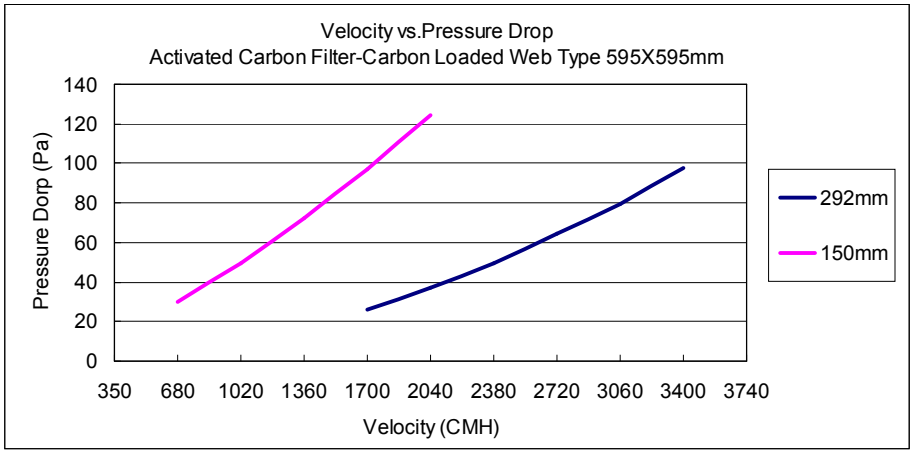
Carbon Load Web Type Activated Carbon Air Filter

Various media types are available for different chemicals selection to achieve the best efficiency.

1. According to pollutions to select appropriate absorbent material.
2. High Removal Efficiency.
3. Lower Pressure Drop for reducing blower's load.
4. Lower Dust Emission
5. Low Volatile Gases
6. Easy of installation and with light weight.
7. Reduce the number of replacement times, ensure the cleanliness of process environment.
8. Longer Life Span.



Media

Type	Description		
Media	**853（2750）** **Remove** VOCs	**147（2752）** **Remove** ammonia and amines	**875（2751）** **Remove Acid**
Media Thickness（mm）	**2.2**	**2.2**	**2.2**
Basis Weight（g/m2）	**600**	**600**	**600**
Using Guidance	**Boron**	**NMP**	**Acid**
	Ozone	**HMDS**	**H_2SO_4**
	H_2S	**Ammonia**	**Ozone**
	SO_2	**Amines**	**HCl**
	NO_2	**Monoethylamine**	**HF**
	Paint Odor	**Morpholine**	**H_2S**
	VOC	**Cyclohexylamine**	**SO_2**
	Food Aromas	**Dimethylamine**	**NO_2**
	Commo Outdoor Pollutants	**Trimethylamine**	**VOC**
	Tobacco Smoke Odors	**Diethylamine**	
		Animal Odor	
		Bathroom Smells	

*853(2750) – Used for removing VOC_S, SO_2, NO_2, ozone, H_2S. The 853 media is most effective for VOC_S, and it has considerable capacity for common outdoor pollutants such as SO_2, NO_2, ozone, H_2S. The 853 media is also very effective for removing boron (e.g., emission from conventional HEPA/ULPA filters)

*147(2752) – Used for removing ammonia and amines (nitrogen-containing organic compounds such as NMP, monoethylamine, morpholine, cyclohexylamine, dimethylamine, trimethylamine, diethylamine, HMDS and etc.)

*875(2751) Media - Used to remove acids such as HCI, HF, H_2SO_4, and is also very effective for removing SO_2, NO_2, ozone, H_2S. This medial is better than 853 media.

Both 147 and 875 media can remove VOC_S. However, the life span of 147 media is reduced to 1/2 as compared to 853 media.

Frame:
5-7/8" & 11-1/2" thickness is available for Aluminum, Galvanized steel and Stainless Steel.
2" & 4" thickness is available for Paper, Aluminum, Galvanized Steel and Stainless Steel.

