

FILTRASORB® 400-M

Granular Activated Carbon for Municipal Specifications



FILTRASORB 400-M activated carbon can be used to treat surface and groundwater sources for the production of drinking water. This product can be used as a complete replacement for sand and anthracite media. FILTRASORB 400-M activated carbon functions as a dual purpose media, providing both filtration and adsorption. FILTRASORB has been used successfully in drinking water applications for over 40 years.

APPLICATIONS

- Municipal Drinking Water
- Industrial Wastewater
- Pond/Aquarium
- Pharmaceuticals
- Environmental Water Processing
- Water Reuse
- Surface Water
- Groundwater
- Food & Beverage
- Bottle & Brewing

DESCRIPTION

FILTRASORB 400-M is a granular activated carbon (GAC) developed by Calgon Carbon Corporation for the removal of contaminants from municipal drinking water. These contaminants include taste and odor compounds such as MIB and Geosmin, organic compounds known to be precursors to disinfection byproduct (DBP) formation, DBP compounds such as haloacetic acids and trihalomethanes, contaminants of emerging concern (CECs), such as endocrine disrupting compounds (EDCs) and pharmaceutical and personal care products (PPCPs), and other targeted organic contaminants.

This activated carbon is manufactured from select grades of bituminous coal through a process known as reagglomeration to produce a durable granular product capable of withstanding the abrasion associated with repeated backwashing, air scouring, hydraulic transport, and thermal reactivation. 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 as measured by the iodine number for effective adsorption of a broad range of high and low molecular weight organic contaminants. The higher density of FILTRASORB brand GAC results in a product with both a greater adsorptive capacity on a volume basis and a longer life through multiple reactivation cycles.

FILTRASORB 400-M is designed to comply with all the applicable provisions of the AWWA Standard for Granular Activated Carbon, B604, latest edition, the stringent extractable requirements of NSF/ ANSI 61, and the Food Chemicals Codex, latest edition. Chemicals Codex, latest edition.

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.

Specifications

Iodine Number, mg/g	1,000 (min)
Moisture by Weight	2% (max)
Effective Size	0.55–0.75 mm
Uniformity Coefficient	1.9 (max)
Abrasion Number	75 (min)
Trace Capacity Number, mg/cc	10 (min)
Screen Size by Weight, US Sieve Series	
On 12 mesh	5% (max)
Through 40 mesh	4% (max)

Typical Properties

Apparent Density (tamped)	0.57 g/cc
Water Extractables	<1%
Non-Wettable	<1%

FEATURES & BENEFITS

- Produced in the United States from a pulverized blend of high quality, domestically mined bituminous coals resulting in a consistent, high quality product.
- Carbon granules are uniformly activated through the whole granule, not just the outside, resulting in excellent adsorption properties and consistent adsorption kinetics.
- The reagglomerated structure ensures proper wetting and minimal 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.

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CUSTOM REACTIVATION

Municipal drinking water utilities can extend the life of their FILTRASORB granular activated carbon while lowering their operating costs through participation in Calgon Carbon's Custom Municipal Reactivation (CMR) program.

After a granular activated carbon's adsorptive capacity has been exhausted, it can be returned to Calgon Carbon for thermal reactivation (upon carbon acceptance approval). In the reactivation process, the spent activated carbon is heated to a high temperature in furnaces devoid of oxygen, using steam as a selective oxidant. The high temperature reaction with steam serves to restore the adsorptive capacity of the activated carbon.

The CMR program ensures that each customer receives their own GAC back after reactivation. The benefits of using a custom reactivated GAC versus a virgin carbon are several, including: a) economic, as reactivated GAC costs less than virgin GAC, and b) environmental, as use of reactivated GAC conserves natural resources and reduces CO₂ emissions compared to the manufacture of virgin GAC. Another benefit of reactivating and reusing spent granular activated carbon is the ability for customers to ensure for themselves a reliable supply of GAC when needed, as the spent/ reactivated carbon represents a renewable resource. Finally, through reactivation, the costs and long-term liability associated with disposal of spent GAC are eliminated.

The combination of high mechanical strength and the dense granular structure of FILTRASORB brand GAC, a product of both the bituminous coal starting material and the reagglomeration manufacturing process, results in a GAC ideal for reactivation, with excellent adsorptive performance and low losses.

DESIGN CONSIDERATIONS

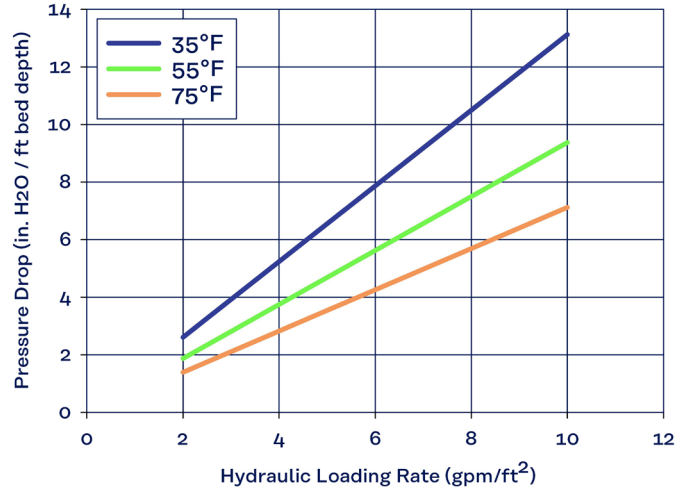
As a replacement for existing filter media, conversion to FILTRASORB 400-M granular activated carbon imposes no major changes to a plant's normal filtration operations. Calgon Carbon Corporation can also provide complete modular adsorption systems as an add-on treatment stage if required.

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TYPICAL PRESSURE DROP

Based on a backwashed and segregated bed



TYPICAL BED EXPANSION DURING BACKWASH

Based on a backwashed and segregated bed

