

AstroSorb-V

AstroSorb®-V

GAS-PHASE **V-BANK** FILTER FOR MAKE-UP AIR

Excellent Performance Against Airborne Molecular Contamination (AMC)

The AstroSorb-V is a chemical filter designed to remove airborne molecular contamination (AMC) in makeup air units (MAUs), recirculating air units (RAUs), or outside air conditioning (OAC) units. Available in all standard sizes, the AstroSorb-V uses proprietary chemical filtration media to target specific AMC or multiple AMC in semiconductor and microelectronic manufacturing cleanrooms.

Construction

The AstroSorb-V chemical filter is constructed with an acrylonitrile butadiene styrene (ABS) frame as standard. Eco EPDM gasketing is standard, with other materials available as may be specified. Filter construction is with non-emitting materials to ensure that cleanroom environmental conditions are met.

AstroSorb-V filters consist of filter elements assembled in a V-bank configuration. The header and cell sides provide a sturdy construction that resists damage during shipping, handling, and operation. Constructed of ABS, the AstroSorb-V filter is fully incinerable. The pleated filter elements provide a high media area and low resistance. Standard and custom sizes are available.

Media

The AstroSorb-V filter is a chemical air filter composed of pleated adsorbent-loaded nonwoven fiber (ALNF) media designed to remove AMC that may be introduced through MAUs, RAUs, and OACs that can affect critical semiconductor fabrication processes and manufacturing applications.

Depending on the target gases, the type and quantity of adsorbents in the media, as well as the pleat configuration, can be adjusted to provide a filter that meets the specific the customer's specific AMC control requirements.

The adsorbent materials used can be tailored to suit specific AMC control applications:

- MA for Acids; a corrosive gas that reacts chemically as an acid (an electron acceptor).
- MB for Bases; a corrosive gas that reacts chemically as a base (an electron donor).
- MC for Condensables; a contaminant whose boiling point is typically above room temperature and is capable of condensing on a (wafer) surface.
- MD for Dopants; a contaminant that modifies the electrical properties of (semiconductor) material.

Product Overview

- Removal of airborne molecular contamination in cleanroom environments. Target gases: ammonia and amines, acids (HF, HCl, Cl₂, NO_x, SO_x, H₂S), VOCs (toluene, PGME, PGMEA, siloxanes), ozone, others
- High adsorption capacity and high removal efficiency
- Single or multi-sorbent filters are available
- Constructed of cleanroom-compatible materials that do not emit dopants, metals, organics, or other molecular contaminants at levels that would pose a risk to cleanroom processes
- Corrosion-free, non-metal construction
- Energy efficient mini-pleat design

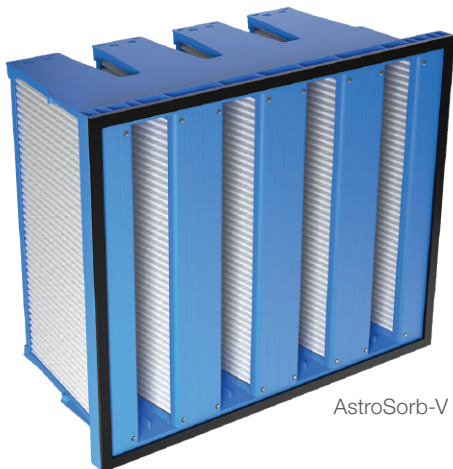
Typical Applications:

- Wafer manufacturing
- Semiconductor device fabrication
- Microelectronics component assembly
- TFT/LCD manufacturing
- LTPS OLED manufacturing
- Hard disk drive manufacturing
- Biopharmaceuticals
- Genetic engineering

Additional Features

The AstroSorb-V filter is suitable for retrofit into existing MAUs, RAU, and OACs for specification into new construction projects, or for direct replacements of 12"-deep, single header filters.

Each filter is individually sealed in a polybag to prevent exposure to fugitive gaseous contaminants prior to installation at customer's site.



