

UNDERSTANDING YOUR WATER QUALITY RESULTS

Where the water quality standards come from

The water we supply for domestic use or food production must comply with the standards in The Water Supply (Water Quality) Regulations (NI) 2017, which incorporate European Union standards and more stringent UK national standards. These Regulations detail the acceptable levels of certain characteristics, elements and substances allowed in drinking water. Usually, this is a maximum level; but, occasionally, a minimum is also set (e.g. pH). This permissible level is known as the Prescribed Concentration or Value (PCV). Some of the regulatory levels are set for aesthetic reasons and not for health (e.g. Colour).

Where we sample

Samples are taken from our service reservoirs, water treatment works and taps in customers' homes. Every year, our accredited state-of-the-art laboratories carry out over 100,000 sophisticated tests to ensure quality standards are met. The Drinking Water Inspectorate (DWI) within the Northern Ireland Department of Agriculture, Environment and Rural Affairs (DAERA) also independently audits these tests and issues a report each year on its findings. DWI ensures that NI Water meets more than 50 legal standards for drinking water quality to match water companies across the rest of the UK. The standards are strict and generally include wide safety margins. They cover: bacteria; chemicals, such as nitrates and pesticides; metals, such as lead; and how water looks and tastes.

What happens if a test fails?

If a sample fails a test, this does not necessarily mean the water is unsafe to drink. Sometimes, the water in our mains or pipes and in the neighbouring properties is good, but the failure is caused by the householder's own plumbing system. However, we take all failures of these standards very seriously and these are dealt with by a team of specialists. All failures are recorded, investigated and action is taken to resolve the problem. If the contamination is found to be due to the tap or internal plumbing, NI Water will inform the customer in writing of the reason for the failure so

that they can take appropriate action. A copy of the letter is also provided to the Public Health Agency, the local Environmental Health Officer and the DWI.

All PCV failures are also reported externally to the DWI, respective health boards, Environmental Health departments, the Consumer Council for Northern Ireland (CCNI), Department for Infrastructure Water Policy Unit and the Utility Regulator.

Units of measurement

The units of measurement used in this factsheet are as follows:

- 1 milligram per litre (mg/l) is one part per million (ppm)
- 1 microgram per litre (µg/l) is 1 part per billion (or thousand million)
- NTU – Nephelometric turbidity units (for turbidity measurement)
- Pt/Co – Platinum-cobalt units Standard (for colour measurement)
- µS/cm – micro siemens per centimetre (for conductivity measurement)

Concentration or value

Shown in three ways:

- **Min**(imum), the lowest result during the period
- **Mean**, the average of the results
- **Max**(imum), the highest result during the period.
- A '<' symbol means a result was less than the value at which a parameter can be detected.
- A '>' symbol means a result was greater than the range within which a parameter is normally detected.

Number of samples

- Total taken – the number of samples tested for each parameter
- Contravening – shows the number of samples that exceeded the PCV
- % of samples contravening PCV – the number of samples that contravened the PCV compared to the total number of samples taken expressed as a percentage.

INDIVIDUAL PARAMETERS/SUBSTANCES

Hardness

Total Hardness is normally caused by dissolved calcium and, to a lesser extent, magnesium in rocks through which the water has passed. In Northern Ireland, our water is predominantly soft to moderately soft or slightly to moderately hard. Hardness means you may have to use more soap when washing as hard water lathers less than soft water. It has not been proven to have adverse effects on health and is safe to drink. There is no standard specified in the current regulations.

Dependent upon the origin and manufacturer of your dishwasher, you may require a specific parameter, such as Clarke degrees (a.k.a. English degrees) or French or German degrees.

GH is general hardness, while KH is Carbonate, or temporary hardness.

pH (listed under 'Hydrogen Ion')

This is a scientific term used to describe the acidity or alkalinity of a fluid. We need to control the pH of water because:

- if water is too acidic, it may corrode metal pipes in the distribution system
- if water is too alkaline, it may cause deposits to form in the pipes

The standard is to keep water pH levels in the 6.5-9.5 range.

Colour

The colour of drinking water is usually dependent on the presence of naturally-occurring dissolved organic matter. For example, the higher the peat content of a catchment, (e.g. the Mourne Catchment), the higher the level of colour in the raw

water. However, colour may also be due to the presence of iron contributed by old cast-iron mains.

- PCV for colour is 20 mg/l Pt/Co.

