

FILTRASORB® 820

Granular Activated Carbon

Applications



FILTRASORB 820 is used primarily to treat surface water sources for the production of drinking water. This carbon is a coarser mesh media and is generally used in deep bed filters where pressure drop may be a concern. FILTRASORB 820 functions as a dual purpose media providing both filtration and adsorption.

Description

FILTRASORB 820 is a granular activated carbon developed by Calgon Carbon Corporation for the removal of dissolved organic compounds from water and wastewater as well as industrial and food processing streams. These contaminants include taste and odor compounds, organic color, total organic carbon (TOC), and industrial organic compounds such as TCE and PCE. This activated carbon is made from select grades of bituminous coal through a process known as reagglomeration to produce a high activity, durable, granular product capable of withstanding the abrasion associated with repeated backwashing, hydraulic transport, and reactivation for reuse. The raw coal is mined and subsequently manufactured into GAC in the United States to ensure the highest quality and consistency in the finished product. Activation is carefully controlled to produce a significant volume of both low and high energy pores for effective adsorption of a broad range of high and low molecular weight organic contaminants. FILTRASORB 820 is also formulated to comply with all the applicable provisions of the AWWA Standard for Granular Activated Carbon (B604), the stringent extractable metals requirements of NSF/ANSI 61, and the Food Chemicals Codex.

Features / Benefits

- Calgon Carbon's reagglomerated coal-based granular activated carbons have several properties which provide superior performance in a wide range of applications
- Produced in the United States from a pulverized blend of high quality, domestically mined bituminous coals resulting in a consistent, high quality product
- The activated carbon granules are uniformly activated through the whole granule, not just the outside. This results in excellent adsorption properties and constant adsorption kinetics in a wide range of applications
- The reagglomerated structure ensures proper wetting while also eliminating floating material
- High mechanical strength relative to other raw materials, thereby reducing the generation of fines during backwashing and hydraulic transport
- Carbon bed segregation is retained after repeated backwashing, ensuring the adsorption profile remains unchanged and therefore maximizing the bed life
- Reagglomerated with a high abrasion resistance, which provides excellent reactivation performance
- High density carbon resulting in a greater adsorption capacity per unit volume

Specifications¹

FILTRASORB 820

Iodine Number, mg/g	900 (min)
Moisture by Weight	2% (max)
Effective Size	1.0–1.2 mm
Uniformity Coefficient	1.5 (max)
Abrasion Number	75 (min)
Trace Capacity Number, mg/cc	9 (min)
Screen Size by Weight, US Sieve Series	
On 8 mesh	5% (max)
Through 20 mesh	4% (max)

¹Calgon Carbon test method

Typical Properties*

FILTRASORB 820

Apparent Density (tamped)	0.56 g/cc
Water Extractables	<1%
Non-Wettable	<1%

*For general information only, not to be used as purchase specifications.

Safety Message

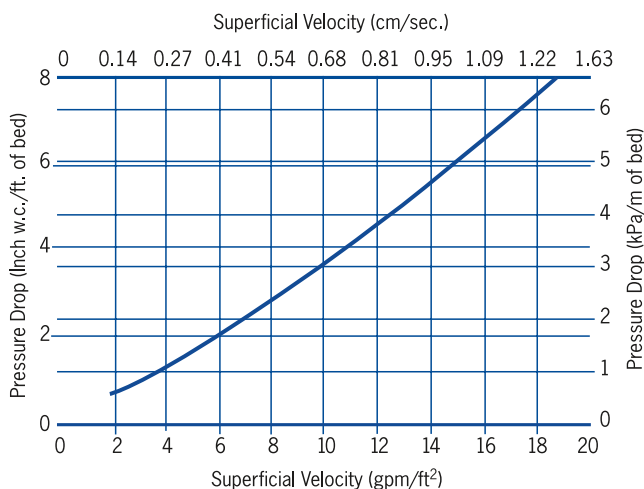
Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

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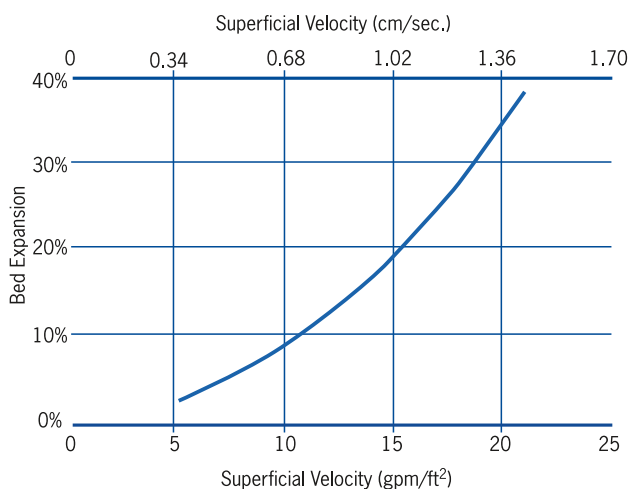
Typical Pressure Drop

Down Flow Pressure Drop at 13C/55°F
Based on a backwashed and segregated bed



Typical Bed Expansion During Backwash

Bed Expansion During Backwash at 13C/55°F
Based on a backwashed and segregated bed



Conditioning and Backwashing

Backwashing and conditioning fresh GAC before placing into operation is critical to GAC performance. The reasons for backwashing before placing fresh media online are to: (1) size segregate the media so subsequent backwashing will return the media to the same relative position in the bed, (2) remove any remaining air from the bed, and (3) remove media fines which can lead to excessive pressure drop and flow restriction. In addition, proper backwashing is a crucial step to collecting the most representative and meaningful post-start up data on compounds of interest, such as metals listed in the NSF/ANSI 61 standard.

Below are the recommended steps for proper conditioning and backwashing of GAC based on Filtrasorb 820 GAC being backwashed at 55°F:

1. Fully submerge GAC bed in clean, contaminant free water for at least 16 hours (overnight)
2. Open backwash inlet and begin up-flow at 7 gpm/ft² for 2 minutes
3. Increase flow to 11 gpm/ft² and maintain for 2 minutes
4. Increase flow to 15 gpm/ft² and maintain for 2 minutes
5. Increase flow to 18.5 gpm/ft² and maintain for 30 minutes*
6. Decrease flow to 15 gpm/ft² and maintain for 2 minutes
7. Decrease flow to 11 gpm/ft² and maintain for 2 minutes
8. Decrease flow to 7 gpm/ft² and maintain for 2 minutes
9. Close backwash inlet and stop flow

*Duration representative of initial backwash conditions. Required duration during operational backwashes can be shorter but will vary by utility, solids load, and GAC throughput. Contact Calgon Carbon for more information"

Design Considerations

As a replacement for existing filter media, the conversion to FILTRASORB 820 activated carbon imposes no major changes to a plant's normal filtration operations. If more contact time is required, the height of the backwash troughs can be increased. Calgon Carbon Corporation can also provide complete modular adsorption systems as an add-on treatment stage if required.

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