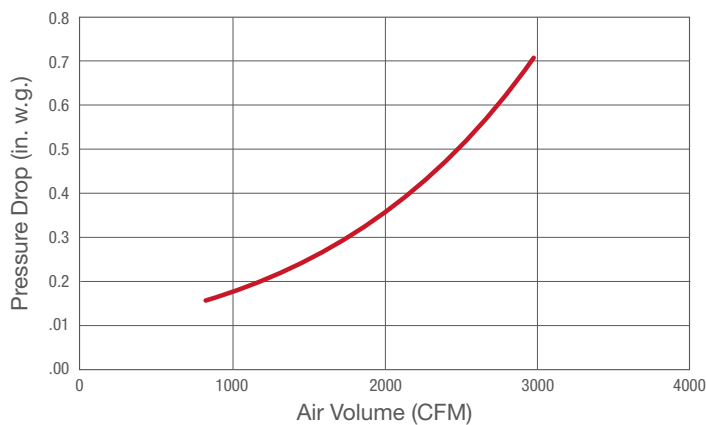
AstroSorb-V



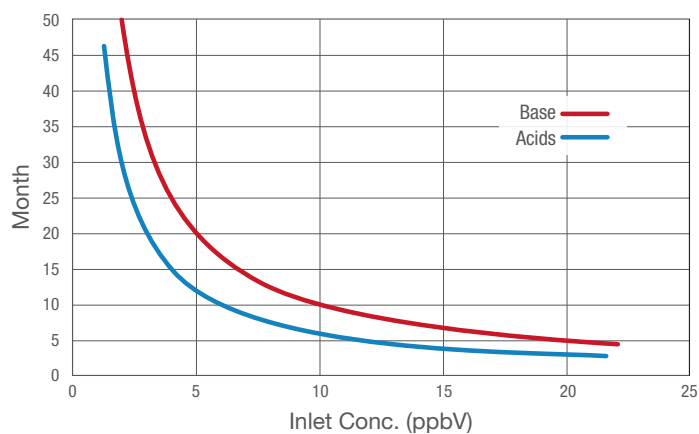
AstroSorb-V Filters: Configured in Frame