Sometimes, the water coming out of the tap has a milky or cloudy appearance, which is usually caused by excess air dissolved in the water as micro bubbles. This is not harmful and, if the water is left to stand for a few minutes, it will clear from the bottom upwards (i.e. the bubbles of air rise to the top of the glass and escape).

Turbidity

Turbidity is caused by very fine insoluble materials that may be present in water. Levels are closely monitored during the treatment processes.

- PCV at the customer's tap is 4 NTU

Odour and taste

Customer complaints quite often relate to taste and odour. Quality control tests are carried out to measure the level of taste and odour and are performed by a specialist testing panel.

- PCV for each = Dilution Number >0

Conductivity

Conductivity is proportional to the dissolved solids content of the water and is often used as an indication of the presence of dissolved minerals, such as calcium, magnesium and sodium.

- PCV is 2500 μ S/cm at 20°C

Chlorine (Cl - listed under Free-Residual disinfectant)

Chlorine is added to water to ensure water is free from bacteria. When chlorine is added, not all of it is used up in the process. Some remains as 'free chlorine' to make sure the water remains safe as it passes through the distribution system.

No PCV is prescribed for chlorine in the regulations and these levels are set to ensure that a small concentration remains at the end of the distribution system to maintain customer safety.

E. Coli and enterococci

If present, these indicate a possible breach in the integrity of the water supply system. An effective treatment process will kill any organisms present.

PCV standards are:

- 0 /100ml for *E. Coli*
- 0 /100ml for Enterococci

Coliforms

These are naturally present in the environment. Their presence may indicate a possible breach in the integrity of the supply system or contamination from the kitchen sink or taps.

Nitrite and nitrate (NO₂ and NO₃)

Normally only trace amounts of these compounds are found in water.

- PCV for nitrite = 0.5 mg NO₂/l
- PCV for nitrate = 50 mg NO₃/l

Chloride (Cl)

Chloride in water originates from natural sources such as mineral deposits. It can contribute to taste which may be unacceptable to customers if the standard is exceeded.

- PCV = 250 mg Cl/l

Fluoride (F)

NI Water does not add fluoride to any water supply in Northern Ireland. Fluoride can occur naturally in some raw water supplies at low levels.

- PCV = 1.5 mg F/l

Sulphate (SO₄)

Sulphate occurs naturally in water and originates from mineral deposits. High concentrations may give rise to taste problems and, in the long-term, damage pipe work.

- PCV = 250 mg SO₄/l

Copper (Cu)

Copper can occur naturally in some water sources and is normally found in low concentrations in drinking water.

- PCV = 2 mg Cu/l

Iron (Fe)

This is one of the most abundant metals found naturally in surface and ground waters. After treatment, it is normally reduced to trace concentrations in drinking water. Increased levels can occur due to the corrosion of old cast-iron water mains. There is no known health risk associated with high iron concentrations, but staining of clothing in washing machines can occur.

- PCV = 200 µg Fe/l

Manganese (Mn)

Manganese occurs naturally in water. High concentrations of manganese in tap water may cause discolouration and possible staining of clothing in washing machines.

- PCV = 50 µg Mn/l

Aluminium (Al)

Aluminium can occur naturally in water within certain catchments. However, aluminium compounds are used in the treatment process to help remove impurities. Any aluminium compounds added during the treatment process are removed before the final treated water leaves the treatment works.

- PCV = 200 µg Al/l

Sodium (Na)

Sodium occurs naturally in trace amounts in water. High concentrations may impart a level of taste that is unacceptable to customers.

- PCV = 200 mg Na/l

Lead (Pb)

Lead is not normally present in water sources, but significant concentrations may be present at customers' taps if lead or copper pipes with lead joints have been used in the plumbing system. More information is available [here](#).

- PCV = 10 µg Pb/l

Trihalomethanes (THMs)

THMs occur in drinking water as by-products of the reaction of chlorine with naturally-occurring dissolved organic materials. In drinking water, only four compounds out of the group of THMs have health significance, the most common of which is chloroform. The PCV is based on the sum of the concentrations of all four constituents.

- PCV = 100 µg/l

Other substances

In addition to those listed and explained above, we also test for substances such as hydrocarbons, pesticides and herbicides, phenols and organic carbon. We also carry out extensive monitoring of our supplies for cryptosporidium through sampling of raw and final treated water.

