

FILTRASORB® 400

Agglomerated Coal Based Granular Activated Carbon

DESCRIPTION

FILTRASORB® 400 is from the renowned **FILTRASORB®** range of Granular Activated Carbons, which are installed in numerous water treatment plants in Europe, the United States and Asia. **FILTRASORB®** carbons are produced by steam activation of selected grades of bituminous coal that have first been pulverised then **agglomerated**.

FILTRASORB® 400 has both high adsorption capacity and a high number of transport pores. This gives the carbon a greater selectivity for the removal of micropollutants such as pesticides and flame retardants or fluorinated surfactants (PFAS) in the presence of high concentrations of natural organic matter. In addition, this product is best suited to the removal of total organics such as disinfection by-product precursors, the humic substances, which react with chlorine to form compounds such as trihalomethanes.

FEATURES

Agglomerated coal based granular activated carbons have several properties, which explain their superior performance in a wide range of applications:

- Produced from a pulverised blend, results in a **consistent high quality product**.
- The activated carbon granules are uniformly activated throughout the whole granule, not just the outside. This results in **excellent adsorption properties** and **constant adsorption kinetics** in a wide range of applications.
- High mechanical strength of the coal based carbon gives **excellent reactivation performances**.
- Agglomerated coal based carbon are suitable for **multiple reactivations** compared to other base materials such as peat and wood.
- The agglomerated structure ensures **rapid wetting**. There is no remaining floating material.
- Carbon bed segregation is retained after repeated backwashing, ensuring the **adsorption profile remains unchanged** with time and therefore maximising the bed life before breakthrough.
- **FILTRASORB® 400** complies with EN12915-1 and is approved by the United Kingdom Drinking Water Inspectorate.

SELECTION

FILTRASORB® 400 has a typical effective size of 0.7mm. In general, the smaller the granule size, the better the adsorption performance, therefore **FILTRASORB® 400** should be selected when it offers the optimum performance and pressure drop characteristics. If the pressure drop is too high with **FILTRASORB® 400**, **FILTRASORB® 300** should be selected.

PROPERTIES

| FILTRASORB® 400 12x40 | |
|--|------|
| SPECIFICATIONS | |
| Iodine Number, min., mg/g | 1000 |
| Abrasion Number, min. | 75 |
| Moisture Content, as packed, max., wt% | 3 |
| Mesh Size, US Sieve Series, wt% > 12 mesh (1.70 mm), max. | 5 |
| < 40 mesh (0.425 mm), max. | 4 |

(Please refer to the Sales Specification Sheets, which state the Chemviron test method used to define the above specifications. Copies are available upon request.)

| FILTRASORB® 400 12x40 | |
|--|------|
| TYPICAL PROPERTIES | |
| Iodine Number, mg/g | 1050 |
| Surface Area, (N ₂ BET method ¹), m ² /g | 1050 |
| Methylene Blue Number | 300 |
| Methylene Blue Number (CEFIC), ml/0.1g | 20 |
| Backwashed and Drained Bed Density ² , kg/m ³ | 475 |
| Floating Content, wt% | 0.1 |
| Effective Size, mm | 0.7 |
| Mean Particle Diameter, mm | 1.1 |
| Uniformity Coefficient | 1.7 |
| Phenol loading ³ at 1 mg/l, DIN 19603, % | 5.2 |
| Detergent (TPBS) loading ³ at 1 mg/l, mg/g | 200 |
| Atrazine loading ³ at 1 µg/l, mg/g | 40 |
| Toluene loading ³ at 1 mg/l, mg/g | 100 |
| Trichloroethylene loading ³ at 50 µg/l, mg/g | 20 |

¹ Brunauer, Emmett and Teller, J. Am. Chem. Soc. 60. 309 (1938).

² Backwashed and Drained Density for adsorber sizing;

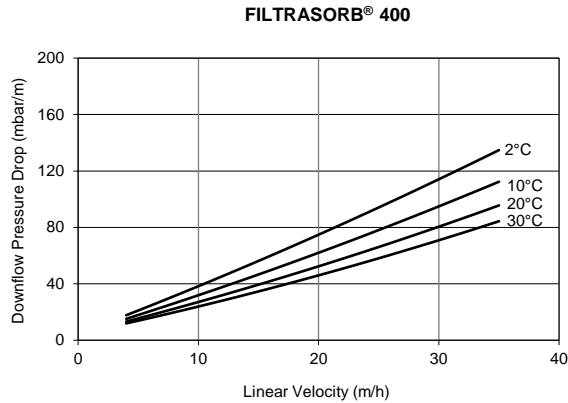
³ Isotherm loading in distilled water. These are reported for comparison and are unlikely to reflect loadings in practice.

RECYCLING BY THERMAL REACTIVATION

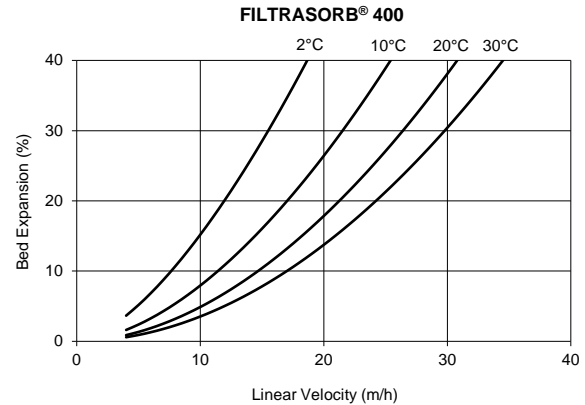
Once granular carbon is saturated, or the treatment objective is reached, it can be recycled, by thermal reactivation, for reuse. Reactivation involves treating the spent carbon in a high temperature reactivation furnace to over 800°C. During this treatment process, the undesirable organics on the carbon are thermally destroyed. Recycling by thermal reactivation is a highly skilled process to ensure that spent carbon is returned to a reusable quality. **Chemviron** operates Europe's largest reactivation facilities and daily recycles large quantities of spent carbon for a diverse range of customers. Recycling activated carbon by thermal reactivation meets the environmental need to minimise waste, reducing CO₂ emissions and limiting the use of the world's resources.

The combined high mechanical strength of **FILTRASORB® 400** with the transport pores gives the carbon **excellent reactivation performance** and **low losses**.

TYPICAL PRESSURE DROP CURVE FOR A BACKWASHED AND SEGREGATED BED



TYPICAL BED EXPANSION CURVE FOR A BACKWASHED AND SEGREGATED BED



DESIGN INFORMATION

The following are typical design parameters for **FILTRASORB® 400** installed for the treatment of surface water:

- Superficial contact time 10-30 min.
- Bed depth 1-3 m
- Linear velocity 5-20 m/h
- Backwash bed expansion 20 %

PACKAGING

- 25 kg bags
- Big bags
- Bulk tanker

SAFETY MESSAGE

Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low-oxygen spaces should be followed.

QUALITY

Each of our worldwide operations has achieved **ISO 9001:2015** certification for their quality management system related to activated carbon. **Chemviron** guarantees the specifications against representative sampling. For food grade applications, it is recommended to check the quality of the initial effluent before putting the adsorber into service.

CHEMVIRON

Chemviron, the European operation of Calgon Carbon Corporation, is a global manufacturer, supplier and developer of activated carbons, innovative treatment systems, value added technologies and services for optimising production processes and safely purifying the environment.

With our experience developed since the early years of the twentieth century, facilities around the world and a world-class team of over 1,300 employees, Calgon Carbon Corporation can provide the solutions to your most difficult purification challenges.

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