

**SPIROCARE<sup>®</sup>**

# **SYSTEM WATER ANALYSIS**



*As a leading expert in system water quality, Spirotech offers a service for the analysis of heating and cooling water.*



# SPIROCARE SYTEM WATER ANALYSIS

# 1

## 1.1 ANY SYSTEM IS ONLY AS GOOD AS ITS WEAKEST COMPONENT

Today, boilers, heat pumps, chillers, pumps and valves are optimised for maximum efficiency. Unfortunately it is often forgotten that the quality and composition of the heating or cooling water, as a heat transfer fluid, has an influence on efficiency and, above all, trouble-free operation of heating and cooling systems.

The interaction between the water chemistry (pH value, conductivity, hardness, oxygen, microbiology, etc.), the mechanical components (pipes, pumps, valves, radiators, heat exchangers) and the physical properties (such as pressure and temperature) in the installation is often, not understood or not realised. However, if this is not taken into account, it often leads to corrosion and limescale deposits in the installation. The result: poor heat transfer and mechanical defects, which ultimately have a negative effect on the service life of components as well as on energy and operating costs - in the worst case, unexpected system downtimes.

A good reason to take a closer look at the often underestimated and unpopular system fluid.

## 1.2 WATER ANALYSIS CREATES CLARITY

With SpiroCare, Spirotech offers professional laboratory analysis for checking the water quality before and/or after commissioning, or in the course of regular

maintenance. But even if problems have already occurred in the system, the analysis of the system water can help to identify the causes and take the right corrective measures.



Depending on the analysis package, you as an installer or operator will not only receive the results of the chemical analysis but also an interpretation of the results as well as recommendations individually tailored to your system. So, not only will you have a better insight of what's going on in your system, but you will also have a better understanding of what needs to be done.

- ▶ The SpiroCare Laboratory
- ▶ SpiroCare ProLab Analysis
- ▶ SpiroCare System Analysis



# THE SPIROCARE LABORATORY 2

## 2.1 IN-HOUSE LABORATORY

Spirotech has an in-house laboratory in Tessenderlo, Belgium, which specialises in the analysis of heating and cooling water. Our mission is to support you in achieving permanently reliable and energy-efficient system operation. But this is only possible if you can really rely on the results of the water analysis.



*Ion chromatograph IC for the determination of various cations and anions.*

For this reason, our laboratory is equipped with state-of-the-art analytical instruments to ensure valid and reliable measurements. With the analytical equipment available in our laboratory, we can measure well over 50 different water parameters. Also, water samples with glycol are no problem for us.



*Titrator for the exact measurement of pH, conductivity and alkalinity.*

However, it is extremely important that the analysis results are interpreted correctly. Only through correct interpretation can you draw the right conclusions for your specific application. Our colleagues in the laboratory are not only proven experts in the field of analysis, but also have many years of know-how with the application-specific characteristics of heating and cooling systems. Piece of mind: our experience from over 10,000 tested systems contributes to every analysis report.

## 2.2 SPECIAL ANALYSES

In addition to the standard ProLab and System analysis, we can also perform a variety of other special analyses.



*Analysis for the identification, quantification or composition of microbiology.*

With every SpiroCare system analysis, the so-called ATP value is determined for a quick check of the microbiological activity. The result provides a general overview of the microbiological condition of the system. However, if required, additional analyses can be carried out in our laboratory to determine the microbiology present in detail with BART-tests.

