The Whitley Internal HEPA Filtration System

Background Information

HEPA is an acronym for High Efficiency Particulate Air, or High Efficiency Particulate Absorption, and is a type of filter.

To qualify as a HEPA filter, a filter must meet defined international standards of efficiency. Several international standards exist. HEPA filters must remove extremely high percentages of any particles above a defined size contained in the atmosphere passing through them.

HEPA filters do not function in the same way as sieve filters. They consist of a mat of randomly arranged fibres.

The Cell Tissue Culture Directive (CTCD) dictates the conditions under which mammalian cells should be handled. The CTCD refers to ISO 14644-1. We have selected to work to the requirements of this standard. Within this standard there are nine classification levels for air quality. Class 9 being the lowest standard, Class 1 being the highest standard.

We have achieved levels of atmospheric cleanliness inside our workstations exceeding the requirements of ISO 14644-1 Class 3. We can provide proof of atmospheric cleanliness.

A very important aspect of the HEPA filter performance is that particulate levels must return to the standard defined by a specific class within 20 minutes of the conclusion of a period of activity. Our workstations meet this requirement by a considerable margin. Our competitors make no similar claims.

All DWS workstations are fitted with a fan or fans that circulate the internal atmosphere continuously. This contributes to even temperature distribution in all our workstations and rapid catalytic reaction in our anaerobic workstations. Constant movement of the atmosphere also ensures any internal particulate matter will be in motion.

Carefully selected HEPA filters are placed within the internal atmospheric flow path. Powerful fans compensate for the restriction in flow that occurs naturally as a consequence of introducing any filter

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The effect of powerful fans and suitable particulate filtration ensures that, over time, all particulate matter below 5 microns is captured within the filter and prevented from further movement.

As far as we can determine the performance of the Whitley HEPA Filtration System is significantly superior to that provided by any competitor products.

There are two principle reasons for this:

- Our competitors draw atmosphere out of the workstation, pass it through a HEPA filter and return the atmosphere to the workstation. This approach greatly increases the time it takes to clean the atmosphere and the HEPA filter quickly becomes saturated due to a build up of moisture – and is rendered ineffective.

The Whitley System utilises an internal HEPA filter. The atmosphere is cleaned quickly and continuously because the atmosphere passes through the HEPA filter every 4 seconds. The Whitley HEPA filter does not get wet.

- Our competitors use off-the-shelf filters.

We have worked with one of the world's leading filter manufacturers to develop a filter specifically tailored to suit our application.

Our workstations are designed to provide the highest possible atmospheric quality for product protection and working conditions. We make no claims for user protection.

We are confident that our thorough and painstaking approach to product development has resulted in a superior HEPA filtration system for modified atmosphere workstations.

The Whitley H35 HEPA Hypoxystation is the first Whitley Workstation to be equipped with the Whitley HEPA Filtration System. In every other respect this product has a similar specification to the Whitley H35 Hypoxystation and was released in the last quarter of 2013.

Our product development plans for 2014 include provision to create additional HEPA workstations. At least one of these products will have sufficient internal height to accommodate microscopes of interest to research scientists.

We have commenced a test programme to validate bacterial containment, which will be of interest to some of our customers, particularly those cultivating anaerobes. These tests will determine whether aerosol contaminants can be contained by our HEPA filtration system, thereby preventing the contamination of liquid media present in a workstation.

Independent verification and validation testing of our HEPA system will be sought.