



don whitley
scientific

www.dwscientific.co.uk

Whitley Workstations HEPA Filtration



Don Whitley Scientific (DWS) can now offer the unique Whitley Internal HEPA Filtration System to provide a high degree of product/sample protection on modified atmosphere workstations. HEPA fitted workstations are ideal for use as part of a pharmaceutical manufacturing process, for the cultivation of slow-growing anaerobes, or for applications requiring complex manipulations under anaerobic conditions (ie biochemical assays).

Using innovative circulation technology, all the atmosphere in the chamber passes through the filter every four seconds, quickly creating and maintaining a particle-free environment (tested down to $0.3\mu\text{m}$ – exceeding ISO 14644 Class 3, as referenced in the Cell Tissue Culture Directive, or Class 1 of US Federal Standard 209E).

Unlike some other systems, DWS integrates the filter within the workstation. Because the warm, moist atmosphere isn't pumped to an external filter, the filter does not become saturated with condensate and thus rendered ineffective.

Although DWS workstations are positive pressure devices, this HEPA filtration system provides the highest known level of atmospheric cleanliness of any positive pressure modified atmospheric workstation. Tests have determined that aerosols of bacterial cells and spores are trapped by the system, thereby preventing the contamination of any media present in the workstation.

No need to filter incoming gas supplies.

Clean-up time after a period of activity is considerably less than the 20 minutes allowed by the standard.

Rather than use 'off-the-shelf' filters, the Whitley HEPA Filtration System uses filters designed specifically for the product in conjunction with one of the world's leading filter manufacturers.

Proof of atmospheric cleanliness can be provided on request.



www.dwscientific.co.uk

The Evidence

Tests were carried out in the DWS GLP compliant laboratories on the use of the Whitley HEPA Filtration System within an anaerobic chamber. Two Whitley Workstations were used - one fitted with HEPA filtration, one without HEPA. These tests demonstrated that the system produces a rapid and substantial reduction in bacterial contamination of the atmosphere. Atmosphere was sampled from three locations - the chamber interior, the location adjacent to the pressure relief valve outlet, and the external atmosphere adjacent to the chamber (in the operator's position). The results confirmed that no bacterial colonies were recovered from any of the sampling points after 2 minutes of the introduction of bacteria by nebulization.

The full results of these experiments are shown in the adjacent tables and the paper can be found on our website under Whitley A35 downloads.

Potential uses of a Whitley HEPA Filtered Workstation:

Use of anaerobic culture as part of a pharmaceutical manufacturing process, which would ideally be conducted under "cleanroom" conditions, ie the growth or manipulation of anaerobes used to produce a vaccine or pharmaceutical preparation.

Cultivation of slow-growing anaerobes: HEPA filtration would reduce the risk of contamination by faster growing strains.

Applications requiring complex manipulations under anaerobic conditions (for example, biochemical assays) where anaerobe cultures may be open to the ambient atmosphere for an extended period. HEPA filtration would reduce the risk of contamination under these conditions.

- **Cancer Research**
- **Neurology**
- **Cardiovascular research**
- **Stem cell work and many other types of cell culture work**

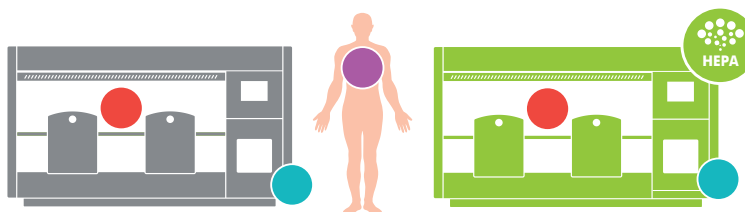


Table 1: Recovery of *K. rhizophila* colonies from standard anaerobic chamber (No HEPA)

Before nebulization	During nebulization (1.9x10 ⁸ cfu / 5 min)	After nebulization						
		0	2 min	5 min	10 min	15 min	20 min	30 min
0	≥258	≥258	≥258	≥258	≥258	≥258	≥258	≥258
0	≥258	≥258	≥258	≥258	≥258	≥258	≥258	≥258

Table 2: Recovery of *K. rhizophila* colonies from HEPA filtered anaerobic chamber

Before nebulization	During nebulization (2.1x10 ⁸ cfu / 5 min)	After nebulization						
		0	2 min	5 min	10 min	15 min	20 min	30 min
0	≥258	55	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0

Table 3: Recovery of *C. beijerinckii* colonies from HEPA filtered anaerobic chamber

Before nebulization	During nebulization (3.3x10 ⁵ cfu / 5 min)	After nebulization						
		0	2 min	5 min	10 min	15 min	20 min	30 min
0	232	8	0	0	0	0	0	0

Table 4: Recovery of *K. rhizophila* colonies from operator's position (No HEPA)

Before nebulization	During nebulization (1.9x10 ⁸ cfu / 5 min)	After nebulization						
		0	2 min	5 min	10 min	15 min	20 min	30 min
0	≥258	≥258	≥258	≥258	≥258	≥258	≥258	≥258

Table 5: Recovery of *K. rhizophila* colonies from operator's position (HEPA)

Before nebulization	During nebulization (1.2x10 ⁸ cfu / 5 min)	After nebulization						
		0	2 min	5 min	10 min	15 min	20 min	30 min
0	0	0	0	0	0	0	0	0

Numbers of colonies recovered are all from 100 litre air samples / Upper detection limit for air sampler = 258 colonies

Models Available

A07040	Whitley A35 HEPA Workstation	240V
A07041	Whitley A35 HEPA Workstation	110V
A06060	Whitley H35 HEPA Hypoxystation	240V
A06061	Whitley H35 HEPA Hypoxystation	110V
A06050	Whitley H45 HEPA Hypoxystation	240V
A06051	Whitley H45 HEPA Hypoxystation	110V

In the interests of a policy of continuous product improvement the company reserves the right to alter product specifications without prior notice. All rights reserved. © 2014 Don Whitley Scientific Ltd.

Don Whitley Scientific Limited

14 Otley Road, Shipley, West Yorkshire, BD17 7SE, England. Telephone: +44 (0)1274 595728 Fax: +44 (0)1274 531197
Website: www.dwsscientific.co.uk Email: info@dwsscientific.co.uk