



ACTIVATED CARBON FILTERS

consists of various non-woven medias which have been impregnated with finely ground particles of activated carbon. This filter medium is ideal for removing odors and air-borne contaminants, particularly when used in:

(1) Residential

- Room air cleaner filters
- Vacuum cleaner filters
- Central air-conditioner filters
- Furnace filters
- Electronic air cleaner filters

(2) Commercial*

- Commercial HVAC filters
- Laser printers/copier filter
- Commercial air filters
- Electrical equipment filters for ozone removal

Includes but is not limited to airports, convention centers, lounges, restaurants, geriatric health care facilities, banks, hospitals, print shops, bowling alleys and gymnasiums.

(3) Pet care products

- Aquarium filters
- Enclosed pet box filters

(4) Other Uses

- Vehicle air filtration systems
- Chemical warfare suits
- Respirators/face masks
- Paint fume filtration systems
- Refrigerator/freezer filtration systems
- Hospital air purification systems

By using finely ground activated carbon greatly increases the available surface area for adsorption over granular carbon. This the re-fore facilitates shorter dwell times and higher operative velocities, which in most applications, will eliminate the need to overdesign when using granular carbon.

Various substrates are available in which can be provided in bulk rolls or fabricated into framed units. This flexibility allows for fabrication to meet a wide variety of requirements.

AIRFLOW RESISTANCE TABLE

NOMINAL THICKNESS	MEDIA	100 FPM	150 FPM	200 FPM	250 FPM	300 FPM	350 FPM
1/8"	L00100	.015 - .024	.027 - .044	.046 - .067	.077 - .090	.091 - .120	.119 - .155
	L00200	.023 - .041	.044 - .071	.074 - .105	.114 - .145	.138 - .201	.183 - .275
1/4"	L00100	.023 - .043	.039 - .074	.067 - .105	.098 - .135	.118 - .184	.150 - .236
	L00200	.046 - .053	.083 - .092	.130 - .140	.180 - .190	.240 - .261	.310 - .330
1/2"	I05100	.019 - .036	.036 - .064	.064 - .092	.093 - .119	.116 - .159	.147 - .206
	I05200	.026 - .054	.051 - .095	.087 - .134	.126 - .181	.155 - .259	.203 - .340
5/8"	I05100	.022 - .043	.042 - .076	.067 - .108	.098 - .141	.119 - .188	.153 - .255
	I05200	.029 - .068	.059 - .117	.096 - .183	.130 - .260	.165 - .360	.211 - .453

NOTE: Results of airflow testing are in inches of water column.

Classified by Underwriters Laboratories a Class 2 media as to flammability.

All substrates can be impregnated to a variety of impregnation densities (as a percentage of the base media's weight).

Many of the products can be manufactured with UL approvals.

Non-woven substrates are available in nominal thicknesses of 1/8", 1/4" and 5/8"

Effective Levels of Activated Carbon Adsorption

This chart has been developed to relay general activity information of activated carbon and should not be used alone for accurate filter design purposes. This information should be helpful as you initially search for the optimum solution to your filtering needs.

As you review this chart, please note the following facts:

- Activity is a term used to describe a standard test which determines the effective adsorptive capacity of a sample of activated carbon with a given substance.

- Generally, the adsorptive capacity of any activated carbon is higher for adsorbates (substances) of increasing molecular weight and boiling points.

- The effective life of activated carbon depends on the type and quantity of the compound (substances) to be adsorbed and coming in actual contact with the activated carbon (dwell time).

- The Substances listed here encompass specific chemical compounds, classes of compounds and mixtures of variable composition. The levels assigned to specific substances represent "typical" adsorptive effectiveness. Actual applications using activated carbon to adsorb the same substances may vary depending on numerous environmental conditions.

- The numerical levels assigned here represent the following:

4. High adsorptive capacity with substance listed - activity of activated carbon typically will run 20% or more of the activated carbon's weight

3. Satisfactory adsorptive capacity with substance listed - activity of activated carbon typically will run 10% or more of the activated carbon's weight.

2. Borderline adsorptive capacity with substance listed - Activity of activated carbon typically will run 5% or more of the activated carbon's weight.

1. Low adsorptive capacity with substance listed - activity of activated carbon typically will run less than 5% of the activated carbon's weight.

SUBSTANCE	MOLECULAR WEIGHT	APPROX. ACTIVITY LEVEL	REMARKS
Acetylene Series			
Acetylene	26.04	1	Welding, Cutting
Propyne	40.06	2	
Butyne	54.09	2	
Pentyne	68.11	3	
Hexyne	82.14	3	
Ethylene Series			
Ethylene	28.05	1	illuminating Gas, Anesthetic
Propylene	42.08	2	Coal Gas
Butylene	56.10	2	
Pentylene	70.13	3	
Hexylene	84.16	3	
Heptylene	98.18	4	
Octylene	112.21	4	
Benzene Series			
Benzene	78.11	4	Benzol, Paint Solvent & Remover
Toluene	92.13	4	Manufacture of TNT
Xylene	106.16	4	Solvent
Other Substances			
Isoprene	68.11	3	Solvent
Turpentine	136.23	4	
Naphthalene	128.16	4	Moth Balls
Phenol	94.11	4	Plastic Ingredient
Methyl Alcohol	32.04	3	Wood Alcohol
Ethyl Alcohol	46.07	4	Grain Alcohol
Propyl Alcohol	60.09	4	
Butyl Alcohol	74.12	4	
Amyl Alcohol	88.15	4	Fusel Oil
Cresol	108.13	4	Ingredient of Creosote, Wood Preservative
Menthol	156.26	4	
Formaldehyde	30.03	1	Disinfectant, Plastic Ingredient
Acetaldehyde	44.05	2	
Propionaldehyde	58.08	3	
Acrylaldehyde	56.06	3	Acrolin, Burning Fats
Butyraldehyde	72.10	4	
Valericaldehyde	86.13	4	
Crotonaldehyde	70.09	4	Solvent, Tear Gas

