

Thank you for choosing **Fitz Scientific**

Water Quality Regulations

The Quality of Water in Ireland and the European Community is determined under the European Union (Drinking Water) Regulations 2014. These regulations came into force in Ireland as S.I. 122 of 2014 and set out the minimum quality of water suitable for drinking. These regulations show parametric value levels (**PVL's**) which are the maximum admissible concentrations for each parameter.

Private drinking water supplies are generally tested for a list of parameters commonly known as the **Check Monitoring Suite**. Under this suite 13 parameters are tested and assessed against the PVL's.

These are as follows: Aluminium, Ammonia, Clostrida, Coliforms (Total), Colour (Apparent), Conductivity, E. Coli, Iron (Total), Manganese, Nitrite, pH, Hardness (Total) and Turbidity (All of the identified tests are accredited to ISO 17025:2005)

A more in-depth suite of tests on Drinking Water called the **Audit Monitoring Suite** is also available should you wish to have more investigative analysis.

Contact us at 041 9845440 Ext 1 if you require a quote

The following are basic guidelines on how to understand and read your Certificate of Analysis

The columns listed on the Certificate that are relevant to you are those listed **Test Parameter** and **Result**.

If any of the parameters are **highlighted in grey** then this means that the sample has failed to comply with standards for this particular test and the water is not suitable for drinking.

The next step is to contact a water treatment company for advice on treatment.

Please note that there is no standard for hardness so a treatment company will also advise you on how hard your water is and will treat it accordingly.

After installation of the treatment system by an appropriate company you will require a retest of the drinking water supply to ensure that the problem has been solved. Not all of the parameters will require a retest just the ones you failed on. Contact us again at this stage and we will provide a price for individual parameters and arrange for bottles to be supplied to you.

Test Parameter = the chemical, metal or bacteria we analysed for in the water sample.

SOP = Standard Operating Procedure – the method we used in the lab in other words.

Analytical Technique = the instrument or technique used. **PVL** = Parametric Value Limit acceptable for potable water.

Result = Your result. **Units** = The units relating to the result. **Acc** = If we have Accreditation for the test.

NOTE

We cannot facilitate any phone call enquiries to the laboratory regarding results before all the tests are completed. A hard copy of the Certificate of Analysis will be posted out and you should receive this in 6 – 10 working days.

THANK YOU AGAIN FOR CHOOSING FITZ SCIENTIFIC.

IMPORTANT NOTE

International Standards require that water samples are transported for analysis in an environment of 2°C - 8°C. Many of the private drinking waters that we receive do not meet this requirement and, as an accredited test laboratory, we are required by the standard to identify this point on the certificate of analysis.

We will try to contact you to inform you of this but if you choose not to be contacted and simply wish to proceed with the analysis of your sample(s) then please note this by choosing this option on the attached Chain of Custody (CoC) sheet which you need to send in with your sample(s).

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Boyne Business Park is located on the north side of town near Our Lady's College, Greenhills, Drogheda. The laboratory is OPEN for receiving samples between 8:30am - 6pm Mon - Fri and 9:00am - 10am on Saturday.

***PAYMENT:* Please include a cheque with the sample or ring in advance with your credit card details. Cost is €120 (incl. VAT). For an extra €20 we can add on tests for Lead, Copper and Nitrates. Please list these extra tests clearly on the Chain of Custody and provide payment for €140. We can also facilitate payment by cash at reception. Please note that if a payment is not enclosed with the sample, or paid on the day the sample is received, then sample analysis will not commence.**

Cheques can be made payable to Fitz Scientific and Bank a/c details can be provided if requested for direct payment to our bank account.

Local Authorities, EPA and HSE recommend that the private wells should be tested at least every 12 months.

Fitz scientific are a wholly owned Irish company offering air, water, soil and food testing to a wide range of industries, local authorities, food manufacturers, pharmaceutical companies and private individuals since 2000. We have grown our business through a commitment to quality, customer services and value for money. Our fully equipped UKAS accredited laboratory is in Drogheda Co. Louth and our Field Service division carry out a wide range of on-site services including noise, flue gas, particulates, dust, odour, surface and ground water monitoring and EPA IPPC license reporting.