Header Design: Box Type, Single/Double Header.

Performance Parameter	Carbon Slurry Coated Type Activated Carbon Filter	Tray Type Activated Carbon Filter	Honey-Comb Type Activated Carbon Filter	Carbon Loaded Web Type Activated Carbon Filter
Low Pressure Drop	+	+ or -	+ or -	+
Weight of Activated Carbon	-	++	++	+++
Optimal Activated Carbon Size	+	-	+	++++
Overall Adsorption Efficiency	---	+	+	+++
Low Dust	+	--	-	++
Pleated Ability	+	N/A	N/A	++++
Easy of Replacement	+	--	+	+

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Activated Carbon Filter Performance Data - Carbon Loaded Web Type

Nominal Size (W*H*D) (inch)	Actual Size (W*H*D) (mm)	Rated Capacity (CMH)	Initial Resistance (Pa)	Remove Efficiency (%)
12*24*6	289*595*150	1700	100	Depending on field condition
20*24*6	492*595*150	1425		
24*24*6	595*595*150	3400		
12*24*12	289*595*292	1700	87	
20*24*12	492*595*292	2850		
24*24*12	595*595*292	3400		

*** Special Sizes are available upon request.**

Material and Service Conditions

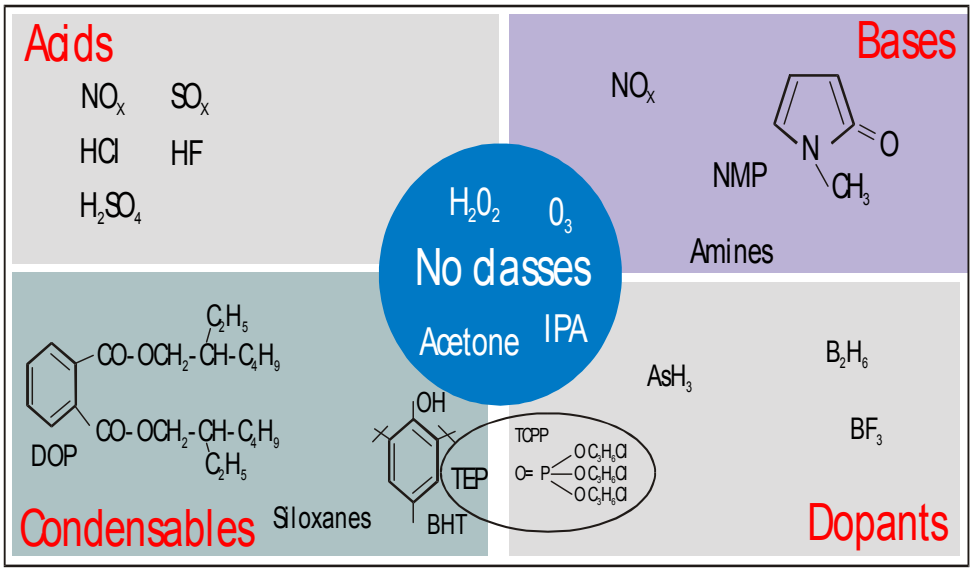
Type		Description
Construction	Media	Non-Woven + Activated Carbon
	Frame Material	Metal Frame
	Frame Type	Box Type, Single/Double Header Type
	Support Grid	Separator
	Sealant	PU BASE
	Packing Material	Neoprene Rubber

1. Four main techniques for controlling odor and gas contaminants: Gas Mask, Combustion, Ventilation and Removal.
2. Granular Media is used for controlling gas contaminants by Adsorption and Oxidation.
3. Chemical Filter can be used to remove molecular contaminants by Adsorption and Oxidation.

Adsorption: When gaseous or liquid molecules reach adsorbent surface but without any chemical reaction, the phenomenon is called physical adsorption or physisorption.