Home-brewers may be interested in the Calcium, Magnesium, Carbonate, Sodium, Sulphate, Chloride and pH levels of their water supply. If you cannot locate the information you require, please contact us at waterline@niwater.com

WATER SUPPLY ZONE - ZN0607 - Corrody Derry
Printed On 22-JAN-2018 : NI Water : Period 01-JAN-2017 to 31-DEC-2017 incl.

Parameter	U/A & Freq.	No. of samples planned per annum	No. of samples taken in year	PCV	No. Of samples contravening PCV	% of samples contravening PCV	Concentration or value (all samples)		
							Min.	Mean	Max.
1,2 Dichloroethane	ug/l	S	8	8	0	0.000	0.051	< 0.083	< 0.100
2,4-D	ug/l	AS	17	16	0	0.000	< 0.001	< 0.003	0.010
2,4-DB	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
Aluminium	ug Al/l	S	52	52	0	0.000	1.690	14.838	55.810
Ammonium	mg NH4/l	S	52	52	0	0.000	< 0.012	< 0.012	0.016
Antimony	ug/l Sb	S	8	8	0	0.000	0.030	0.056	0.080
Arsenic	ug/l As	S	8	8	0	0.000	0.259	0.297	0.333
Asulam	ug/l	AS	17	16	0	0.000	< 0.003	< 0.005	0.007
Bentazone	ug/l	AS	17	16	0	0.000	< 0.001	< 0.001	< 0.001
Benzene	ug/l	S	8	8	0	0.000	< 0.020	< 0.020	< 0.020
Benzo(a)pyrene	ug/l	S	8	8	0	0.000	< 0.001	< 0.001	0.002
Boron	mg/l B	S	8	8	0	0.000	0.005	0.007	0.009
Bromate	ug/l	S	8	8	0	0.000	1.600	2.700	4.800
Bromoxynil	ug/l	AS	17	16	0	0.000	< 0.004	< 0.004	0.007
Cadmium	ug/l Cd	S	8	8	0	0.000	0.005	0.008	0.011
Chloride	mg Cl/l	S	8	8	0	0.000	16.614	20.560	23.540
Chlorotoluron	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.002
Chlorpyrifos	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.002
Chromium	ug/l Cr	S	8	8	0	0.000	0.103	0.133	0.204
Clopyralid	ug/l	AS	17	16	0	0.000	< 0.004	< 0.007	0.025
Clostridium perfringens (sulph red)	No./100 ml	AS	104	104	0	0.000	0.000	0.000	0.000
Clostridium perfringens (sulph red)	No./100 ml	AS	106	104	0	0.000	0.000	0.000	0.000
Colony Counts 22	No./1 ml	S	52	53	0	0.000	0.000	0.264	11.000
Colony Counts 37 (48hrs)	No./1 ml	S	52	53	0	0.000	0.000	0.245	2.000
Colour	mg/l Pt/Co	S	52	52	0	0.000	0.720	1.133	1.960
Conductivity	uS/cm 20 C	S	52	52	0	0.000	178.000	247.865	330.000
Copper	mg Cu/l	S	8	8	0	0.000	0.001	0.004	0.012
Cyanide	ug/l	AS	17	16	0	0.000	< 1.700	< 2.519	4.900
Dicamba	ug/l	AS	17	16	0	0.000	< 0.012	< 0.012	< 0.012
Dichlorprop	ug/l	AS	17	16	0	0.000	< 0.001	< 0.001	< 0.001
Diffenican	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
Diuron	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
E. coli	No./100 ml	S	144	144	0	0.000	0.000	0.000	0.000
Enterococci	No./100ml	S	8	8	0	0.000	0.000	0.000	0.000
Epoxiconazole	ug/l	AS	17	16	0	0.000	< 0.002	< 0.004	< 0.024
Fenpropimorph	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
Fluoride	mg F/l	S	8	8	0	0.000	0.016	0.021	0.032
Fluroxypyr	ug/l	AS	17	16	0	0.000	< 0.005	< 0.007	0.014
Free - Residual disinfectant	mg Cl/l	S	144	144	0	0.000	0.070	0.348	0.680
Glyphosate	ug/l	AS	17	16	0	0.000	< 0.003	< 0.005	0.036
Hydrogen Ion	pH value	S	52	52	0	0.000	6.930	7.541	7.850
Iron	ug Fe/l	S	52	52	0	0.000	1.690	14.390	118.900
Isoproturon	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	0.008
Lead	ug Pb/l	S	8	8	0	0.000	0.068	< 0.096	< 0.100
Linuron	ug/l	AS	17	16	0	0.000	< 0.006	< 0.006	< 0.006
MCPA	ug/l	AS	17	16	0	0.000	< 0.001	< 0.028	0.098
MCPB	ug/l	AS	17	16	0	0.000	< 0.004	< 0.004	< 0.004
Manganese	ug Mn/l	S	52	52	0	0.000	0.280	2.036	16.310
Mecoprop	ug/l	AS	17	16	0	0.000	< 0.001	< 0.003	0.008
Mercury	ug/l Hg	S	8	8	0	0.000	0.008	0.013	0.029
Metalaxyl	ug/l	AS	17	16	0	0.000	< 0.004	< 0.004	< 0.004
Metamitron	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
Metazachlor	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
Metoxuron	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.002
Metribuzin	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.002
Nickel	ug Ni/l	S	8	8	0	0.000	0.523	1.030	1.842
Nitrate	mg/l	S	8	8	0	0.000	0.527	3.171	5.440
Nitrite	mg/l	S	8	8	0	0.000	< 0.010	< 0.010	< 0.010
Odour	Diln No	S	52	52	0	0.000	0.000	0.000	0.000
PAH - Sum of four substances	ug/l	S	8	8	0	0.000	< 0.000	< 0.002	< 0.010
Pendimethalin	ug/l	AS	17	16	0	0.000	< 0.003	< 0.003	< 0.003
Pesticides - Total Substances	ug/l	AS	17	16	0	0.000	< 0.050	< 0.066	0.147
Phorate	ug/l	AS	17	16	0	0.000	< 0.004	< 0.004	< 0.004

