

# AstroSorb®-T



AstroSorb-T

## GAS-PHASE **TRAY-TYPE** FILTER FOR MAKE-UP AIR

### Excellent Performance Against Airborne Molecular Contamination (AMC)

The AstroSorb-T is a chemical filter designed to remove airborne molecular contamination (AMC) in makeup air units (MAUs), and outside air conditioning (OAC) units. The AstroSorb-T is a tray-type filter element that is filled with a bulk granular chemical filtration media and installed in a front/rear access cell. Various proprietary chemical filtration media can be used to target specific AMC or multiple AMC in semiconductor and microelectronic manufacturing cleanrooms.

### Construction

The AstroSorb-T chemical filter is constructed using either anodized aluminum or stainless steel as standard options. 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-T filters consist of media-filled trays installed in a V-bank configuration in an anodized aluminum / stainless steel frame that can be configured for either front or rear access of the AstroSorb-T trays.

### Media

The AstroSorb-T filter can be filled with any of AAF's granular gas-phase media products designed to remove AMC that may be introduced through MAUs and OACs that can affect critical semiconductor fabrication processes and manufacturing applications.

Depending on the target gases, single or blended adsorbent media may be used in the trays to provide a filter system 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, Cl<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, H<sub>2</sub>S), 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
- Anodized aluminum or stainless steel construction
- Eight trays per 24" x 24" cell

### 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-T filter is suitable for retrofit into existing MAUs and OACs, for specification into new construction projects, or for direct replacements of competitive tray-type AMC filters.

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



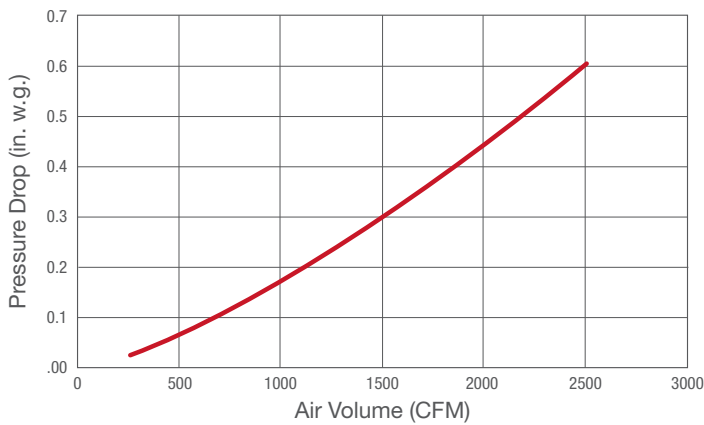
AstroSorb-T



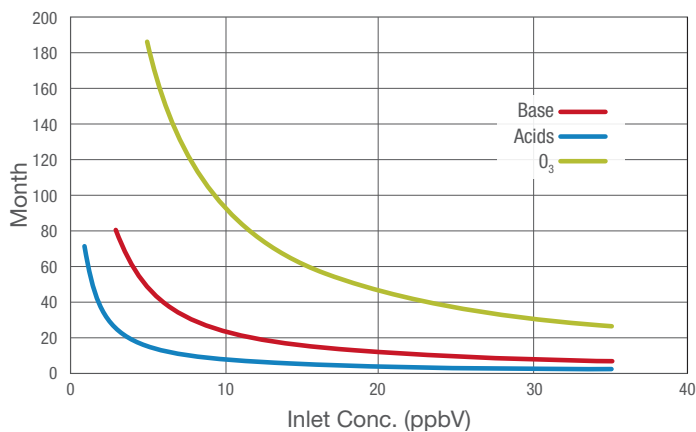
AstroSorb-T Filters  
Configured in Frame