4. Sorption: When gaseous or liquid molecules reach adsorbent surface and happen chemical reaction, the phenomenon is called Sorption.
5. The bowling Point of adsorptive materials, vapor pressure and active are the main factor affecting the initial efficiency. The materials which boiling point higher than 100 ℃, will be in the liquid state at room temperature, and is easily to be adsorbed and condensed in the adsorbent surface.
6. In molecular contaminant system, initial contaminant removal efficiency is not depending on particle weight, size, total surface area or carbon activity. Two important parameters for determining initial efficiency is the total surface area of chemicals and absorbents.
7. The surface area increased when the dimensions of carbon are getting smaller. Particle size can be very small, even though it just becomes carbon dust. It also creates problems of escaping into the air, or due to packing tightly and causes high pressure drop.
8. Temperature also can affect adsorption efficiency. The higher the temperature the lower the adsorption efficiency. Moisture will occupy carbon's adsorption surface, therefore adsorption efficiency is poor in wet weather (like rainy day).
9. For Material with small molecular weight or boiling point lower than ambient temperature, they cannot condensate as liquid; thus cannot attach on the surface of adsorbent, and they will be oxidized in air or substituted by other materials on the surface of adsorbent.

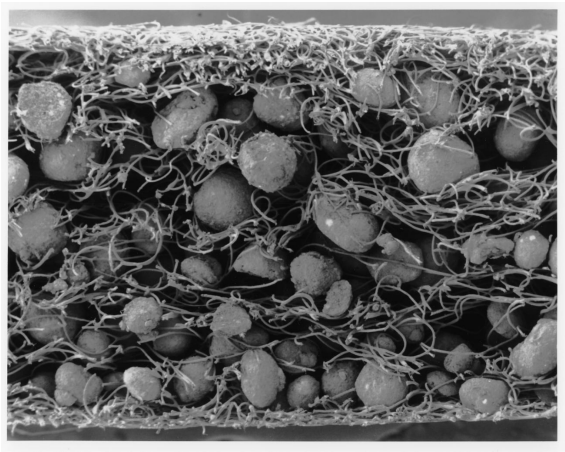
Typical Compounds of Class A, B, C, D (according to SEMI F21-95)

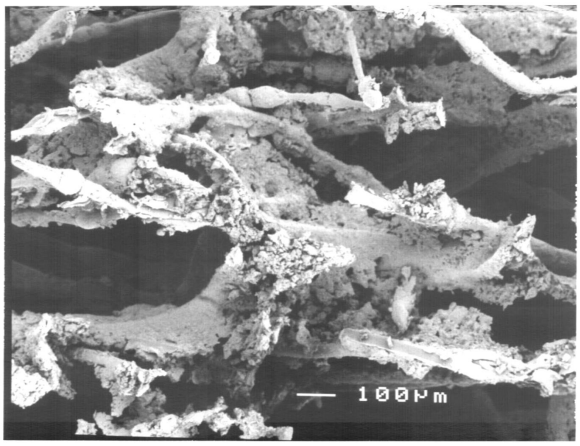


The classifying method of AMC (Airborne Molecular Contamination) is the organization of SEMI (Semiconductor Equipment and Materials International) bases on SEMI F 21-95 to classify the AMC gaseous pollutants. Gaseous pollutant is including of Acids, Bases, Condensables and Dopants.

Classification	Composition
MA, Acids Corrosive gases which react chemically as acids and play a role of electron acceptor. The intensity of reaction is depending on hydrogen ion concentration.	**Hydrochloric Acid**
	Hydrofluoric Acid
	Nitric Acid
	Sulfuric Acid
	Phosphoric Acid
	Acetic Acid
	Nitrogen Dioxide
	Sulfur Dioxide
	HF
	HCl
	HNO_3
	H_3PO_4
	HBr

