

TECHNICAL INFORMATION BULLETIN

TIB # 10244



LIST OF ADSORPTION ABILITY OF ACTIVATED CARBON FOR VARIOUS MATERIALS

Absorption Ability Ratings

“E” - Excellent materials are those most readily adsorbed by activated carbon. Approx. **25%** by weight.

“G” - Good materials are those most readily adsorbed by activated carbon but it will take two or more times as much carbon as an excellent material. Approx. **15%** by weight.

“P” - Poor materials are not readily adsorbed by activated carbon, and the use is not recommended. Approx. **5%** by weight.

“N” - None materials are not adsorbed by activated carbon.

Example: A customer uses Isopropyl Alcohol for a manual cleaning application. His consumption is approx. 50 grams per week. IPA has an absorption rating of “Excellent” or approx. 25% by weight. Carbon consumption = 50 g / 0.25 = 200 g. With a filter capacity of 10 kg, the filter will last 10,000g / 200g = 50 weeks.

Material	Adsorption Ability	Material	Adsorption Ability
Acetaldehyde	P	Bromine	E
Acetic acid	E	Burned flesh	E
Acetic anhydride	E	Burned food	E
Acetone	G	Burned fat	E
Acetylene	N	Butadiene	G
Acids	G	Butane	P
Acrolein	G	Butanone	P
Acrylic acid	E	Butyl acetate	E
Acrylonitrile	E	Butyl alcohol	E
Adhesives	E	Butyl cellosolve	E
Alcohol	E	Butyl chloride	E
Alcoholic beverages	E	Butyl ether	E
Amines	P	Butylene	P
Ammonia	P	Butyne	P
Amyl acetate	E	Burytaldehyde	G
Amyl alcohol	E	Butyric acid	E
Amyl ether	E		
Animal odors	G	Camphor	E
Anesthetics	G	Cancer odor	E
Aniline	E	Caprylic acid	E
Antiseptics	E	Carbolic acid	E
Asphalt fumes	E	Carbon bisulfide	P
Automobile exhaust	G	Carbon dioxide	N
		Carbon monoxide	N
Bacteria	G	Carbon tetrachloride	E
Bathroom smells	E	Cellosolve	E
Benzene	E	Cellosolve acetate	E
Bleaching solutions	G	Charred materials	E
Body odors	E	Cheese	E

Material	Adsorption Ability	Material	Adsorption Ability
Chemicals	G	Embalming odors	E
Chlorine	P	Ethane	N
Chlorobenzene	E	Ether	G
Chlorobutadiene	E	Ethyl acetate	E
Chloroform	E	Ethyl acrylate	E
Chloro nitropropane	E	Ethyl alcohol	E
Chloropicrin	E	Ethyl amine	G
Cigarette smoke	E	Ethyl benzene	E
citrus and other fruits	E	Ethyl bromide	G
Cleaning compounds	E	Ethyl chloride	G
Coal smoke	G	Ethyl ether	G
Combustion odors	G	Ethyl formate	G
Cooking odors	E	Ethyl mercaptan	E
Corrosive gases	P	Ethyl silicate	E
Creosote	E	Ethylene	N
Cresol	E	Ethylene chlorhydrin	E
Crotonaldehyde	E	Ethylene dichloride	E
Cyclohexane	E	Ethylene oxide	G
Cyclohexanol	E	Essential oils	E
Cyclohexanone	E	Eucalyptole	E
Cyclohexene	E	Exhaust fumes	G
Dead animals	E	Female odors	E
Decane	E	Fertilizer	E
Decaying substances	E	Film processing odors	G
Decomposition odors	E	Dish odors	E
Deodorants	E	Floral scents	E
Detergents	E	Fluorotrichloromethane	G
Dibromethane	E	Food aromas	E
Dichlorobenzene	E	Formaldehyde	P
Dichlorodifluoromethane	G	Formic acid	G
Dichloroethane	E	Fuel gases	P
Dichloroethylene	E	Fumes	G
Dichloroethyl ether	E	Gangrene	E
Dichloromonofluoromethane	E	Garlic	E
Dichloro-nitroethane	E	Gasoline	E
Dichloropropane	E	Heptane	E
Dichlorotetrafluoroethane	G	Heptylene	E
Diesel fumes	G	Hexane	G
Diethyl amine	G	Hexylene	G
Diethyl ketone	E	Hexyne	G
Dimethylaniline	E	Hospital odors	E
Dimethylsulfate	E	Household smells	E
Dioxane	E	Hydrogen	N
Dipropyl ketone	E	Hydrogenbromide	P
Disinfectants	E	Hydrogen chloride	P