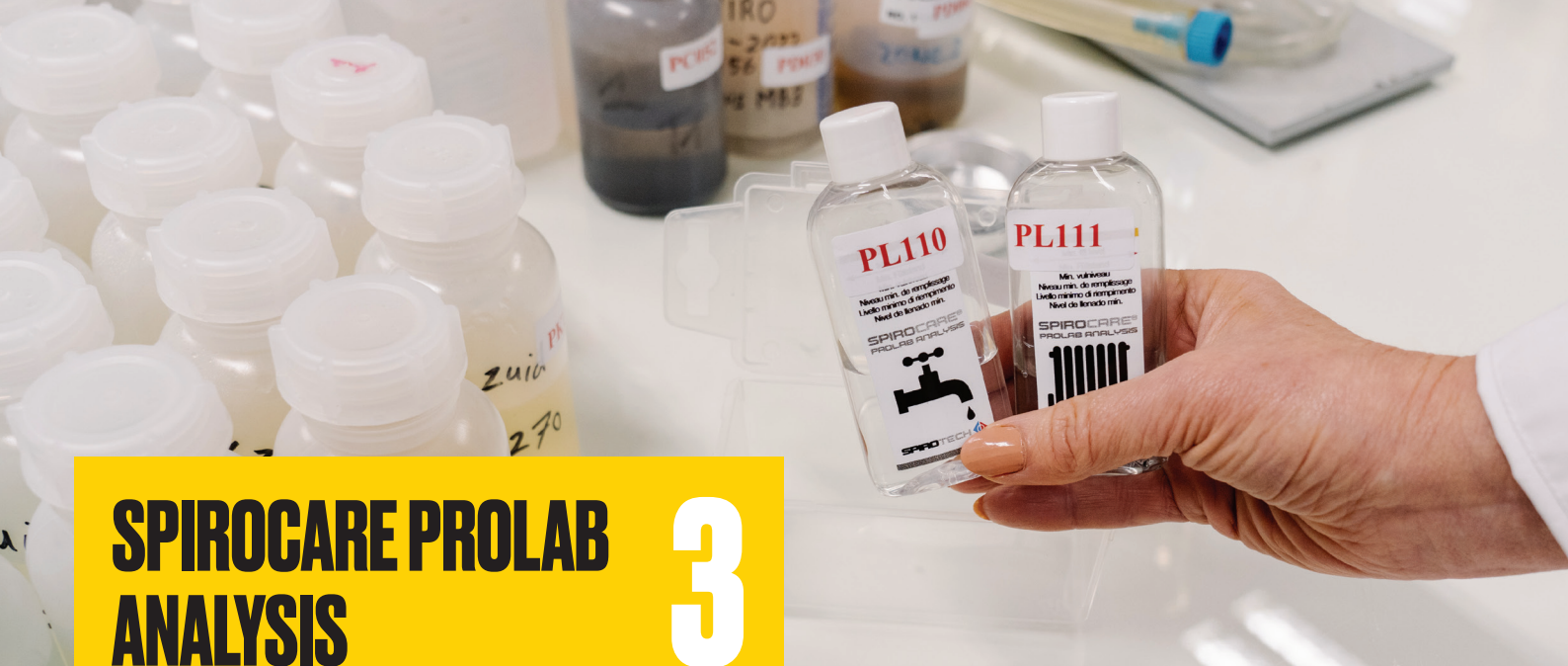


*Determination of corrosion rate and speed by means of corrosion coupons.*

But also the detailed assessment of solids in the system water - e.g. the size distribution of particles - or the analysis of very specific water substance is possible. Just contact us.



*Detailed analysis of deposits or solids in the system water.*



# SPIROCARE PROLAB ANALYSIS 3

## FOR SMALL AND MID-SIZED RESIDENTIAL SYSTEMS

More and more manufacturers of important system components require a certain water quality in order to keep the warranty of the delivered products.

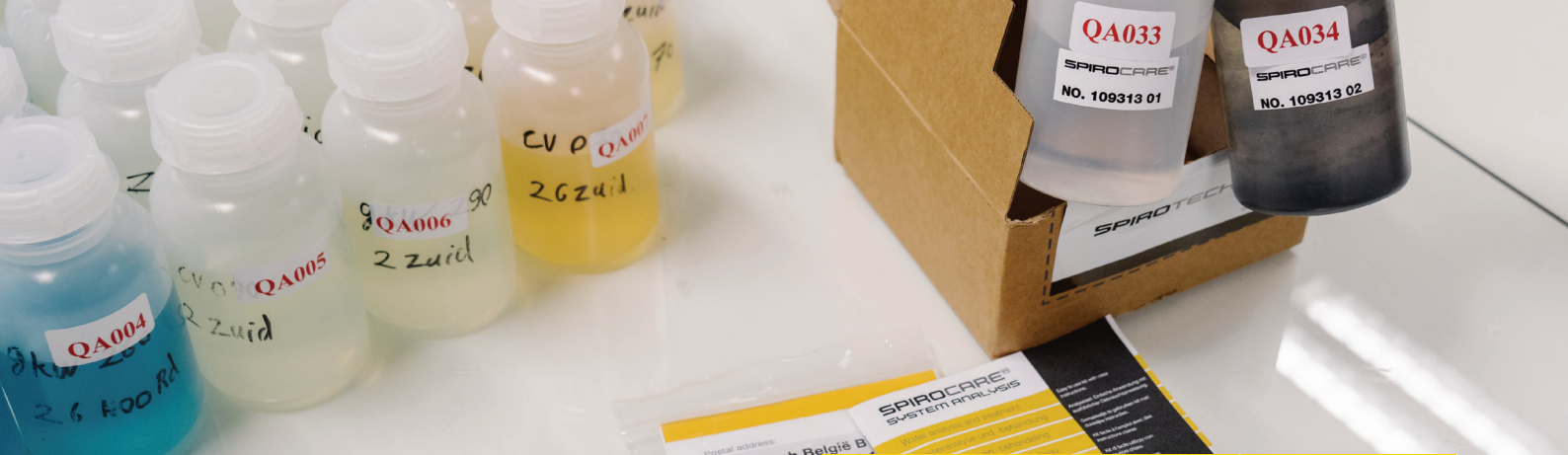
The SpiroCare ProLab analysis provides a simple and understandable overview of the quality of the heating or cooling water and captures the most important water parameters. The analysis report can also be used as proof of water quality for small installations.

