



BIOQUELL HYDROGEN PEROXIDE VAPOUR BIO-DECONTAMINATION

Products and services range

About Ecolab

A trusted partner at nearly three million customer locations, Ecolab is the global leader in water, hygiene and infection prevention solutions and services. With annual sales of €12 billion and more than 50,000 associates, Ecolab delivers comprehensive solutions, data-driven insights and personalised service to advance food safety, maintain clean and safe environments, optimise water and energy use, and improve operational efficiencies and sustainability for customers in the food, healthcare, hospitality, Life Sciences and industrial markets in more than 170 countries around the world.

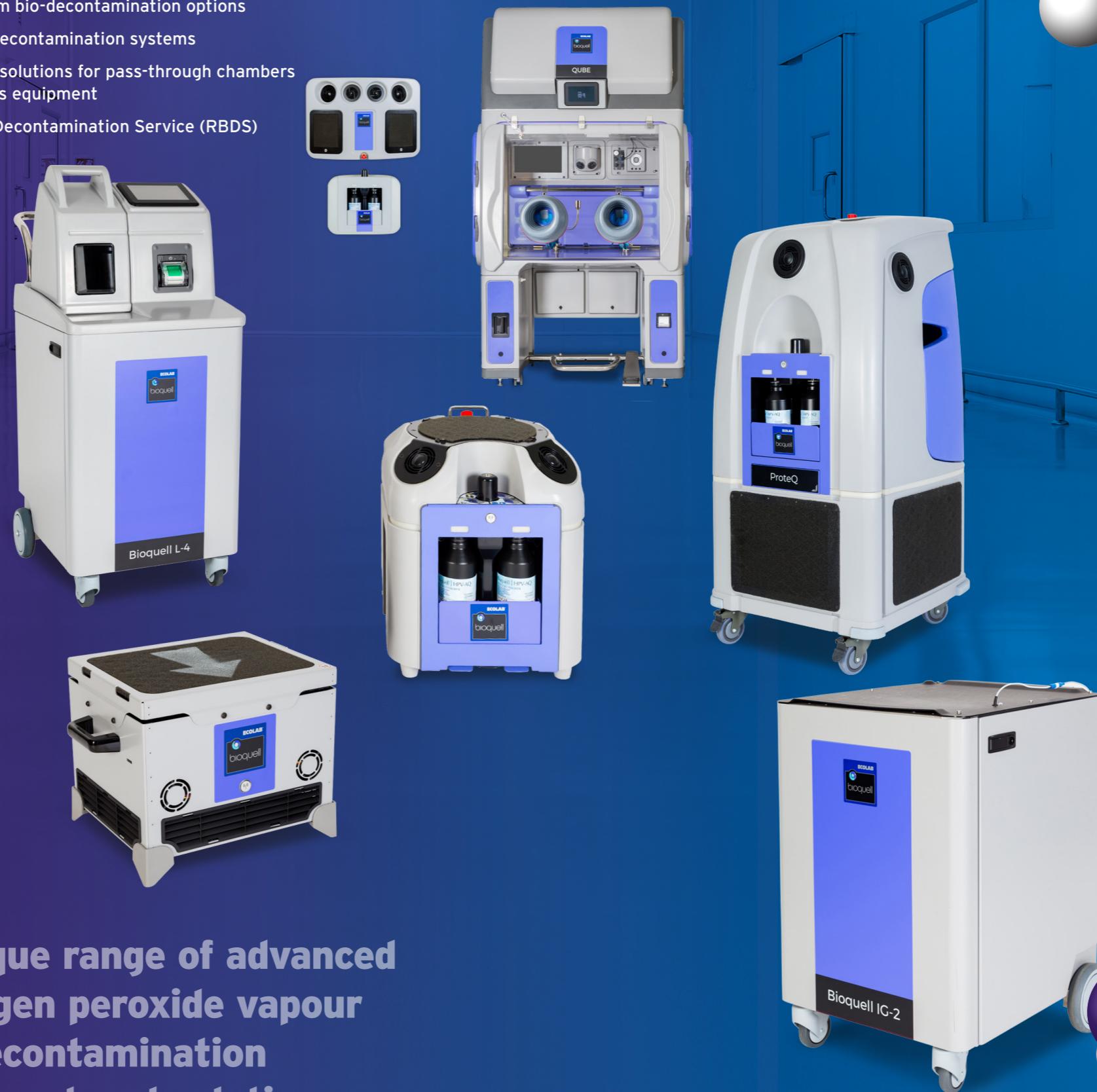
Our Assurance

Ecolab is committed to providing exceptional service, total plant solutions and unsurpassed industry expertise to help you achieve your business goals.

Our breadth of resources and integrated business model ensure consistency across your operations.

Bio-decontamination Products & Services

- ▲ Isolators with integrated bio-decontamination
