

HEMCO's Carbon Filter #52004

Compatibility Index

Some of the contaminants listed in the table are specific chemical compounds. Some represent classes of compounds and others are mixtures and of variable composition these are denoted by "**Bold**" text. Activated carbons capacity for odor varies somewhat with the concentration in the air stream, with humidity and temperature. The numbers given on the following chart represent typical or average conditions and might vary in specific instances.

The Compatibility Index has the following meaning –

4. High capacity for all materials in this category. One pound takes up about 20% to 50% of its own weight – average about 1/3 (33 1/3%).
3. Satisfactory capacity for all items in this category. These constitute good applications but the capacity is not as high as for category 4. Adsorbs about 10% to 25% of its own weight – average 1/6 (16.7%).
2. Include substances which are not highly adsorbed but which might be taken up sufficiently to give good service under the particular conditions of operation. These require individual checking.
1. Adsorption capacity is low for these materials. Activated carbon cannot be satisfactorily used to remove them under ordinary circumstances.

Questions that must be answered to determine capacity or suitability of filter-

1. Characteristics of the specific chemical, amount of vapor involved, usage temperature?
2. Brief synopsis of the process, kinds of operations involved?
3. Does the process release constant amounts of contaminate or is it released in peaks? How high are peaks and how far apart are they, how long do they last?
4. Based on Compatibility Index Rating and Capacity Formula, the effectiveness of the filter, during peak duration is reduced by the percent by which the design capacity of the filter is exceeded.
5. Will filter bring contaminate levels under current Government guidelines, and is this acceptable to the user?

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Capacity Formula

Formula Components

Molecular Weight of contaminate?

Weight of Carbon in filter: 525 grams or 1.155 pounds *usually in grams*

Adsorption Percent: Compatibility Index.

Step 1

$(525 \text{ grams}) \times (\text{Compatibility Rating of the Carbon}) = (\text{Maximum Adsorbency})$

Step 2

$(\text{Max. Adsorbency}) \times (\text{Molecular Weight of Contaminate}) = (\text{Max. Contaminate Adsorbable})$

Summary – This filter was designed for use under the following conditions:

1. Low vapor concentration of chemical contaminants.
2. Small liquid quantity.
3. Low temperature.
4. Limited or infrequent usage.

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Compatibility Index

Acetaldehyde	2
Acetic Acid	4
Acetic Anhydride	4
Acetone	3
Acetylene	1
Acids	3
Acrolein	1
Acryaldehyde	3
Acrylic Acid	4
Acrylonitrile	4
Adhesives	4
Alcohol	4
Amines	2
Amyl Acetate	4
Amyl Alcohol	4
Amyl Ether	4
Animal Odors	3
Anesthetics	3
Aniline	4
Antiseptics	4
Asphalt Fumes	4
Automobile Exhaust	3
Bathroom Smells	4
Benzene	4
Bleaching Solutions	3
Body Odors	4
Bromine	4
Burned Flesh	4
Burned Food	4
Burning Fat	4
Butadiene	3
Butane	2
Butanone	4
Butyl Acetate	4
Butyl Alcohol	4
Butyl Cellosolve	4
Butyl Chloride	4
Butyl Ether	4
Butylene	2
Butyne	2
Butyraldehyde	3
Butyric Acid	4
Camphor	4
Cancer Odor	4
Caprylic Acid	4
Carbolic Acid	4
Carbon Bisulfide	3
Carbon Dioxide	1
Carbon Monoxide	1
Carbon Tetrachloride	4
Cellosolve	4