We provide accredited shelf life testing, microbiological food and swab testing for many food manufacturing companies throughout Ireland. If you require a competitive quote, or know of anyone interested in our services, please do not hesitate to call us or to pass on our details.

Please see our range of accredited methods on our website or at www.ukas.com under Euro environmental management t/a Fitz Scientific UKAS ISO 17025:2005.

INSTRUCTIONS FOR THE TAKING OF A DRINKING WATER SAMPLE
(to meet EU (Drinking Water) Regulations 2014 under S.I. 122: 2014)

CHECK DRINKING WATER TESTS:

Aluminium, Ammonia, Colour, Conductivity, Iron, Nitrite, pH, Hardness, Turbidity, Manganese, Clostridia, Coliforms, E Coli. (all of these tests are accredited to ISO 17025:2005)

You have been provided with a DRINKING WATER TEST KIT containing the following;

1. 250 ml Sterile Square Container
2. 250 ml Plastic Bottle
3. 100ml Plastic Bottle
4. Pair of Gloves
5. Chain of Custody Form

Before you start to sample ensure that the tap nozzle is sterilised with bleach/steriliser inside and outside and that the area around the tap and tiles are clean should splash back, or any other contamination, occur.

STEP BY STEP

1. Put on the blue gloves supplied
2. Run the cold tap (in the kitchen preferably) for 2 minutes.
3. Fill the 250ml Round Plastic Bottle, empty it and refill it to top. Put cap on.
4. Fill the 100ml Round Plastic Bottle, empty it and refill it to top. Put cap on.
5. Open the 250ml Sterile Square Container.
6. Keep the lid in your other hand, do not touch the underside of the lid.
7. Do not place the lid on the countertop so as to avoid contamination.
8. Fill the sterile container to the top and replace lid tightly.
9. Write your name, where the sample was taken from and the date on the bottle label.
10. Fill out Chain of Custody completely (specifically the areas identified by) and the statement on whether to continue testing if the temperature of the sample as received is outside 2°C - 8°C (particularly if sending the sample by post or courier)

For the accuracy of the bacterial test results, we recommend that you try to have the sample to us within 6 hrs of being taken. However up to 24hrs is also acceptable

Please see below a list of the parameters tested on your drinking water sample, their common causes, Parametric Value Limits (PVLs), our laboratory limit of detection (LOD) and their effect on the water from a human consumption point of view.

Aluminium – (PVL – 200 ug/l, LOD= 1.7 ug/L) is a significant element in the earth's crust and is therefore widespread in the natural environment. A level greater than 200 ug/l can cause turbid and discoloured water. There is no conclusive evidence on the health effects although it is known to have a tendency to accumulate in the brain and bones.

Ammonia – (PVL - 0.3 mg/l as NH₄, LOD=0.01 mg/L as NH₄) is found naturally in groundwater however generally it is in low concentrations as it absorbs to soil particles and clays and is not easily leached. Ammonia may have public health connotation associated with it. Ammonia is an indicator of recent contamination, typically septic tank discharges, and agricultural waste.

Clostridia – (PVL- 0 no/100ml, LOD= None Detected) the disease gangrene is caused by Clostridium Perfringens. Although this organism is present in various environments it is especially common in wastewater indicating faecal contamination.

Coliforms (Total) – (PVL – 0 no/100ml, LOD= None Detected) this is a measure of the presence of bacteria which may be harmful to humans and as such bacteria from this group should not be present in drinking water. Their presence is due to sources of contamination, usually septic tanks in close proximity to the well, or run off from farming activity or storage/spreading of silage effluent or slurry. Coliforms can cause serious health risks.

Colour (Apparent) – (PVL – Acceptable to consumers and no abnormal change, LOD= 1.1 PtCo units) Colour in water may result from the presence of neutral metallic ions (iron and manganese), humus and peat materials, plankton, weeds and industrial wastes. Colour is removed to make water suitable for domestic and industrial applications.

Conductivity – (PVL – 2500uScm-1 @20C, LOD= 0.5 uScm-1 @20C) is a measure of the total amount of ions in a particular water supply and is also a measure of the water's ability to carry an electrical current. The conductivity of potable waters ranges generally from 50 – 1650uScm-1 and samples which exceed this higher value indicate some form of contamination.