The SpiroCare ProLab Analysis Set includes an easy-to-use kit for collecting water samples and the most important information about the system. Then simply send the samples to our laboratory in the packaging provided.

Once the water samples have arrived, they will be analysed in our laboratory and you will receive the results by email within a few working days.

SpiroCare ProLab Analysis can be used to check water quality during boiler, pump or radiator replacement, before and after a flushing procedure or during maintenance to determine the current status.

- 2 sampling bottles (0.75 ml each) for sampling the fill/ make-up water as well as the system water.
- Analysis based on the most important parameters such as appearance, pH value, conductivity, total hardness, chloride, iron, copper, aluminium, zinc, SpiroPlus Protector (the amount of SpiroPlus Protector present in the water. SpiroPlus Protector is a corrosion protector offered by Spirotech).
- A one-page laboratory report with the results of the analysis as well as an interpretation and, if necessary, recommendations for measures to be taken.



# SPIROCARE SYSTEM ANALYSIS 4

## FOR COMMERCIAL APPLICATIONS

With the size of a heating and cooling system, the complexity of the water chemistry usually increases: a colourful mixture of different materials used in the installation, frequent refilling of (untreated) fresh water, often poorly circulated system sections with stagnating water, etc. can negatively influence the water quality in the system.

But even if problems have already occurred in the system, additional water parameters have to be analysed in order to identify possible reasons and to determine measures to be taken.

For this purpose, Spirotech offers a comprehensive analysis of the system water with the SpiroCare System Analysis:

- 2 sampling bottles (200 ml each) for sampling the fill/make-up water and system water (further sampling bottles are possible for additional sampling points if required).
- Analysis based on 35 water parameters.
- Investigation of the water quality according to common standards/guidelines possible.
- Extensive report with the analysis results as well as detailed interpretation and specific recommendations for corrective measures to be taken.

PARAMETER	UNIT
pH 20°C	
Conductivity 25° C	µS/cm
Turbidity	NTU
ATP	RLU
p-alkalinity	ppm CaCO <sub>3</sub>
m-alkalinity	ppm CaCO <sub>3</sub>
Free OH-alkalinity	ppm CaCO <sub>3</sub>
Total hardness	ppm CaCO <sub>3</sub>
Calcium hardness	ppm CaCO <sub>3</sub>
Magnesium hardness	ppm CaCO <sub>3</sub>
Total calcium	ppm Ca
Total magnesium	ppm Mg
Sodium	ppm Na
Potassium	ppm K
Total iron	ppm Fe
Fe <sup>2+</sup>	ppm Fe
Copper	ppm Cu
Zinc	ppm Zn
Aluminum	ppm Al
Manganese	ppm Mn
Boron	ppm B
Molybdenum	ppm Mo
Chloride	ppm Cl
Sulphate	ppm SO <sub>4</sub>
Ammonium	ppm NH <sub>4</sub>
Nitrite	ppm NO <sub>2</sub>
Nitrate	ppm NO <sub>3</sub>
Fluoride	ppm F
Bromide	ppm Br
Ortho-phosphate	ppm PO <sub>4</sub>
Silica	ppm SiO <sub>2</sub>
Inhibitor	%
Stability index 60°C for CaCO <sub>3</sub>	
Magnetite	+/-
Particles	+/-

35 water parameters.



# MAXIMISING PERFORMANCE FOR YOU

Spirotech is a leading expert in improving the efficiency of heating and cooling systems. Our family business has over 60 years of experience in developing solutions for removing and preventing the accumulation of air and sludge deposits in energy systems. Our products save energy, increase comfort, avoid wear and tear and maximise operating periods. Reliable and customer-oriented products that help you get top performance and protect investment in capital assets. We develop high-value solutions with our partners, suppliers and investors that improve the operation of residential and commercial properties, as well as industrial processes. Our comprehensive network of selected importers in over 70 countries means there is always a Spirotech expert near to you.

Heating and cooling systems are highly complex, particularly when they are run in conjunction with other systems and installations. So locating and analysing faults when they occur is never easy, especially with the clock ticking in the event of a system failure. Spirotech is here to support you with practical advice and solutions, helping you to pinpoint causes and rectify them. Please feel free to contact us.

**IF YOU WOULD LIKE TO KNOW  
MORE ABOUT OUR SOLUTIONS,  
PLEASE VISIT OUR WEBSITE  
[WWW.SPIROTECH.COM](http://WWW.SPIROTECH.COM) OR  
[WWW.SPIROTECH.CO.UK](http://WWW.SPIROTECH.CO.UK)**