- ▲ Mobile room bio-decontamination options
- ▲ Fixed bio-decontamination systems
- ▲ Integrated solutions for pass-through chambers and process equipment
- ▲ Rapid Bio Decontamination Service (RBDS)



A unique range of advanced hydrogen peroxide vapour bio-decontamination equipment and solutions

BIO-DECONTAMINATION

Bioquell Hydrogen Peroxide Vapour

Bioquell's proprietary technology uses a 35% hydrogen peroxide aqueous solution to kill microorganisms. Whether for bio-decontaminating equipment or rooms, a single cycle using Bioquell Hydrogen Peroxide Vapour provides a 6-log bioburden reduction on exposed surfaces.

You can operate Bioquell systems at ambient room temperature and relative humidity, without the need to attain significantly reduced humidity that can be associated with other hydrogen peroxide bio-decontamination systems.

Isolator with **Integrated Bio-decontamination**

Bioquell Qube



GMP



6-log
Sporicidal Kill

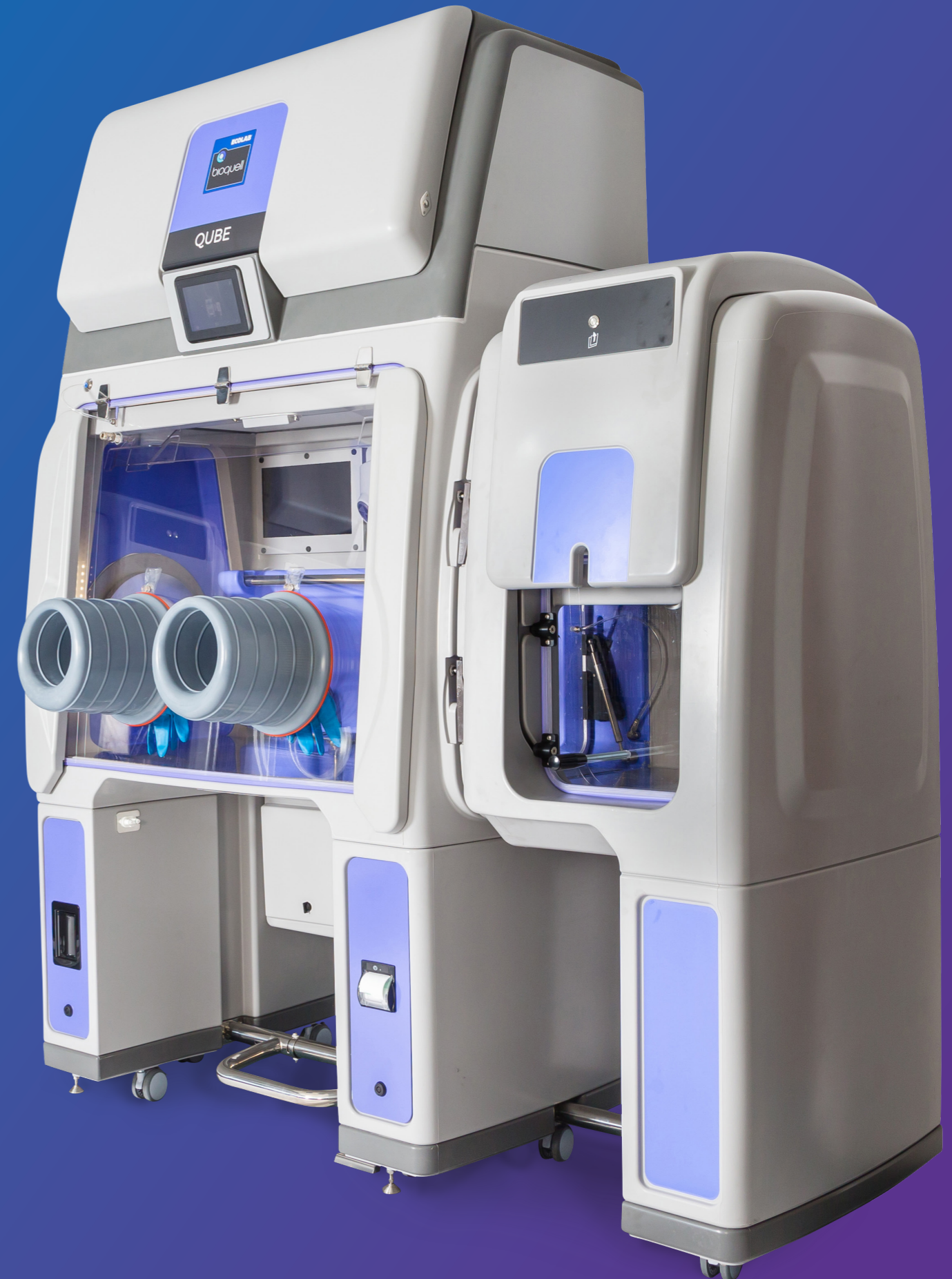
The unique isolator integrated with bio-decontamination using Bioquell Hydrogen Peroxide Vapour

