

DISPOSORB®

Carbon Adsorber Canisters



Description

The DISPOSORB canisters have been developed by Calgon Carbon Corporation for rapid deployment and cleanup of low flow treatment applications such as off-spec products, accidental spills, wash water or runoff water treatment or temporary groundwater cleanups. The DISPOSORB canisters contain all of the design features of a full scale adsorber, but are easily transportable and are intended to be disposed of properly after use. The DISPOSORB canisters are available in two sizes: the larger canister containing 1,000 lbs of granular activated carbon to treat flows up to 35 gpm, and the smaller version containing 165 lbs of granular activated carbon to treat up to 10 gpm.

Typical applications for the DISPOSORB canisters would include:

- Small wastewater streams
- Groundwater treatment
- Monitoring well discharges
- Underground storage tank leaks
- Process liquid purification or decolorization
- Spill or runoff water treatment
- Wash water treatment
- Water dechlorination
- Pilot testing for carbon adsorption

Features / Benefits

The DISPOSORB canisters offer several features and benefits for application of carbon adsorption to low flow treatment applications:

- Convenient installation and operation
- Flexibility to be used in series or parallel operation
- Supplied with virgin or reactivated grade carbons
- Can treat various flow rates and contaminant concentrations
- Easily prepared for disposal when treatment complete or canister fully utilized

Installation

DISPOSORB canisters are typically shipped with the installed activated carbon wetted and ready for operation in an aqueous treatment application after the deaeration step. However, the canister may be shipped with dry activated carbon or it may have become dry if left in storage, whereupon the carbon must be wetted and deaerated prior to use. The wetting procedure displaces air from the internal structure of the carbon granule, assuring that the liquid to be treated is in contact with the carbon surface.

Safety Message

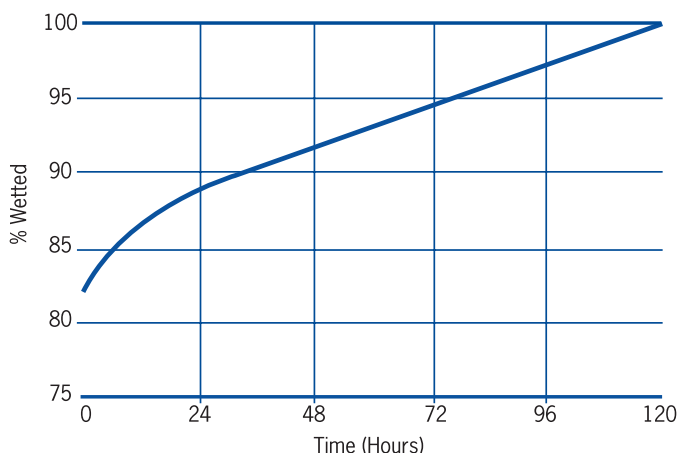
Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

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For wetting prior to operation, each canister must be filled with clean water; the water should be introduced into the effluent connection. The canister should sit for approximately 48 hours to allow most of the carbon's internal surface to become wetted as shown on the wetting curve.

Wetting Curve for GAC (77°F/25°C)

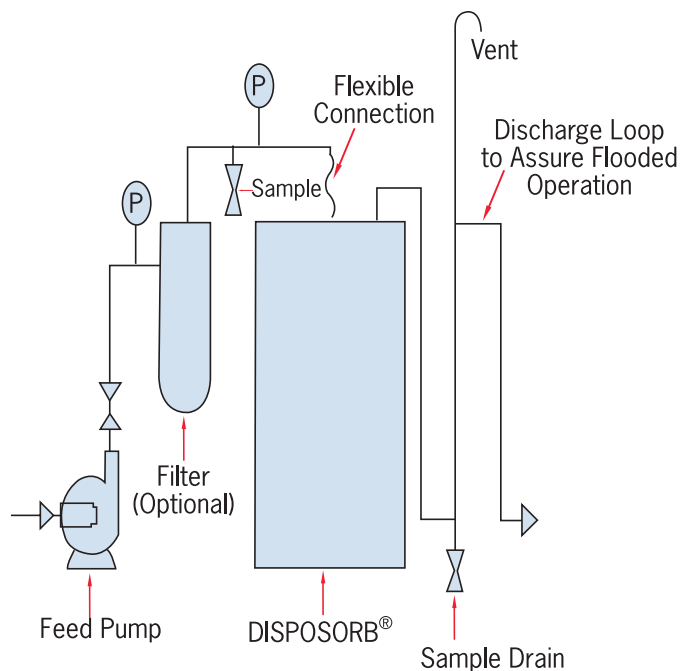


After wetting, or prior to startup of a DISPOSORB canister with pre-wetted carbon, the carbon bed can be deaerated by filling the canister upflow with clean water. This procedure will eliminate any air pockets which may have formed between the carbon granules. The DISPOSORB canister is now ready for operation.

The DISPOSORB canister should be set on a flat level surface and piped as recommended in the installation illustration. The influent pipe should be attached to the unit by using a flexible connection to allow minor deflection in the piping to vessel connection or the vessel top head. The DISPOSORB canister discharge piping should include an elevated piping loop to ensure that the canister remains flooded with water at all times.