### Performance Data

#### Pressure Drop



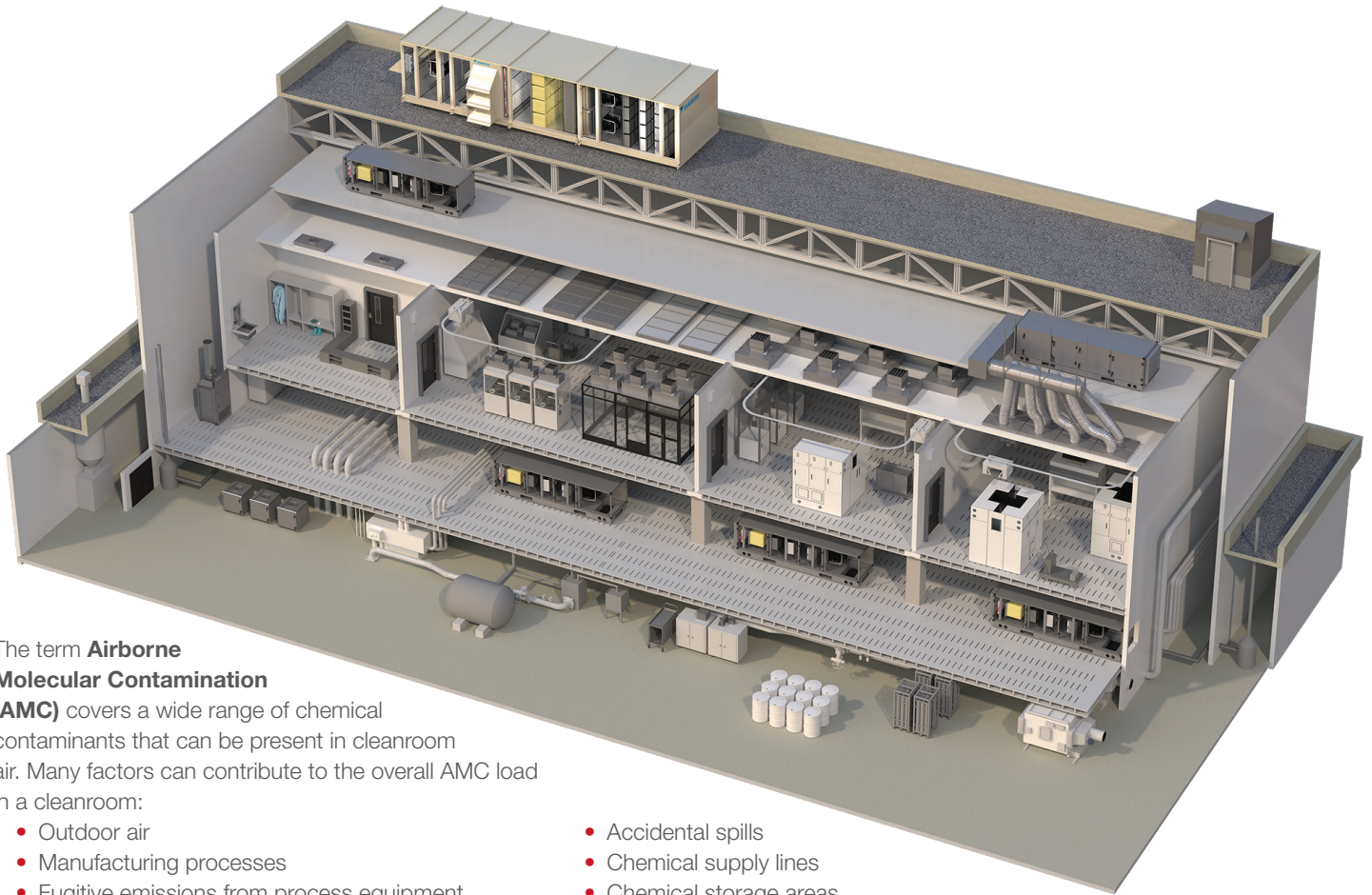
#### Lifespan Curve



### General Specification

#### Tray-Type Filter for Make-up Air

Filter type	Tray Type
Application	Make-Up Air Unit (MAU)
Adsorbent	Activated Carbon Impregnated Activated Carbon Ion Exchange Resin
Non-woven	Polyethylene Terephthalate (PET)
Binder	-
Frame	Stainless Steel/Aluminum
Sealant	-
Gasket	Eco EPDM
Temperature (°F)	59 ± 5
Humidity (%)	75 ± 5
Standard Size (in)	24 x 24 x 18 (nom.)
Weight (lb)	103 ± 10 (Tray of 12 pieces) 146 ± 10 (Tray of 12 pieces + Box) Tray: 10.3 Tray (12 pieces): 103 Tray (12 pieces + box): 146.3
Typical Air Flow Rate (CFM)	0 - 2,500
Target Gases	NH <sub>3</sub> , Amines Acids (HF, HCl, Cl <sub>2</sub> , NO <sub>x</sub> , SO <sub>x</sub> , H <sub>2</sub> S) VOCs (Toluene, PGMEA, Siloxane) O <sub>3</sub>

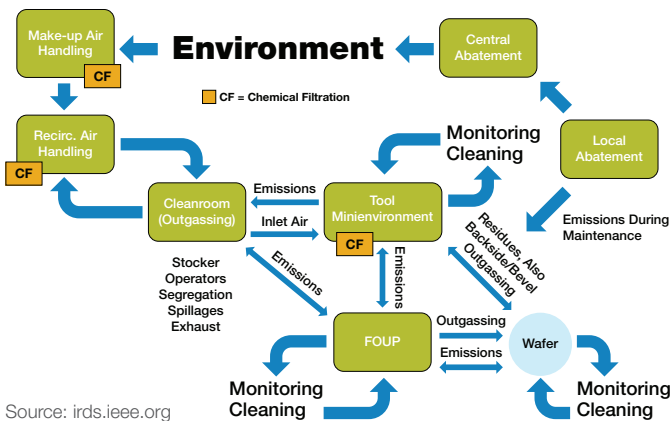


The term **Airborne Molecular Contamination (AMC)** covers a wide range of chemical contaminants that can be present in cleanroom air. Many factors can contribute to the overall AMC load in a cleanroom:

- 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)

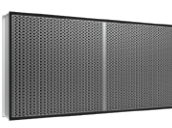






Source: irds.ieee.org

### 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.

### AAF's complete line of AMC filtration solutions

	<b>AstroSorb-P</b> Panel Filters for Fan Filter Unit Applications		<b>AstroSorb-B</b> Box Filters for Make-up Air Applications
	<b>AstroSorb-V</b> V-Bank Filters for Make-up Air Applications		<b>AstroSorb-T</b> Tray Filters for Make-up Air Applications
	<b>AstroSorb-C</b> Canister Filters for Make-up Air Applications		



AAF International has a policy of continuous product research and improvement. We reserve the right to change design and specifications without notice.