicator parameter with a guide value of ‘no abnormal change’ for drinking water. W - Used as a non-specific indicator of water quality	✓	✓	
Total Nitrogen	<i>See Nitrogen (Total)</i>			
Trichloroethene (C₂HCl₃) Associated with Tetrachloroethane	P - A solvent that may occur in groundwater in the vicinity of industrial sites. Where necessary it is removed by specialist treatment. A European health-based standard of 10µg/l for the sum of both substances applies to drinking water. W – Industrial pollutant.	✓	✓	
Trihalomethanes 1) Chloroform 2) Bromoform 3) Dibromochloromethane 4) Bromodichloromethane	P & W - These compounds are formed during disinfection of water by a reaction between chlorine and naturally occurring organic substances. Their production in drinking water is minimised by good operational practice. A European health-based standard of 100µg/l applies to the sum of the four named compounds for drinking water.	✓	✓	
Tritium	P - This is a radioactive isotope of hydrogen. Discharges to the environment are strictly controlled and there is a national programme of monitoring surface waters. An indicator parameter with a guide value of 100Bq/l for drinking water. W – Industrial contaminant where used as a ‘tracer’.	✓		
Turbidity	P & W - This is a measure of the cloudiness of water. At drinking water treatment works, measurement is an important non-specific water quality control parameter with a guide value of 1 NTU because it can be monitored continuously on line and alarms set to alert operators to deterioration in raw water quality or the need to optimise water treatment. At the consumer’s tap it can arise from the disturbance of sediment within water mains, in this case a national standard of 4NTU applies.	✓	✓	
TVCs / Total Viable Counts	<i>See Plate counts</i>			
Ultra Violet (UV) Transmittance Ultra Violet (UV) Transmittance (Filtered)	P & W - Measure of the ability of a sample to allow the passage of UV light at 254 nm before and after filtration. UV is commonly used in ‘point of use’ units on private supplies to provide safe drinking. Low transivity will reduce the units efficiency.	✓	✓	

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Vinyl chloride	P - This is present in plastic pipes as a residual of the manufacturing process of polyvinyl chloride (PVC) water pipes. Its presence in drinking water is controlled by product specification. A European health-based standard of 0.5µg/l applies to drinking water.	✓		
Volatile Acidity (VA)	S - Volatile fatty acids are produced by acidogenic bacteria in the first phase of anaerobic digestion. They are measured on digester contents and effluents to monitor the performance of the digesters.			✓
Volatile Matter See also Dried Solids	<i>See Organic Matter</i>			
<i>Wholesome/wholesomeness</i>	P - A legal concept of drinking water quality which is defined by reference to standards and other requirements set out in the regulations			
Zinc (Zn)	<p>P - This metal is an essential element and a necessary dietary component. Amounts in drinking water are usually very low but if present the usual reason is plumbing in older properties particularly those with galvanised iron pipes. There is a WHO guideline value of 5 mg/L for drinking water.</p> <p>W - Industrial pollutant, principally from the plating industries.</p> <p>S - Can accumulate in sludge. There is no limit for concentrations in sludge but soil under grassland must not exceed 200 - 300 mg/kg dry solids subject to soil pH.</p>	✓	✓	✓