- Light, flexible, modular aseptic isolator in convenient configurations
- ISO 5 / EU Grade A working environment with rapid air clean up and integrated hydrogen peroxide vapour 6-log sporicidal kill bio-decontamination
- Optional 21 CFR Part 11 audit trail compliance package available
- Validated bio-decontamination cycles using Bioquell Hydrogen Peroxide Vapour

The Bioquell Qube has built-in hydrogen peroxide vapour bio-decontamination technology making it an ideal solution for aseptic processing. With multiple configurations available and a range of options and accessories, the Bioquell Qube is suitable for applications such as:



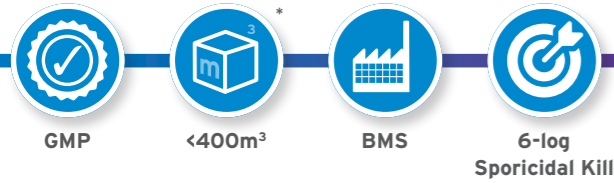
- Gene and cell therapy
- Sterility testing
- Cytotoxics preparation
- Small batch production (clinical trials, R&D, etc.)



*Retractable inner door required between hydrogen peroxide vapour chamber and any adjacent chambers.

Room | Zone Bio-decontamination

Bioquell ProteQ



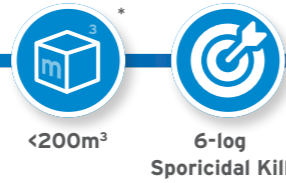
High volume zone bio-decontamination with scalability and mobility

- Advanced distribution and aeration capabilities with wireless communication provide faster setup and cycle times
- Optional 21 CFR Part 11 audit trail compliance package
- Hosts all components within its frame, including additional optional aeration units
- Control a network of 3 systems with one optional master control panel



