

TECHNICAL DESCRIPTION

ACTIVATED CARBON FILTERS



Product Description

Activated Carbon Filters, or Activated Charcoal Filters, control fumes and odors particularly from chemical processes, outdoor air pollution, and smoke. These filters are comprised of block, or small pieces of carbon that have been treated to increase the surface area to become more porous to adsorb chemical fumes. Having a large surface area allows the activated carbon to work more effectively than regular carbon making it a great choice for filter media. *The efficiency of these filters depend on the chemical being adsorbed and the application.*

Activated Carbon Filters can remove volatile organic compounds when HEPA filters alone don't work adequately. Fumes from painting and cleaning products as well as cigarette smoke can be removed with an activated carbon filter. However, in order to remove particulate and chemical fumes, activated carbon filters should be used in conjunction with HEPA filters to provide the best solution.



How do Activated Carbon Filters Work?

Activated Carbon Filters use the millions of pores and large surface area to remove harmful chemicals in the area through **adsorption**. During the activated carbon **adsorption** process, compounds in the air react with the carbon to stick to the surface area effectively removing the contaminant from the air. **Adsorption** is different from absorption in form, that the pollutants stick to the outside of the carbon and are not contained within the structure.

Filter	Activated Filter Uses
Activated Carbon	Activated carbon filters can remove volatile organic compounds when HEPA filters alone don't work adequately. Fumes from painting and cleaning products as well as cigarette smoke can be removed with an activated carbon filter. However, in order to remove particulate and chemical fumes, activated carbon filters should be used in conjunction with HEPA filters to provide the best solution.
Acid Gas Removal	Our acid gas removal process separates highly toxic CO ₂ and sometimes deadly H ₂ S acid gases from natural gas streams through the adsorption process by utilizing a custom specialty blended filter.*
Ammonia	The ammonia removal from air process is specifically in place for use in critical applications that deal with elements that would directly affect the respiratory system.*
Mercury Removal	One of the methods of removing mercury vapor from gases and air streams is to use high efficiency adsorption filters that do not allow the vapor to build and dissolve, recreating an emission. Therefore, it is imperative to ensure that the carbon used regarded as "high-grade" and holds a minimum hardness (ball pan) efficiency of 95%.*
Aldehyde Removal	For the removal of aromatic aldehyde impurities from a natural gas stream, using an efficient adsorption process continues to be the most reliable method of protection against the application. Our impregnated activated carbon is specifically designed for use in critical filtration applications that are in direct contact with users or filtration against the immediate environment. *
Radioactive Methyl iodide	Our blended activated carbon filter for the removal of radioactive methyl iodide has an 97% removal efficiency and meets the nuclear regulatory guide 1.52.*

**The proprietary reagents used to impregnate this activated carbon show a high efficiency in the specified chemical removal, and contain no heavy metals, such as, copper, lead, or mercury, that could lead to further hazards or harm.*

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Activated Carbon Filters can remove volatile organic compounds when HEPA filters alone don't work adequately. Fumes from painting and cleaning products as well as cigarette smoke can be removed with an activated carbon filter. However, in order to remove particulate and chemical fumes, activated carbon filters should be used in conjunction with HEPA filters to provide the best solution.



Standard Mesh Size (US Sieve)		Test Method
Molecular Products Inc.	Particle Size	
G1	4 x 8	ASTM D2862
G2	6 x 12	ASTM D2862
G3	8 x 16	ASTM D2862
G5	20 x 50	ASTM D2862
G12	12 x 20	ASTM D2862

Typical Properties		Test Method
Carbon Base	Granular Coconut-Shell	
Activity, CCl ₄ *	60, 70, or 85% minimum	ASTM D3467
Hardness, ball-pan	95 minimum	ASTM D3802
Ash content	5% maximum	ASTM D2866
Apparent density	0.45 to 0.58 g/ml	ASTM D2854
Surface area*	1000 m ² /g minimum	N ₂ BET method
Moisture content, as packed	8% to 13%	ASTM D2867

**Indicates properties of activated carbon prior to impregnation*

Activated Carbon Filter Specifications (By Series)					
Unit Series	Part Number	Dimensions (inches ± .01*)			Weight (lbs. ± 0.5)
		L	W	D	
200	SS-200-CF	7.8	7.7	1.9	2.5
300	SS-304-CF	12.5	12.5	0.9	4.0
300	SS-310-CF	12.5	12.5	2.9	10.0
300 RuggedAir	SS-332-DCF	18.3 (OD)	13.5 (ID)	17.0	32.0
300 RuggedAir	SS-332-RCF	18.3 (OD)	13.5 (ID)	17.0	32.0
400	SS-408-CF	19.7	19.7	0.9	8.0
400	SS-422-CF	19.7	19.7	2.8	22.0
500	SS-542-CF	29.5	21.5	3.7	42.0
700	SS-700-CF	12.5	23.7	6.3	8.0

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TECHNICAL DESCRIPTION

ACTIVATED CARBON FILTERS – ACID GAS REMOVAL



High-grade impregnated activated carbon for acid gas removal.