E Coli – (PVL – 0 no/100ml, LOD= None Detected) E Coli belongs to the faecal coliform group of bacteria. Potable water systems can become polluted with coliform bacteria from normal, diseased or carrier human and animal excrements. This can occur by gross connections between a water main and a sewer or from the entry of sewage water through leaks in damaged pipes.

Iron (Total) – (PVL – 200 ug/l, LOD= 3.7 ug/L) is found naturally in groundwater and has no major health connotations but is of concern as a nuisance parameter causing problems with staining of laundry and tableware.

Nitrite – (PVL – 0.5 mg/l as NO₂, LOD= 0.03 mg/L as NO₂) Nitrite has health connotations with it and is the actual etiological agent of methemoglobinemia (or more commonly known as blue baby syndrome). Nitrite is an indicator of recent contamination.

pH – (PVL – 6.5-9.5, LOD= 0.01 pH units) pH below 7 is acidic in nature while pH above 7 is basic. Most natural waters in Ireland are slightly basic in nature due to the presence of carbonates and bicarbonates of the alkali and alkaline earth metals. pH has no real health connotations associated with it except in extreme cases.

Hardness (Total) – (PVL – Not Specified, LOD = 4.3 mg/L CaCO₃) Total hardness is defined as the sum of the calcium and magnesium concentrations. Hardness may range from zero to hundreds of mg/l depending on the source of the treatment to which the water has been subjected. Hardness can be treated with a filtration system.

Turbidity – (PVL – Acceptable to Consumers and no abnormal change, LOD=0.02 NTU) Clarity of water is important in producing products destined for human consumption and in many manufacturing operations. The clarity of a natural body of water is an important determinant of its condition and productivity. Suspended and colloidal matter such as clay, silt, microscopic organisms etc. cause turbidity in water.

Manganese – (PVL 50ug/l, LOD=0.7 ug/L) This is widely found in soils and ground waters. Manganese, like iron, is of concern as a nuisance parameter causing problems with staining but with this metal the problems can be more severe hence the more stringent limit. The presence of manganese much above the limit can also cause an unacceptable taste.

Lead – (PVL – 10 ug/L, LOD = 0.38 ug/L) Lead is one of the most commonly determined heavy metals because it accumulates in body tissue. It follows that strict limits on its presence in raw and finished drinking waters must be imposed. Particular attention is paid to this element as in many older houses extensive use is made of lead piping and there is a danger of lead being brought into solution ("plumbosolvency"). Levels may be quite marked in samples taken first thing in the morning when the initial yield will be of water which has been standing in such pipes for perhaps twelve hours. Hence the recommendation that drinking water pipes be flushed briefly in the morning before the water is consumed. (This test is accredited to ISO 17025:2005)

Copper – (PVL – 2 mg/L, LOD = 0.0002 mg/L) Copper is not particularly toxic to humans (indeed, it is an essential dietary requirement) and medicinal doses up to 20 mg/l are not unknown. However, astringent tastes in water can be caused by levels above 1 mg/l Cu. Background Information: This element is present naturally in metalliferous areas but more often its presence in waters is due to attack on copper piping. Rarely, its occurrence may be due to its use as an algicide. Unless used with great care for algal control there is a grave risk of fish kills. (This test is accredited to ISO 17025:2005)

Nitrate – (PVL – 50 mg/L as N, LOD = 0.16 mg/L as N) Hazard to infants above 11 mg/l N [50 mg/l NO₃]. Relatively little of the nitrate found in natural waters is of mineral origin, most coming from organic and inorganic sources, the former including waste discharges and the latter comprising chiefly artificial fertilisers. However, bacterial oxidation and fixing of nitrogen by plants can both produce nitrate. Interest is centred on nitrate concentrations for various reasons. Most importantly, high nitrate levels in waters to be used for drinking will render them hazardous to infants as they induce the "blue baby" syndrome (methaemoglobinaemia). The nitrate itself is not a direct toxicant but is a health hazard because of its conversion to nitrite which reacts with blood haemoglobin to cause methaemoglobinaemia. (This test is accredited to ISO 17025:2005)