Adsorption Material	Ability	Adsorption Material	Ability
Hydrogen cyanide	P	Methyl mercaptan	E
Hydrogen fluoride	P	Methylal	G
Hydrogen iodide	P	Methylcyclohexane	E
Hydrogen selenide	P	Methylcyclohexanol	E
Hydrogen sulfide	P	Methylcyclohexanone	E
Incense	E	Methylene chloride	E
Indole	E	Mildew	G
Inorganic chemicals	G	Mixed odors	E
Incomplete combustion	G	Mold	G
Industrial wastes	G	Monochlorobenzene	E
Iodine	E	Monofluorotrichloromethane	G
Iodoform	E	Moth balls	E
Irritants	E		
Isophorone	E	Naphtha (Coal tar)	E
Isoprene	G	Naphtha (Petroleum)	E
Isopropyl acetate	E	Naphthalene	E
Isopropyl alcohol	E	Nicotine	E
Isopropyl ether	E	Nitric acid	G
Kerosene	E	Nitro benzenes	E
Kitchen odors	E	Nitroethane	E
Lactic acid	E	Nitrogen dioxide	P
Lingering odors	E	Nitroglycerine	E
Liquid fuels	E	Nitromethane	E
Liquor odors	E	Nitropropane	E
Lubricating oils and greases	E	Nitrotoluene	E
		Nonane	E
Masking agents	E	Noxious gases	G
Medicinal odors	E	Octalene	E
Melons	E	Octane	E
Menthol	E	Odors	E
Mercaptans	E	Odorants	E
Mesityl oxide	E	Onions	E
Methane	N	Organic chemicals	E
Methyl acetate	G	Ozone	E
Methyl acrylate	E		
Methyl alcohol	G	Packing house odors	E
Methyl bromide	G	Paint and redecorating odors	E
Methyl butyl ketone	E	Palmitic acid	E
Methyl cellosolve	E	Paper deteriorations	E
Methyl cellosolve acetate	E	Paradichlorbenzine	E
Methyl chloride	P	Paste and glue	E
Methyl chloroform	E	Pentane	G
Methyl ether	G	Pentanone	E
Methyl ethyl detone	E	Pentylene	G
Methyl formate	G	Pentyne	G
Methyl isobutyl ketone	E	Perchloroethylene	E

Adsorption Material	Ability	Adsorption Material	Ability
Perfumes, cosmetics	E	Sulfur compounds	E
Perspirations	E	Sulfur dioxide	P
Pet odors	E	Sulfur trioxide	P
Phenol	E	Sulfuric acid	E
Phosgene	G	Tar	E
Pitch	E	Tarnishing gases	G
Plastics	E	Tetrachloroethane	E
Poison gases	G	Tetrachloroethylene	E
Pollen	G	Theatrical makeup odors	E
Popcorn and candy	E	Tobacco smoke	E
Poultry odors	E	Toilet odors	E
Propano	P	Toluene	E
Propionaldehyde	G	Toluidine	E
Propionic acid	E	Trichlorethylene	E
Propyl acetate	E	Turpentine	E
Propyl alcohol	E	Urea	E
Propyl chloride	E	Uric acid	E
Propyl ether	E		
Propyl mercaptan	E	Valeric acid	E
Propylene	P	Valeraldehyde	E
Propyne	P	Vapors	E
Putrefying substances	G	Varnish fumes	E
Putrescing	E	Vinegar	E
Pyridine	E	Vinyl chloride	G
		Viruses	G
Radiation products	P	Volatile materials	G
Rancid oils	E		
Resins	E	Waste products	E
Reodorants	E	Wood alcohol	G
Ripening fruits	E	Xylene	E
Rubber	E		
Sauerkraut	E		
Sewer odors	E		
Skatole	E		
Slaughtering odors	G		
Smog	E		
Soaps	E		
Smoke	E		
Solvents	G		
Sour milks	E		
Spilled beverages	E		
Spoiled food stuffs	E		
Stale odors	E		
Stoddard Solvent	E		
Stuffiness	E		
styrene monomer	E		

NOTE: Table 1 lists the relative effectiveness of activated carbon on various materials. The listing does not imply that the construction materials for filters are impervious to all of the compounds shown.

The life expectancy of any purification system is dependent on the concentration of the contaminants to which the system is exposed. Obviously, the consumption rate or life of the media will be shorter as the concentration of the gaseous contaminant increases. Also, be aware that in most real world cases there is no air stream with just one contaminant, but it almost always is accompanied by other gases. This must always be taken into consideration.