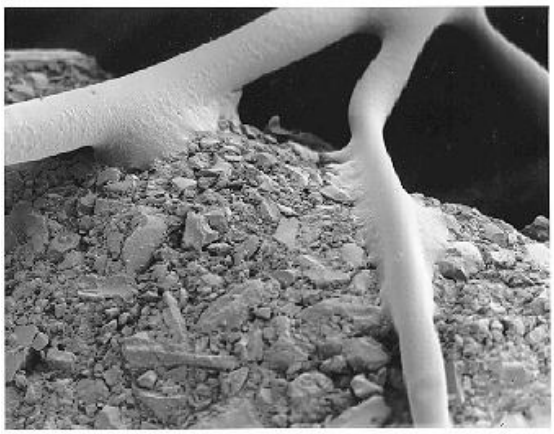
Carbon Slurry Coated Type vs. Novel Carbon-Loaded Nonwoven Type





- **3-D spaced placement and immobilization of functional particles**
- **Maximization of accessibility to particles**

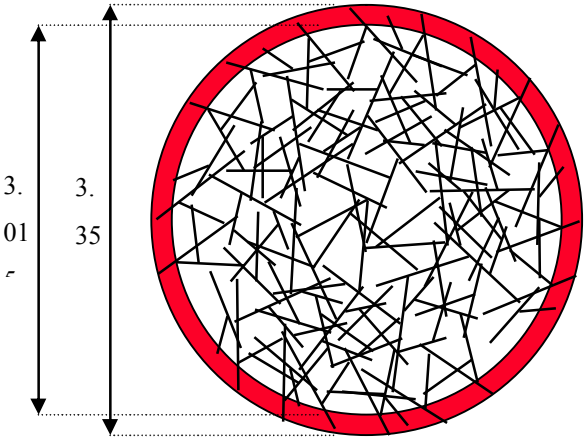
Novel Carbon-Loaded Nonwoven Technology



500 x magnification **100 x magnification**

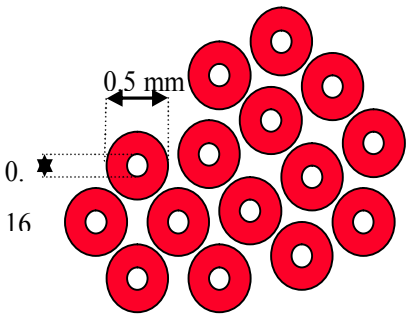
- **Fiber-to-fiber bonding, fiber-to-particle bonding (no adhesive)**

Minimal cover of the particle surface



6 Mesh Particle

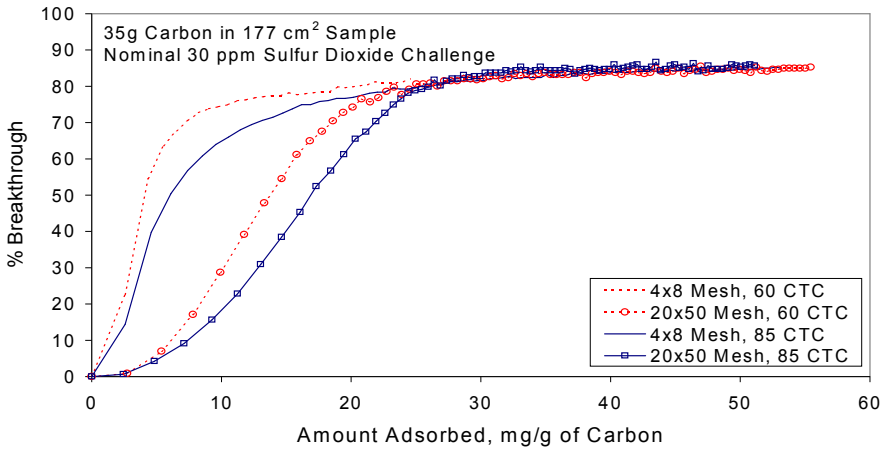
- Penetration to 5% Depth From Surface Uses 27% of Carbon Volume



32 Mesh

- Takes 300+ Particles To Get Equal Weight
- This Gives 6x Outside Surface Area

SO_2 Breakthrough vs. Particle Size



Impregnation Effect on SO_2 Breakthrough