

Equipment Bulletin

CYCLESORB® - HP

General Description

Calgon Carbon's Cyclesorb® -HP is a compact, all stainless steel portable liquid treatment unit that contains all the essential elements of a full scale carbon adsorption system. Containing 2000 pounds of granular activated carbon, the Cyclesorb-HP can treat up to 60 gpm for removal of dissolved organic contaminants. When Treatment is complete, the Cyclesorb-HP becomes a convenient shipping container which can be returned to Calgon Carbon for safe reactivation of the spent carbon.

The Cyclesorb-HP is ideal for many low flow or short duration treatment projects:

- ◆ Small wastewater or process streams
- ◆ Groundwater contaminated by leaking underground storage tanks
- ◆ Wastewater stored in tanks or lagoons
- ◆ Chemical spills
- ◆ Storage tank or pipeline washing
- ◆ Off-spec product batches
- ◆ De-chlorination or de-colorization
- ◆ Pump tests
- ◆ Feasibility or pilot plant studies



Features

Flexibility The Cyclesorb-HP treats the liquid down-flow through a fixed bed of granular activated carbon, and therefore can handle varying flows and on-off operating conditions. The units can be arranged in parallel to treat higher flows, or can be connected in series to optimize carbon usage.

Durability The Cyclesorb-HP adsorber is constructed of Type 316L stainless steel, and has no interior coating or lining that may be eroded by carbon movement or damaged during handling. The vessel support and fork channels are constructed of Type 304 stainless steel. The vessel is ASME U-stamped.

Corrosion Resistance The Cyclesorb adsorber, all vessel internal and exterior piping are constructed of Type 316L stainless steel. Other materials are EPDM gaskets, BUNA-N valve seats, graphite rupture disk.

Operating Pressure The Cyclesorb-HP is hydrostatic pressure tested at 75 psig before shipment, and is provided with a rupture disk to assure that this pressure is not exceeded.

Granular Activated Carbon The Cyclesorb-HP unit can be provided with any of Calgon Carbon's extensive product line of granular activated carbon. Calgon Carbon's Technical Service Representative can assist in selecting the most cost effective carbon for specific applications.

Safe Spent Carbon Handling When treatment is complete, the Cyclesorb-HP becomes the shipping container for the return of the spent carbon to a Calgon Carbon reactivation facility. This feature eliminates the need to handle spent carbon at the site. These containers meet all applicable transportation regulations for shipment of spent activated carbon.

Service or Purchase Options The Cyclesorb is available on a service or purchase basis. With the service option, Calgon Carbon retains ownership of the units, takes responsibility for inventory and maintenance, and provides a new unit when the spent unit is to be removed so continuous treatment is assured. If the Cyclesorb is purchased, Calgon Carbon can provide refill and maintenance service.



Visit our website at www.calgoncarbon.com, or call 1-800-4-CARBON to learn more about our complete range of products and services, and local contact information.

**Chemviron
Carbon**

Specifications

Granular Activated Carbon per Unit	2,000 lb (908 kg)
Maximum Operating Pressure	75 psig @ 150°F
Pressure Relief	Graphite rupture disk @ 75 psig
Vacuum Rating	Designed for vacuum service
Temperature Rating	150°F (65°C)
Wetted Parts Materials	Type 316L stainless steel EPDM Rubber, BUNA-N, Kynar, Graphite
Connections	2" Kamlock (inlet/outlet) 1/2" FNPT (sample/drain) 2" Kamlock (vent) 3" FNPT (carbon discharge)
Support	Stainless steel
Dimensions	60" dia. X 93" height (1524 mm dia. x 2362 mm height)
Lifting	Fork lift truck or crane (4 lugs provided)
Weights	Empty: 2,000 lb. (907 kg) With dry carbon (ship): 4,000 lb. (1815 kg) With wet, drained carbon (return): 6,000 lb. (2722 kg) Operating: 8365 lb. (3795 kg)

Return for Reactivation

The Cyclesorb-HP unit serves as a safe and convenient shipping container to return the spent carbon to Calgon Carbon for reactivation. Spent carbon reactivation is an integral component of the Service Agreement where Calgon Carbon provides a unit with fresh carbon to replace the unit being returned. If the unit is purchased, Calgon Carbon still is able to offer exchange services incorporating most of the return and refill elements of the Cyclesorb-HP Service.

Prior to reactivation, an acceptability test is conducted on a small carbon sample provided with the initial Cyclesorb-HP adsorber, which is exposed to the water or wastewater to simulate spent carbon characteristics. After this test is complete, carbon acceptance documentation is provided to allow return of the initial and subsequent Cyclesorb-HP units used in the same service.

When treatment is complete, the Cyclesorb-HP adsorber is drained of liquid, capped, shipped back to a Calgon Carbon reactivation facility. Calgon Carbon also offers other services such as Transportation Assistance and on-Site Exchange Services. A Technical Sales Representative will be able to review the many options available for purchase, service, return and carbon exchange.

At the reactivation facility, the spent carbon is thermally reactivated and the adsorbed organic contaminants are destroyed. The Cyclesorb-HP units are cleaned, inspected, maintained and returned to inventory. Cyclesorb-HP units are then taken from ready inventory, filled with the specified carbon and provided to the next Service customer for replacement or start of treatment.

Precautionary Statements

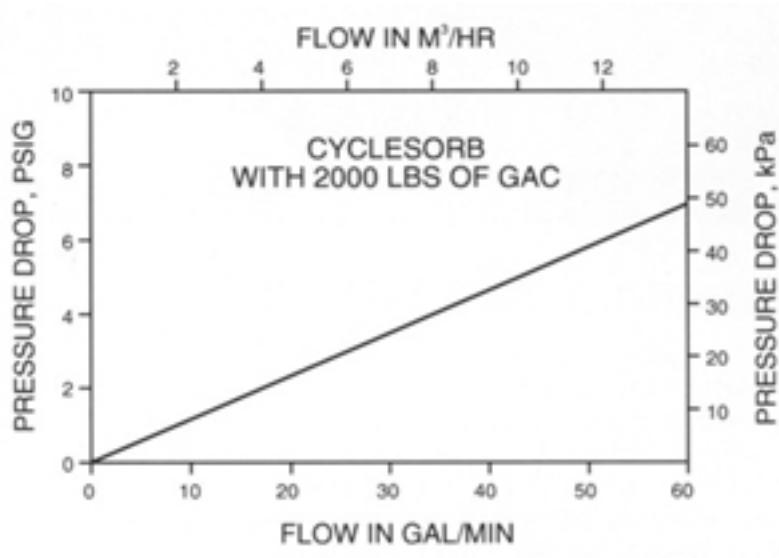
- ◆ Do not strike vessel or subject it to impact, as such practices will damage the structural integrity of the unit.
- ◆ The rupture disk must not be plugged or restricted, as the system must be able to relieve over-pressurization to prevent component failure or vessel rupture. Due to potential for corrosive failure, do not use in the presence of chlorides or other halogenated waste streams without consulting Calgon Carbon Corporation.



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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, including all applicable federal and state requirements.



Visit our website at www.calgoncarbon.com, or call 1-800-4-CARBON to learn more about our complete range of products and services, and local contact information.

