

Medica™ Biox
Product brochure

Clinical wastewater & biohazard management

VEOLIA

LAB WATER SOLUTIONS

Enhancing sustainability

Ecological transformation is a core element of Veolia's purpose. Veolia exists to ensure human progress, depollute vital resources, decarbonise ways of living, improve health & quality of life and, in doing so, deliver exceptional stakeholder returns.

Veolias accomplishments and aims



- Veolia is now the uncontested world leader in water and waste management
- Veolia is worldwide #1 in water services, #1 in Europe and #3 in the United States
- Veolia is worldwide #1 in water technologies
- More than 320 million cubic metres of water saved globally due to our sustainably managed water resources
- Grow the circular economy, save and regenerate water resources
- Promote the sustainable management of water resources

Environmental leadership

Nanoplastics are an integral characteristic of the clinical diagnostics sector. However, these plastics are resistant to harsh chemicals and have a significant environmental impact.

Compliance regulations, such as REACH in Europe, will affect all clinical diagnostics instruments, aiming to ensure stronger microplastic management.



- Medica Biox achieves >95% separation of microplastics at ≥ 60nm size from clinical analyser effluent
- Dramatically reduces clinical analyser waste and subsequent waste removal, maximising uptime and reducing hazards associated with clinical waste removal
- Medica Biox uses UV inactivation of pathogens (using UV-C treatment)
- Medica Biox is the only unit of its kind, enabling seamless liquid analyser waste management in one single piece of equipment
- Biox is low maintenance and integrates seamlessly into clinical laboratory processes

Improving healthcare operations

70% of all medical decisions rely on clinical diagnostic tests.

44% of workflow steps involve exposure to biohazards and lab workers face heightened exposure to negative health outcomes.[1]

Biohazards from clinical wastewater can accumulate in water bodies and food chains, causing adverse effects on aquatic life, animals, and humans.

These biological hazards can include drug-resistant bacteria, viruses and protozoa that can spread into the environment, especially where the majority of laboratory wastewater is set directly to drain, without any treatment in between.

Biox removes this problem, enabling laboratories to treat clinical analyser wastewater through UV and ultrafiltration. In combination with Medica water purification, Biox offers a unique management solution for analyser feedwater and wastewater.

Biox ensures environmental protection, removing harmful nanoplastics and biohazards that would have otherwise gone straight to drain

Biox contributes to organisations environmental social and ethical aims

Biox improves laboratory productivity and process uptime through reduced waste collection

Biox improves financial metrics by reducing the cost of managing clinical analysers waste management



1. Viral infections in workers in hospital and research laboratory settings: a comparative review of infection modes and respective biosafety aspects. (2011). International Journal of Infectious Diseases, [online] 15(6), pp.e366–e376. doi:https://doi.org/10.1016/j.ijid.2011.03.005. Lab workers are nine times more likely to contract E. coli, 41 times more likely to contract N. Meningitis and 8000 times more likely to contract Brucella.

A worldwide service network

Veolia lab water solutions are specialists in the engineering, service and support of water purification systems.

Biox is part of Veolia lab water solutions Medica range which is in service with every major diagnostic manufacturer worldwide. Our expertise has been recognised globally with over 40 patents granted.

The human centred design ethos delivers a user experience that drives productivity and excellence in today's clinical diagnostic laboratories.

Veolia lab water solutions and its service partners deliver complete solutions that meet and exceed the compliance standards regulated and recommended by the FDA, EU, ISPE Engineering Guides, GMP & GAMP.

Veolia lab water solutions equipment is supported by a global network of service engineers. Service, environmental protection and innovation are central to its culture.

Veolia lab water solutions prioritises system uptime and consistency over frequent consumable sales.

As a result, customers benefit from reliable and efficient water purification systems that effectively support clinical diagnostic processes at peak performance while minimising environmental impact.



A unique solution

Medica Biox offers an **entirely new concept to treat clinical analysers waste**.



Medica Biox **treats liquid analyser waste** using multiple advanced techniques.





The combination of Medica and Medica Biox offers a **total and unique solution for the creation of ultrapure water** and management of clinical analyser waste.

Technical specification

Wastewater will be fed into Medica Biox directly from the clinical analyser.

The Veolia lab water solutions unit produces two waste streams:

- Wastewater collected that cannot be discharged
- Wastewater that can be discharged to drain

Function(s)	>95% microplastic removal (≥60nm) biohazard elimination
Dimensions (mm)	460 (h) / 352 (w) / 810 (d)
UV	UV-C LED (265 nm)
Bypass functionality	Emergency bypass in place

UV-C LED bacterial & viral inactivation

Pathogen	Type	UV dose (mJ/cm2)	Inactivation (%)	Reference
Escherichia coli ATCC 11229	Bacterium	10	99.999	Zimmer et al. 2002
Salmonella enteritidis	Bacterium	9	99.99	Tosa & Hirata 1998
Legionella pneumophila ATCC33152	Bacterium	9.6	99.999	Oguma et al. 2004
Hepatitis A HM175	Virus	29.6	99.99	Wilson et al. 1993
Poliovirus 1	Virus	27	99.99	Tree et al. 2005
SARS-CoV-2	Virus	5	99.9	Atari et al. 2023

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2. Atari, N., Mamane, H., Silberbush, A. et al. Disinfection of SARS-CoV-2 by UV-LED 267 nm: comparing different variants. Sci Rep 13, 8229 (2023). https://doi.org/10.1038/s41598 023-35247-9 — Available on line at: https://www.nature.com/articles/s41598-023-35247-9#Tab3

3. A microplastic size classification scheme aligned with universal plankton survey methods — Available online at: https://www.sciencedirect.com/science/article/pii/S2215016121003095



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