



**Company:**

Founded in 1971, AUB Santé is now a state-approved public-interest foundation. AUB operates in the areas of prevention and treatment of chronic kidney disease, home hospitalisation, home nutrition/infusion, home care and professional training.

**Project:**

Installation of Halo devices in dialysis rooms to reduce the risk of airborne infection for patients and caregivers.

**Designer:**

Erlab provided support to AUB Santé for this project.

**Location:**

Brest – Finistère – France

**The Erlab ecosystem:**

1 Halo 35 P  
Air purifier

**Integration partner:**

The installation of the Halo 35 P was carried out by AUB Santé.

**Environment/Activity:**

No specific handling (therefore no chemical hazard); the Halo will be used to treat the particulate and viral load in the room to reduce the risk of airborne infection (particularly Covid-19).

AUB



Santé

# CASE STUDY

## HALO

### How can we reduce the risk of airborne infection in a healthcare facility while improving the building's energy performance?

#### SCOPE

Since 2021, AUB Santé has wanted to take action to reduce aerobiocontamination from suspended particles, which poses a threat to immunosuppressed patients and those with multiple pathologies in dialysis units.

**AUB Santé therefore asked Erlab to carry out tests related to this.**

The objective of this study was to analyse the kinetics of the particle load in a dialysis chamber equipped with a high-efficiency air filtration device (HEPA H14 filter). This device was positioned on the ceiling and harnessed the Coandă effect (when air or a fluid chooses to follow the curve of a surface rather than moving in a straight line). The aim was to recommend areas for improvement to prevent contamination via airborne infection.

## CHALLENGES/REQUIREMENTS

Erlab helped AUB Santé to correctly calculate the scale of this project by preparing a risk analysis of the haemodialysis room – taking into account the high-risk areas, surface areas, volumes and occupancy levels of the rooms – in order to install the Halo 35 P air purifier and carry out a sufficient number of filtered air changes. This would ensure that the air in the room is of the highest quality.

## SOLUTION

Following the risk analysis carried out by Erlab, it was determined that a Halo 35 P with three filtered air changes per hour would be best suited to AUB Santé's requirements. **Erlab carried out an Indoor Air Quality (IAQ) test under real-world conditions** after installing a Halo in a 30 m<sup>3</sup> room with no natural ventilation that was equipped with an air vent. A particulate counting point was created every five minutes in each modality, and CO<sub>2</sub> levels were measured with and without the Halo.

The Halo standalone smart air purifier installed on the ceiling was found to be perfectly suited to AUB Santé's requirements.

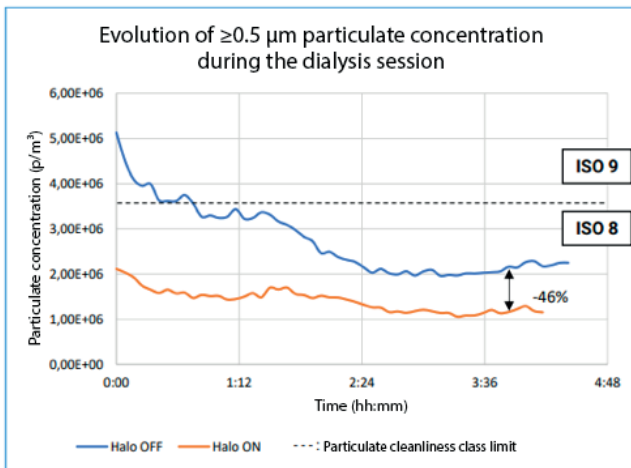
The Halo includes a large (752 mm x 402 mm x H 52 mm) HEPA H14 filter (compliant with the EN 1822 safety standard) through which it provides a very high level of filtration of aerosols larger than 0.1 microns with 99.995% efficiency. The device also complies with the recommendations of the French National Institute for Health Research (INRS) due to the presence of a pre-filter located before the HEPA filter, protecting the lifespan of the main HEPA H14 filter.

In addition, the Halo standalone air purifier **has no impact on the building's ventilation (HVAC\*)** since it is not connected to an extraction system, which reduces infrastructure costs and energy (50W energy consumption).