Bioquell ProteQ

Bioquell BQ-50



Bioquell Hydrogen Peroxide Vapour delivered in a portable, easy to use system

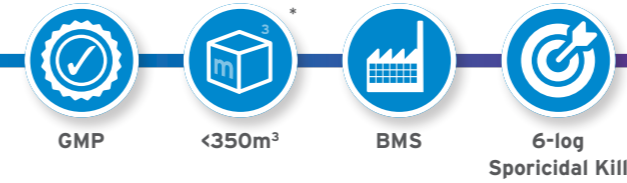
- Mobile, simple to operate, rapid bio-decontamination cycles with intelligent parametric control
- Offers cost-effective bio-decontamination of rooms and laboratories in non-regulated areas
- Bioquell BQ-50 suite includes separate high capacity aeration units



Bioquell BQ-50

Enclosure | Zone Bio-decontamination

Bioquell L-4



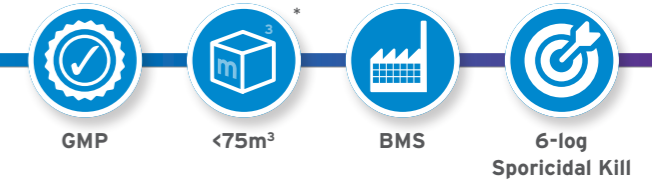
A versatile and mobile system for the bio-decontamination of enclosures, equipment and zones

- Multipurpose mobile generator offers flexibility of use
- Suitable for isolators, enclosures, pass-through chambers, freeze dryers, incubators and rooms
- Easy 'no touch' bottle loading
- Optional 21 CFR Part 11 audit trail compliance package



Bioquell L-4

Bioquell IG-2



A fixed, seamless integration of hydrogen peroxide vapour in to your workflows

- Designed to be built into to process equipment and isolators for a seamless user experience
- Quickly bio-decontaminate equipment such as lyophiliser, filling lines, isolators, incubators, and more
- Rapid bioburden reduction for pass-throughs and airlocks
- Custom and challenging integration applications with the coordination and guidance of Bioquell engineers

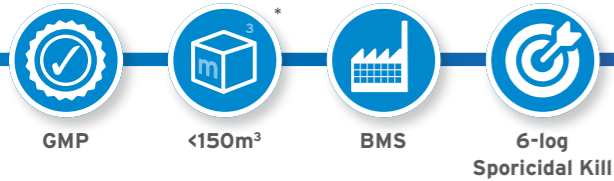


Bioquell IG-2

Pass-through & Airlock Bio-decontamination



Bioquell SeQure



A next generation solution for thorough, compliant bio-decontamination

- ▲ Fixed hydrogen peroxide vapour generator for chambers or rooms
- ▲ Fast to install and validate (<1 week)
- ▲ Validated bio-decontamination cycles with optional additional aeration if needed
- ▲ Bottle module with peroxide traceability and wastage minimisation through the two-bottle module system
- ▲ Optional 21 CFR Part 11 audit trail compliance package available



Hydrogen Peroxide Biological Indicators & Chemical Indicators

Bioquell Hydrogen Peroxide Vapour

- ▲ 18 month shelf-life; traceable
- ▲ BPR approved



Bioquell Biological Indicators

- ▲ Consistent, reliable and independently tested
- ▲ 6-log *Geobacillus stearothermophilus* biological indicators
- ▲ Developed to validate hydrogen peroxide vapour technology

Bioquell Chemical Indicators

- ▲ Two specially formulated options for rooms and for isolators / small enclosures that help quickly verify a cycle has achieved an expected 6-log sporicidal kill



Bottles shown are for United States. Bioquell hydrogen peroxide names may vary by region.