WATER SUPPLY ZONE - ZN0607 - Corrody Derry
Printed On 22-JAN-2018 : NI Water : Period 01-JAN-2017 to 31-DEC-2017 incl.

Parameter	U/A & Freq.	No. of samples planned per annum	No. of samples taken in year	PCV	No. Of samples contraven ing PCV	% of samples contraven ing PCV	Concentration or value (all samples)		
							Min.	Mean	Max.
Pirimicarb	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.002
Propachlor	ug/l	AS	17	16	0	0.000	< 0.004	< 0.004	< 0.004
Propiconazole	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.006
Propyzamide	ug/l	AS	17	16	0	0.000	< 0.002	< 0.002	< 0.002
Prothioconazole	ug/l	AS	17	16	0	0.000	< 0.006	< 0.006	< 0.006
Selenium	ug/l Se	S	8	8	0	0.000	0.154	0.319	0.500
Sodium	mg Na/l	S	8	8	0	0.000	10.271	13.094	14.666
Sulphate	mg SO4/l	S	8	8	0	0.000	41.728	58.583	72.100
Taste	Diln No	S	52	52	0	0.000	0.000	0.000	0.000
Tebuconazole	ug/l	AS	17	16	0	0.000	< 0.002	< 0.003	< 0.018
Tetrachloroethene/Trichloroethene - S	ug/l	S	8	8	0	0.000	< 0.200	< 0.200	< 0.200
Tetrachloromethane	ug/l	S	8	8	0	0.000	< 0.100	< 0.100	< 0.100
Total - Residual disinfectant	mg Cl/l	S	144	144	0	0.000	0.110	0.432	0.770
Total Indicative Dose	mSv/year	AS	3	2	0	0.000	< 0.100	< 0.100	< 0.100
Total Organic Carbon	mg C/l	S	8	8	0	0.000	1.300	1.715	2.120
Total Trihalomethanes	ug/l	S	8	8	0	0.000	30.510	45.129	62.510
Total coliforms	No./100 ml	S	144	144	0	0.000	0.000	0.000	0.000
Triclopyr	ug/l	AS	17	16	0	0.000	< 0.004	< 0.005	0.012
Tritium	Bq/l	AS	3	2	0	0.000	< 10.000	< 10.000	< 10.000
Turbidity	NTU	S	52	52	0	0.000	0.050	0.115	0.560

Commentary on Water Quality:

A: Supply point authorisation for pesticides and related products.

Population of zone = 57918

This zone has a surface water source :R1701

PCV Exceedances:

Water Quality was satisfactory

Notes:

PCV = Prescribed Concentration or Value

U = Undertaking

S = Standard Sampling Frequency

R = Reduced Sampling Frequency

A = Authorised Supply Point