

WHITE PAPER

Optimizing water for Life Sciences applications

Background

Life science applications face an abundance of challenges in an effort to deliver high quality, reproducible results. Limited resources, a shortage of bench space, restricted instrument availability and equipment downtime are just some of the factors that can reduce workflow efficiency and cause delays. Inconsistent parameters, such as a poorly maintained water supply, can reduce testing reproducibility, further affecting results and costing labs time and money.

The need for water purification in laboratories

Reliable, cost-effective water purification systems that consistently deliver appropriate quality water are vital to a wide range of applications. The presence of biologically-active impurities in laboratory water, for instance, DNase and RNase enzymes, can be a major problem, and may seriously compromise results for processes such as genetic analysis, histology, immunohistochemistry, PCR, *in vitro* fertilization, CRISPR gene editing and cell culture. Similarly, bacteria can lead to the introduction of artifacts in mounted histology samples.

Bacterial by-products, such as endotoxins, can also cause embryo fragmentation and low pregnancy rates in, *in vitro* fertilization, as well as toxic effects in cell biology.

Well-designed water purification equipment using the correct technologies can remove or inactivate all types of organic molecules from laboratory water. The PURELAB Chorus range* offers consistent (and guaranteed) water quality, ensuring that it is effectively free from impurities that can interfere with your results.

Reducing water impurities, increasing data quality

The effectiveness of the PURELAB Chorus 1 Life Science (Chorus 1 LS) in delivering high quality, reliable water purity has been demonstrated over a three-month period.

60 liters of water per day was dispensed in a typical pattern of use, and the resulting water samples were analyzed regularly for:

- Endotoxins
- RNase
- DNase
- Bacteria
- Protease

For all analyses, the levels of impurities were below the limit of detection, as shown in Table 1.

Table 1:

Impurity	Concentration detected
Bacteria (viable)	<0.001 CFU/ml
Endotoxin	<0.001 EU/ml
RNase	<0.001 ng/ml
DNase	<0.005 ng/ml
Protease	<1 ng/ml

Conclusion

The PURELAB Chorus range* has been demonstrated to provide purified water of the highest quality, ensuring suitability for analytical, clinical, pharmaceutical and molecular biological applications.

*The PURELAB Chorus range offers a variety of different water purification systems, from the Chorus 1 that is used for the most critical and sensitive applications through to the Chorus 3, which is ideally suited for general purpose applications in your laboratory. The range is now available with an innovative free standing Dispenser that maximizes space and improves lab efficiency. Additionally, Hubgrade, ELGA's digital platform, works alongside any system to monitor equipment performance, ensuring laboratory work continues uninterrupted.



Dedicated to Discovery

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ELGA Labwater are specialists in the engineering,
service & support of water purification systems.

Unrivalled product design has achieved
international recognition and awards.

Worldwide technical service teams support science
& healthcare globally with specialist expertise.

Global digital performance monitoring from
Hubgrade ensures laboratory work is uninterrupted.

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