Bioquell Rapid Bio Decontamination Service (RBDS)



Bioquell RBDS



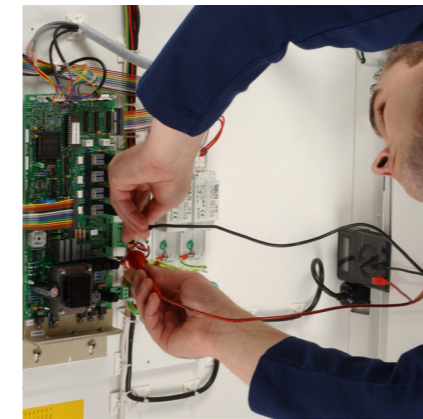
Rapid Bio Decontamination Service (RBDS) For Pharmaceutical, Life Sciences & Healthcare

- ▲ Planned, proactive or rapid emergency deployment based on client operations
- ▲ Dedicated response options to host Bioquell equipment onsite in critical areas for rapid emergency deployment
- ▲ Single room/lab to whole facility bio-decontamination to fit client requirements
- ▲ Bio-decontamination of biological safety cabinets, incubators, robotic enclosures and other similar laboratory based equipment
- ▲ 6-log sporicidal kill on all exposed surfaces
- ▲ Fully managed process, from site survey through to final bio-decontamination report, with no capital equipment expenditure required

APPLICATIONS:

- ▲ Bioprocessing, biomanufacturing and production zones
- ▲ Biosafety labs of all levels
- ▲ Cleanrooms and research labs
- ▲ Post-construction new-area commissioning
- ▲ Shutdown, end of campaign and facility restart periods
- ▲ Emergency response
- ▲ Dedicated response plans
- ▲ Equipment bio-decontamination needs (BSC, lyophiliser and more)

Other Services



ECOLAB SERVICES

Installation & Commissioning

To get the most from your Bioquell Hydrogen Peroxide Vapour bio-decontamination equipment, it must be correctly installed and configured. Depending on your application, this may not be a straightforward process, and our highly trained engineers are able to take you from a new, boxed unit to a fully functional and compliant set-up, ready for you to use, regardless of the complexity of your system.

Maintenance & Calibration

Bioquell's experienced field service engineers can check, change and

calibrate your bio-decontamination equipment, ensuring it remains in excellent condition. Whether it is breakdown cover for business / process critical systems or annual service and maintenance plans, the Ecolab team is able to tailor a service to suit you.

Material Compatibility Testing

Ecolab offers a testing service to determine the compatibility of materials and components with Ecolab's Bioquell bio-decontamination systems. We also offer a hydrogen peroxide ingress testing service for clients who are concerned about hydrogen peroxide permeating into sensitive materials such as bags, vials, and syringes being loaded into isolators and material airlocks.

Training & Support

To ensure longevity and efficient operation of your system, it is essential to start with a solid knowledge base. Using a combination of practical exercises, face-to-face training and a comprehensive e-learning system, we are able to 'transfer knowledge' through the medium which suits you. And once the training has been completed, our technical support team will continue to help you with any questions.



VALIDATING BIOQUELL EQUIPMENT

- ▲ Professional validation of Ecolab's Bioquell Hydrogen Peroxide Vapour process within client environment including provision of regulatory compliant paperwork
- ▲ Installation and operational qualification (IQ/OQ), Gas Cycle Development (GCD) and Performance Qualification (PQ) to ensure equipment is operational within required timelines
- ▲ Rapid and efficient hydrogen peroxide vapour cycle development to fit client process to provide a robust bio-decontamination cycle which achieves 6-log sporicidal kill in the shortest amount of time
- ▲ We provide you with documentation to satisfy your regulatory requirements, from airflow checks and particle counts to full bio-decontamination cycle development



GMP

OUR ASSURANCE

Ecolab is committed to providing exceptional service, total facility solutions and unsurpassed industry expertise to help you achieve your business goals.

Our breadth of resources and integrated business model ensure consistency across your operations. We look forward to the opportunity to partner with you on your transformation journey.

PLEASE SPEAK TO YOUR ECOLAB ACCOUNT MANAGER FOR FURTHER INFORMATION

USE BIOQUELL PRODUCTS SAFELY. ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE.

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