SUBSTANCE	MOLECULAR WEIGHT	APPROX. ACTIVITY LEVEL	REMARKS
Methane Series			
Methane	16.04	1	illuminating Gas
Ethane	30.07	1	illuminating Gas
Propane	44.09	2	Heating Gas
Butane	58.12	2	Heating
Pentane	72.15	3	Light Naphtha
Hexane	86.17	3	Gasoline
Heptane	100.20	4	Gasoline
Octane	114.23	4	Gasoline
Nonane	128.25	4	Kerosene
Decane	142.28	4	Kerosene

SUBSTANCE	MOLECULAR WEIGHT	APPROX. ACTIVITY LEVEL	REMARKS
Formic Acid	46.03	2	
Lactic Acid	90.08	3	Sour Milk
Acetic Acid	60.05	4	Vinegar
Propionic Acid	74.08	4	
Butyric Acid	88.10	4	Sweat, Body Odors
Valeric Acid	102.13	4	Sweat, Body Odors
Acrylic Acid	76.06	4	
Caprylic Acid	144.21	4	Animal Odors
Pamitic Acid	256.42	4	Palm Oil
Methyl Acetate	74.08	3	Solvent
Ethyl Acetate	88.10	3	Lacquer Solvent
Propyl Acetate	102.13	4	Lacquer Solvent
Butyl Acetate	116.16	4	Lacquer Solvent
Amyl Acetate	130.18	4	Lacquer Solvent
Acetone	58.08	3	Solvent
Methyl Ethyl Ketone	72.10	4	Solvent
Diethyl Ketone	86.13	4	Solvent
Dipropyl Ketone	114.18	4	Solvent
Methyl Ether	46.07	3	
Ethyl Ether	74.12	3	Ether-Medical
Propyl Ether	102.17	3	
Butyl Ether	130.23	4	
Amyl Ether	158.28	4	
Methyl Acrylate	86.09	4	Apt to Polymerize
Ethyl Acrylate	100.11	4	Apt to Polymerize
Methyl Mercaptan	48.10	4	Garlic, Onion, Sewer
Ethyl Mercaptan	63.13	4	Garlic, Onion, Sewer
Propyl Mercaptan	76.15	4	Garlic, Onion, Sewer
Eucalyptol	154.25	4	
Camphor	152.23	4	
Methyl Chloride	50.49	3	Refrigerant
Ethyl Chloride	64.52	4	Local Anesthetic
Propyl Chloride	78.54	4	Local Anesthetic
Butyl Chloride	92.57	4	Local Anesthetic
Methylene Chloride	84.94	4	
Chloroform	119.39	4	Anesthetic, Solvent
Carbon Tetrachloride	153.84	4	Cleaning Fluid, Solvent
Iodoform	393.78	4	Antiseptic
Phosgene	98.92	4	Poison Gas, Reagent
Pyridine	79.10	4	Burning Tobacco
Indole	117.14	4	Excreta
Skatole	131.17	4	Excreta
Nicotine	162.23	4	Tobacco
Nitrobenzene	123.11	4	Oil of Bitter Almonds, Oil of Mirbane

SUBSTANCE	MOLECULAR WEIGHT	APPROX. ACTIVITY LEVEL	REMARKS
Urea	60.06	3	Urine
Uric Acid	168.11	4	Urine
Putrescine	88.15	4	Decaying Flesh
Chlorine	70.91	3	May Partially Hydrolyze To HCL
Bromine	159.83	4	May Partially Hydrolyze to HBr
Iodine	253.84	4	May Partially Hydrolyze to HI
Hydrogen Fluoride (Hydrofluoric Acid)	20.01	1	Approximate Activity Levels Given Are for Dry Substances. In Presence of Water, Values are Approximately Doubled
Hydrogen Chloride (Hydrochloric Acid)	36.47	2	
Hydrogen Bromide	80.92	2	
Hydrogen Iodide	127.93	2	
Nitrogen Dioxide	46.01	2	May Partially Hydrolyze to HNO ₃
(Nitrogen Tetraoxide)	(92.02)		
Nitric Acid	63.02	2	
Sulfur Dioxide	64.06	2	Oxidizes to SO ₃
Sulfur Trioxide	80.06	3	Hydrolyzes to H ₂ SO ₄
Sulfuric Acid	98.08	4	
Adhesives		4	
Ammonia		2	
Asphalt Fumes		4	
Automobile Exhaust		3	
Bathroom Smells		4	
Bleaching Solutions		3	
Cleaning Compounds		4	
Cooking Odors		4	
Hospital Odors		4	
Household Smells		4	
Jet Fuel Fumes		4	
Kitchen Odors		4	
Mildew		3	
Mold		3	
Ozone		4	
Paint and Redecorating Odors		4	
Smog		4	
Stale Odors		4	

CAUTION: Care should be taken to avoid contact between filters and gases that are known to be reactive with activated carbon.