Our acid gas removal process separates highly toxic CO₂ and sometimes deadly H₂S acid gases from natural gas streams through the adsorption process by utilizing a custom specialty blended filter.

The proprietary reagents used to impregnate this activated carbon show a high efficiency in the removal of airborne acid gases, and contain no heavy metals, such as, copper, lead, or mercury, that could lead to further hazards or harm.

Standard Mesh Size (US Sieve)		Test Method
Molecular Products Inc.	Particle Size	
G1	4 x 8	ASTM D2862
G2	6 x 12	ASTM D2862
G3	8 x 16	ASTM D2862
G5	20 x 50	ASTM D2862
G12	12 x 20	ASTM D2862



Typical Properties		Test Method
Carbon Base	Granular Coconut-Shell	
Activity, CCl ₄ *	60, 70, or 85% minimum	ASTM D3467
Hardness, ball-pan	95 minimum	ASTM D3802
Ash content	5% maximum	ASTM D2866
Apparent density	0.45 to 0.58 g/ml	ASTM D2854
Surface area*	1000 m ² /g minimum	N ₂ BET method
Moisture content, as packed	8% to 13%	ASTM D2867

*Indicates properties of activated carbon prior to impregnation

Activated Carbon Filter Specifications (By Series)					
Unit Series	Part Number	Dimensions (inches ± .01*)			Weight (lbs. ± 0.5)
		L	W	D	
200	SS-200-AGF	7.8	7.7	1.9	2.5
300	SS-304-AGF	12.5	12.5	0.9	4.0
300	SS-310-AGF	12.5	12.5	2.9	10.0
300 RuggedAir	SS-332-AGF	18.3 (OD)	13.5 (ID)	17.0	32.0
400	SS-408-AGF	19.7	19.7	0.9	8.0
400	SS-422-AGF	19.7	19.7	2.8	22.0
500	SS-542-AGF	29.5	21.5	3.7	42.0

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TECHNICAL DESCRIPTION

ACTIVATED CARBON FILTERS – AMMONIA REMOVAL



High-grade impregnated activated carbon for ammonia removal from air and amine gas treating.

The ammonia removal from air process is specifically in place for use in critical applications that deal with elements that would directly affect the respiratory system.

The proprietary reagents used to impregnate this activated carbon show a high efficiency in the removal of ammonia from air and amine gas treating, and contain no heavy metals, such as, copper, lead, or mercury, that could lead to further hazards or harm.



Standard Mesh Size (US Sieve)		Test Method
Molecular Products Inc.	Particle Size	
G1	4 x 8	ASTM D2862
G2	6 x 12	ASTM D2862
G3	8 x 16	ASTM D2862
G5	20 x 50	ASTM D2862
G12	12 x 20	ASTM D2862

Typical Properties		Test Method
Carbon Base	Granular Coconut-Shell	
Activity, CCl ₄ *	60, 70, or 85% minimum	ASTM D3467
Hardness, ball-pan	95 minimum	ASTM D3802
Ash content	5% maximum	ASTM D2866
Apparent density	0.57 to 0.64 g/ml	ASTM D2854
Surface area*	1000 m ² /g minimum	N ₂ BET method
Moisture content, as packed	9% to 13%	ASTM D2867

**Indicates properties of activated carbon prior to impregnation*

Activated Carbon Filter Specifications (By Series)					
Unit Series	Part Number	Dimensions (inches ± .01*)			Weight (lbs. ± 0.5)
		L	W	D	
200	SS-200-AMM	7.8	7.7	1.9	2.5
300	SS-304-AMM	12.5	12.5	0.9	4.0
300	SS-310-AMM	12.5	12.5	2.9	10.0
300 RuggedAir	SS-332-AMM	18.3 (OD)	13.5 (ID)	17.0	32.0
400	SS-408-AMM	19.7	19.7	0.9	8.0
400	SS-422-AMM	19.7	19.7	2.8	22.0
500	SS-542-AMM	29.5	21.5	3.7	42.0

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ACTIVATED CARBON FILTERS – MERCURY REMOVAL



High-grade impregnated activated carbon for mercury removal.

One of the methods of removing mercury vapor from gases and air streams is to use high efficiency adsorption filters that do not allow the vapor to build and dissolve, recreating an emission. Therefore, it is imperative to ensure that the carbon used regarded as “high-grade” and holds a minimum hardness (ball pan) efficiency of 95%.