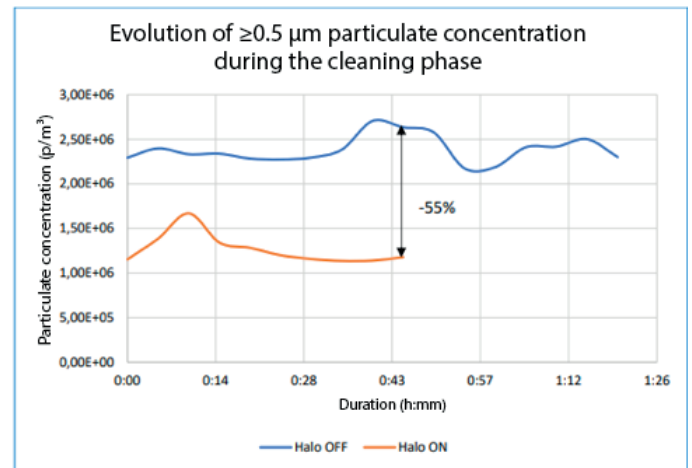
*\*Heating, ventilation and air-conditioning*



## RESULTS



Halo 35 P efficiency during the dialysis session: 46% for particles smaller than 0.5 microns.



Halo 35 P efficiency during the bio-cleaning phase between sessions: 55% for particles smaller than 0.5 microns.

The dialysis room used by the patients and dialysis technicians now undergoes a sufficient number of filtered air changes to **reduce the particulate load by up to 55%**.

The **three filtered air changes** per hour provided by the Halo 35 P **considerably reduce the risk of airborne infection** in the dialysis room. AUB Santé was therefore able to deliver a solution for managing dust levels and providing additional protection against the risk of airborne infection for the patients and dialysis technicians, while also improving the building's energy performance.

### This solution provided:

- **Control** of particulate and viral pollution in the dialysis rooms with due regard to the building's requirements and the established budget.
- **Safety** and protection for patients and dialysis technicians.
- The **measures** will also be rolled out to other **AUB Santé facilities** across Brittany.
- **Future installations will use the Halo 25 Bifiltration**, as its size is better suited to dialysis rooms.



The Erlab Research and Development laboratory

# About Erlab

Since 1968, **Erlab** has been a specialist, inventor and world leader in **ductless, zero-emission filtering fume hoods for laboratories** to provide total safety in chemical handling.

## 1 Erlab filtration

We provide technologies to protect laboratory staff from inhaling chemicals. This is made possible thanks to our **Research and Development (R&D) department**, which has continuously improved our filtration technology **for more than 50 years**. That's why, in 2009, we invented the **ERLAB ABOVE** label for tried and tested filtration technology.

## 2 The AFNOR NF X 15-211: 2009 standard

Erlab's filtration technology conforms to the **NF X 15-211: 2009 standard**, the industry's most demanding standard for molecular filtration, developed by a committee of independent scientists and specialized manufacturers.

**This text imposes performance criteria linked to:**

- Filtration efficiency
- Containment efficiency
- Air face velocity
- Documentation: **chemical listing**

## 3 The ESP programme

A set of three services included with the purchase of each device designed to ensure your safety.



**eValiQuest** Risk analysis – Determination of protection needs – Determination of ergonomic needs.



**ValiPass** Certified installation – Total safety for handling.



**ValiGuard** Ongoing monitoring – Preventative and maintenance inspections – Device reconfiguration based on protection needs – Development of handling.

## 4 Flex technology

The combination of molecular and particulate filtration technologies allows a single device to meet laboratories' protection needs. This innovation from Erlab's R&D department offers unprecedented **flexibility, versatility and value**. A single device can be reconfigured over time and easily reassigned to other applications.

## 5 Smart technology

Smart technology is a **simple and innovative** means of communication that improves safety. This technology uses a light and sound signal to indicate the user's level of protection. The advantages of the technology are:

- 1/ Light pulsation:** Real-time communication via LED light pulses intuitively alerts the user to the device's operating status.
- 2/ Simplicity:** One-touch activation.
- 3/ Detection system:** The exclusive detection system continuously monitors filtration performance.
- 4/ Built-in monitoring:** This service provides direct access to the **status, settings and history** of your device.

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