Performance Data

Pressure Drop



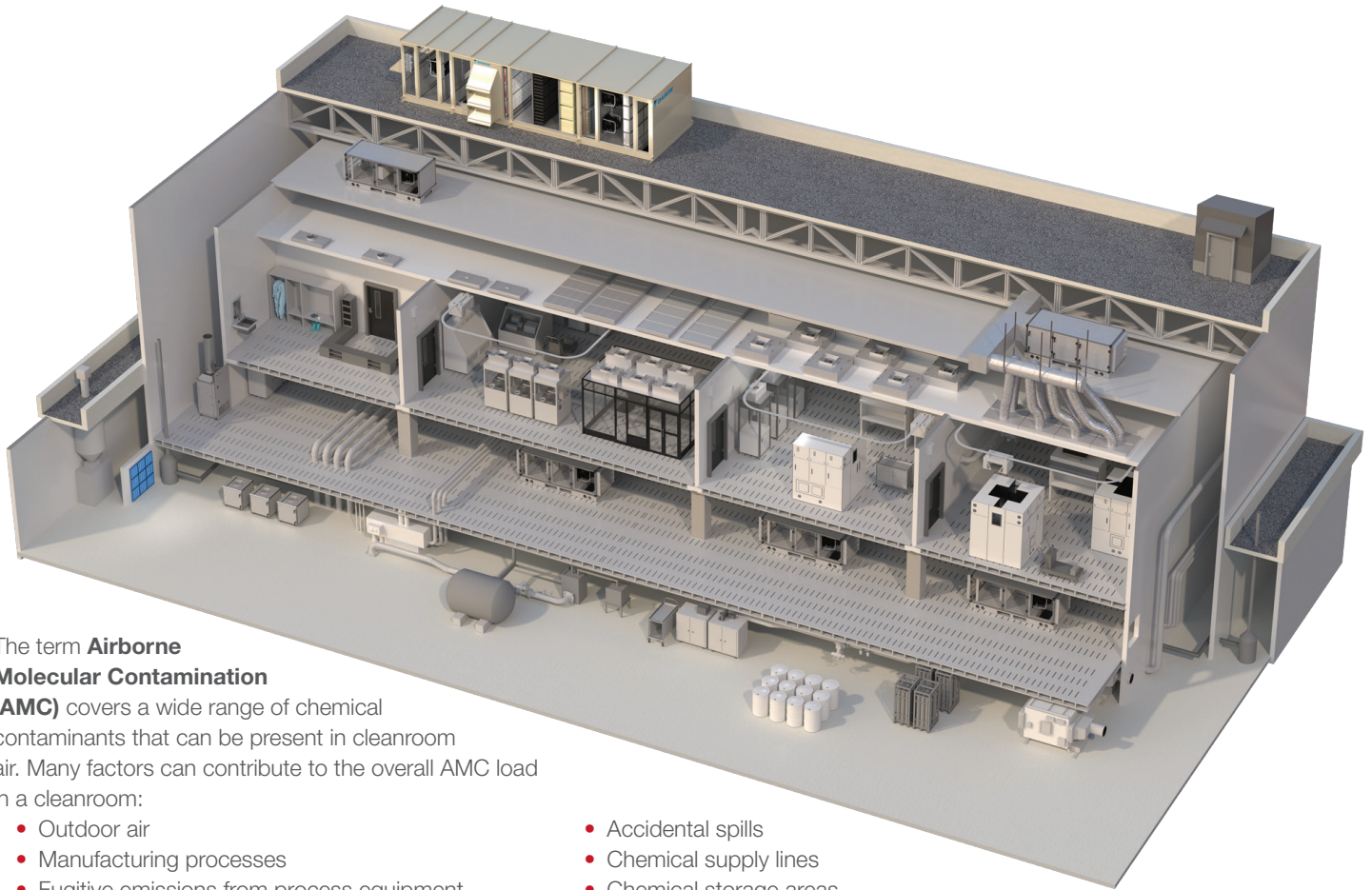
Lifespan Curve



General Specification

V-Bank Filter for Make-up Air

Filter type	V-Bank Type
Application	Make-Up Air Unit (MAU)
Adsorbent	Activated Carbon Impregnated Activated Carbon Ion Exchange Resin
Non-woven	Polyethylene Terephthalate (PET)
Binder	Hot Melt
Frame	Plastic (ABS)
Sealant	Urethane
Gasket	Eco EPDM
Temperature (°F)	59 ± 5
Humidity (%)	75 ± 5
Standard Size (in)	24 x 24 x 12 (nom.)
Weight (lb)	31 ± 4
Typical Air Flow Rate (CFM)	0 – 2,900
Target Gases	NH ₃ , Amines Acids (HF, HCl, Cl ₂ , NO _x , SO _x , H ₂ S) VOCs (Toluene, PGMEA, Siloxane) O ₃

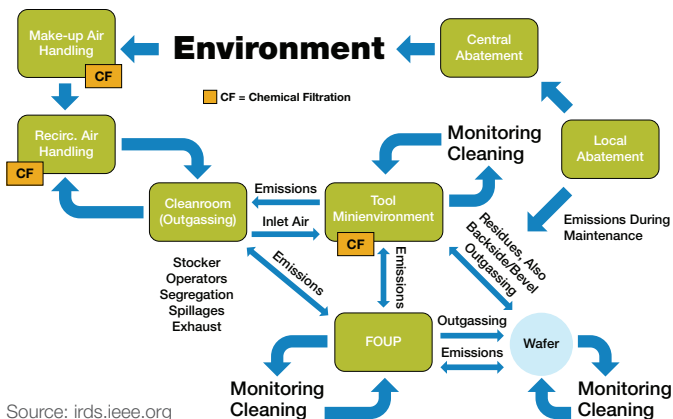


The term **Airborne Molecular Contamination (AMC)** covers a wide range of chemical contaminants that can be present in cleanroom air. Many factors can contribute to the overall AMC load in a cleanroom:

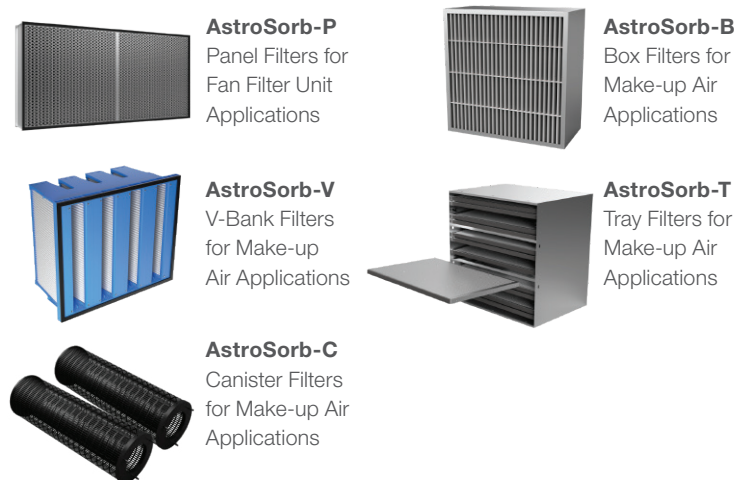
- Outdoor air
- Manufacturing processes
- Fugitive emissions from process equipment
- Off-gassing from building and construction materials
- Cross-contamination between manufacturing areas
- Accidental spills
- Chemical supply lines
- Chemical storage areas
- Bioeffluents from cleanroom personnel

AMC can be detrimental to many processes and products and can also represent considerable health hazards to personnel.

International Roadmap for Devices and Systems (IRDS 2023)



AAF's complete line of AMC filtration solutions



Meeting AMC Requirements: The Total AMC Concept

AAF is involved with ongoing updates to the IRDS in general and more specifically on the topic of AMC control. **The Total AMC Concept** takes into account sources of AMC as well as where local control is required and AAF solutions should be applied.



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