Cellosolve Acetate	4
Chlorine	3
Chlorobenzene	4
Chlorobutadiene	4
Chloroform	4
Chloro Nitropropane	4
Chloropicrin	4
Coal Smoke	3
Creosote	4
Cresol	4
Crotonaldehyde	4
Cyclohexane	4
Cyclohexanol	4
Cyclohexanone	4
Cyclohexene	4
Decane	4
Decomposition Odors	4
Dibromethane	4
Dichlorobenzene	4
Dichlorodifluoromethane	3
Dichloroethane	4
Dichloroethylene	4
Dichloroethy Ether	4
Dichloromonofluoromethane	3
Dichloro-Nitroethane	4
Dichloropropane	4
Dichlorotetrafluoroethane	3
Diesel Fumes	3
Diethyl Amine	3
Diethyl Ketone	4
Dimethylaniline	4
Dimethylsufate	4
Dioxane	4
Dipropyl Ketone	4
Embalming Odors	4
Ethane	1
Ether	3
Ethyl Acetate	4
Ethyl Acrylate	4
Ethyl Alcohol	4
Ethyl Amine	3
Ethyl Benzene	4
Ethyl Bromide	3
Ethyl Chloride	3
Ethyl Ether	3
Ethyl Formate	3
Ethyl Mercaptan	4
Ethyl Silicate	4
Ethylene	1
Ethylene Chlorhydrin	4
Ethylene Dichloride	4

Ethylene Oxide	3
Fecal Odors	4
Film Processing Odors	3
Fluorotrichloromethane	3
Formic Acid	3
Freon	3
Heptane	4
Heptylene	4
Hexane	3
Hexylene	3
Hexyne	3
Hydrogen	1
Hydrogen Bromide	2
Hydrogen Chloride	2
Hydrogen Cyanide	3
Hydrogen Fluoride	2
Hydrogen Iodide	3
Hydrogen Selenide	2
Hydrogen Sulfide	Consult 3
Indole	4
Iodine	4
Iodoform	4
Isophrone	4
Isoprene	3
Isopropyl Acetate	4
Isopropyl Alcohol	4
Isopropyl Ether	4
Kerosene	4
Latic Acid	4
Menthol	4
Mercaptans	4
Mesityl Oxide	4
Methane	1
Methyl Acetate	3
Methyl Acrylate	4
Methyl Alcohol	3
Methyl Bromide	3
Methyl Butyl Ketone	4
Methyl Cellosolve	4
Methyl Cellosolve Acetate	4
Methyl Chloride	3
Methyl Chloroform	4
Methyl Ether	3
Methyl Ethyl Ketone	4
Methyl Formate	3
Methyl Isobutyl Ketone	4
Methyl Mercaptan	4
Methylal	3
Methycyclohexane	4
Methycyclohexanol	4
Methycyclohexanone	4
Methylene Chloride	4
Monochlorobenzene	4
Monofluorotrichloromethane	3
Naphtha (Coal Tar)	4
Naphtha (Petroleum)	4

Naphthalene	4
Nitric Acid	3
Nitro Benzene	4
Nitroethane	4
Nitrogen Dioxide	2
Nitroglycerine	4
Nitromethane	4
Nitropropane	4
Nitrotoluene	4
Nonane	4
Octylene	4
Octane	4
Ozone	4
Palmitic Acid	4
Paradichlorobenzene	4
Pentane	4
Pentanone	4
Pentylene	3
Pentyne	3
Perchloroethylene	4
Phenol	4
Phosgene	3
Propane	2
Propionaldehyde	3
Propionic Acid	4
Propyl Acetate	4
Propyl Alcohol	4
Propyl Chloride	4
Propyl Ether	4
Propyl Mercaptan	4
Proplene	2
Propyne	2
Putrescine	4
Pyridine	4
Skatole	4
Stoddard Solvent	4
Styrene Monomer	4
Sulfur Compounds	3
Sulfur Trioxide	3
Sulfuric Acid	4
Tetrachloroethane	4
Tetrachloroethylene	4
Tetrahydrofuran	3
Toluene	4
Toluidine	4
Trichloroethylene	4
Urea	4
Uric Acid	4
Valeric Acid	4
Valeric Aldehyde	4
Vinyl Chloride	3
Wood Alcohol	3
Xylene	4