The proprietary reagents used to impregnate this activated carbon show a high efficiency in the removal of mercury vapors, and contain no heavy metals, such as, copper, lead, or mercury, that could lead to further hazards or harm.

Standard Mesh Size (US Sieve)		Test Method
Molecular Products Inc.	Particle Size	
G1	4 x 8	ASTM D2862
G2	6 x 12	ASTM D2862
G3	8 x 16	ASTM D2862
G5	20 x 50	ASTM D2862
G12	12 x 20	ASTM D2862



Typical Properties		Test Method
Carbon Base	Granular Coconut-Shell	
Activity, CCl ₄ *	60, 70, or 85% minimum	ASTM D3467
Hardness, ball-pan	95 minimum	ASTM D3802
Ash content	5% maximum	ASTM D2866
Apparent density	0.47 to 0.5 g/ml	ASTM D2854
Surface area*	1000 m ² /g minimum	N ₂ BET method
Moisture content, as packed	4% to 8%	ASTM D2867

**Indicates properties of activated carbon prior to impregnation*

Activated Carbon Filter Specifications (By Series)					
Unit Series	Part Number	Dimensions (inches ± .01*)			Weight (lbs. ± 0.5)
		L	W	D	
300	SS-310-MERC	12.5	12.5	2.9	10.0
400	SS-422-MERC	19.7	19.7	2.8	22.0

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TECHNICAL DESCRIPTION

ACTIVATED CARBON FILTERS – ALDEHYDE REMOVAL



High-grade impregnated activated carbon for aldehyde removal.

For the removal of aromatic aldehyde impurities from a natural gas stream, using an efficient adsorption process continues to be the most reliable method of protection against the application. Our impregnated activated carbon is specifically designed for use in critical filtration applications that are in direct contact with users or filtration against the immediate environment.

The proprietary reagents used to impregnate this activated carbon show a high efficiency in aldehyde removal, and contain no heavy metals, such as, copper, lead, or mercury, that could lead to further hazards or harm.

Standard Mesh Size (US Sieve)		Test Method
Molecular Products Inc.	Particle Size	
G1	4 x 8	ASTM D2862
G2	6 x 12	ASTM D2862
G3	8 x 16	ASTM D2862
G5	20 x 50	ASTM D2862
G12	12 x 20	ASTM D2862



Typical Properties		Test Method
Carbon Base	Granular Coconut-Shell	
Activity, CCl ₄ *	60, 70, or 85% minimum	ASTM D3467
Hardness, ball-pan	95 minimum	ASTM D3802
Ash content	5% maximum	ASTM D2866
Apparent density	0.46 to 0.56 g/ml	ASTM D2854
Surface area*	1000 m ² /g minimum	N ₂ BET method
Moisture content, as packed	15% to 20.5%	ASTM D2867

**Indicates properties of activated carbon prior to impregnation*

Activated Carbon Filter Specifications (By Series)					
Unit Series	Part Number	Dimensions (inches ± .01*)			Weight (lbs. ± 0.5)
		L	W	D	
500	SS-542-ALCF	29.5	21.5	3.7	42.0

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TECHNICAL DESCRIPTION

ACTIVATED CARBON FILTERS – RADIOACTIVE METHYL IODIDE



High-grade impregnated activated carbon for radioactive methyl iodide removal.

Our blended activated carbon filter for the removal of radioactive methyl iodide has an 97% removal efficiency and meets the nuclear regulatory guide 1.52.

The proprietary reagents used to impregnate this activated carbon show a high efficiency in radioactive methyl iodide removal, and contain no heavy metals, such as, copper, lead, or mercury, that could lead to further hazards or harm.

Standard Mesh Size (US Sieve)		Test Method
Molecular Products Inc.	Particle Size	
G1	4 x 8	ASTM D2862
G2	6 x 12	ASTM D2862
G3	8 x 16	ASTM D2862
G5	20 x 50	ASTM D2862
G12	12 x 20	ASTM D2862



Typical Properties		Test Method
Carbon Base	Granular Coconut-Shell	
Activity, CCl ₄ *	60, 70, or 85% minimum	ASTM D3467
Hardness, ball-pan	95 minimum	ASTM D3802
Ash content	5% maximum	ASTM D2866
Apparent density	0.46 to 0.58 g/ml	ASTM D2854
Surface area*	1000 m ² /g minimum	N ₂ BET method
Moisture content, as packed	13% to 18%	ASTM D2867

*Indicates properties of activated carbon prior to impregnation

Activated Carbon Filter Specifications (By Series)					
Unit Series	Part Number	Dimensions (inches ± .01*)			Weight (lbs. ± 0.5)
		L	W	D	
100	CALL				
200	CALL				
300	CALL				
300 RuggedAir	CALL				
400	CALL				
500	CALL				
700	CALL				
2000	CALL				

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