A filter should be installed prior to the canister if the liquid to be treated contains substantial amounts of suspended solids. A simple cartridge of screen filter helps prevent pressure buildup in the carbon bed.

A pressure relief device should be installed in a line open to the canister if the system can potentially be subject to pressures beyond the design point. Consult plant and/or OSHA codes for guidance.



Operation

DISPOSORB canisters should be full of clean water or liquid before treatment begins. Flow rate to the unit should be determined based on required contact time between the liquid and the carbon media. In groundwater treatment applications, the recommended contact time, calculated on an "empty bed basis", is typically 8-10 minutes. Consult your Calgon Carbon Corporation Technical Sales Representative for advice about proper contact time for your application.

DISPOSORB canisters can be manifolded in parallel operation for higher flow rates. For series operation, two DISPOSORB canisters can be piped together sequentially, as normal pressure drop will not exceed the recommended operating pressure.

The DISPOSORB has minimal space for bed expansion with the design amount of carbon installed, but can be moderately backflushed to eliminate some filtered solids or entrained air by introducing clean water or process liquid at approximately 2-3 gpm/sf to the effluent connection and taking backflush water from the influent connection, then directing this water to a drain suitable for receiving contaminated water with suspended solids and carbon particles.

Calgon Carbon Water Treatment Systems

The DISPOSORB canisters are designed for a variety of low pressure water or process liquid applications at low flowrates. Calgon Carbon Corporation offers a wide range of carbon adsorption systems and services for a range of water or liquid flow rates and carbon usages to meet specific applications.

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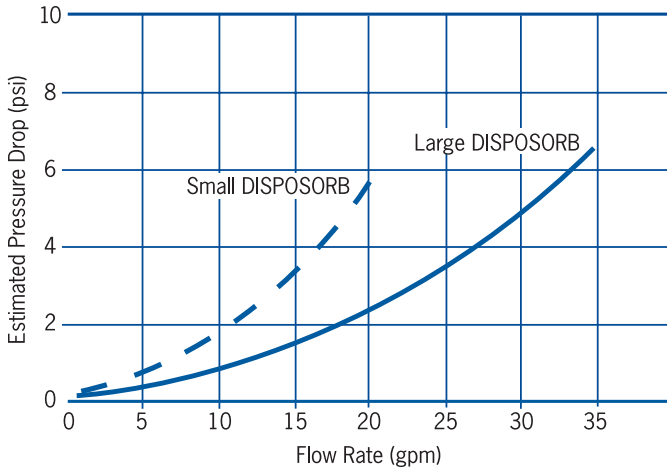
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Pressure Drop

Pressure drop through the DISPOSORB canisters is a function of the water or process liquid flow as shown in the graph. If higher flows or lower pressure drop is needed, multiple units can be installed in parallel operation. The maximum pressure in the canister should not exceed 7 psig, regardless of the pressure drop across the unit.

Pressure Drop Curve



Disposal and Transporting Used Canisters

When treatment is complete, or the DISPOSORB canisters are no longer providing the desired contaminant removal efficiency (spent), the canisters are designed for convenient disposal. Any required samples of the spent carbon for testing can be obtained using a sample thief via the inlet connection, which is open to the top of the carbon bed.

Prior to disposal, the DISPOSORB canisters should be drained of any water not contained within the carbon granule, or the interstitial water. This water can be removed from the canister by siphoning from the outlet connection (connected to the bottom septum), or by applying a slight air pressure of approx 1 psi to the inlet connection to force the water through the outlet piping and connection.

Once emptied of any excess water, the inlet and outlet connections can be capped or plugged with the fittings provided with the shipped unit and sent to a disposal site. The DISPOSORB canisters can be easily moved using forklifts or slings. The containers are able to be shipped with the spent carbon contained within the canister, providing any other applicable regulations are followed in consideration of the adsorbed contaminants or the application in which it was used. The canisters can be disposed of via landfill or incineration.

Calgon Carbon can also provide complete turnkey services, including removal and management of the DISPOSORB canisters containing spent carbon and resupply of DISPOSORB canisters

DISPOSORB Model	350 gallon (large)	55 gallon (small)
Canister	Polyethylene	HMW Polyethylene
Cover (access port)	None – integral lid	None – integral lid
Internals for treated water collection	PVC dip tube and slotted polypropylene septum	PVC dip tube and slotted polypropylene septum
Inlet (top head)	1½" threaded PVC male npt coupling (white cap)	¾" threaded PVC fpt coupling
Outlet (top head)	1½" threaded PVC male npt coupling (gray cap)	1" threaded PVC fpt coupling
Temperature limit	140°F	140°F
Pressure limit	7 psig	7 psig
Vacuum	Not rated or recommended for vacuum conditions	Not rated or recommended for vacuum conditions
Canister diameter	44"	23"
Canister height	67"	36"
Carbon amount	1,000 lbs	165 lbs
Ship weight (approximate with wetted carbon)	2,500 lbs	350 lbs

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