



CALGON CARBON CORPORATION

Making Water and Air Safer and Cleaner



Liquid Purification Systems & Services

Calgon Carbon Corporation produces many types of activated carbon designed for specific liquid purification objectives. Applications typically include the adsorption of organic contaminants from potable water, wastewater, and process water, as well as the purification of industrial raw ingredients and finished products.

Having the right carbon is just one component of a complete liquid purification program. To ensure optimal carbon performance, Calgon Carbon has developed a complete line of standardized, pre-engineered adsorption systems - capable of treating flows from 1 gpm to 1,400 gpm - that can be quickly delivered and easily installed at treatment sites. We can also custom design systems to solve unique treatment problems.

Our pre-engineered adsorption systems are designed for the convenient and effective use of granular activated carbon products. We can provide standard carbon for water treatment, pre-treated or special grade activated carbon for specific process requirements, and reactivated carbon for wastewater treatment.

We offer economical services on an on-going basis that include safe carbon handling, transport, storage, and reactivation.



A Calgon Carbon Technical Service Representative can provide assistance in selecting the proper activated carbon product and system, along with the services required for a total solution to most treatment needs.

Low Flow Units

Calgon Carbon provides compact, portable liquid treatment units with all the essential elements of a full-scale carbon adsorption system.

- Flowsorb® canisters are 55-gallon units constructed of 16 gauge steel to DOT 17C requirements with corrosion resistant epoxy phenolic lining.
- Disposorb® units are polyethylene canisters available in two sizes: 55-gallons and 350-gallons.
- Cyclesorb® FP1 adsorber is made from fiberglass-wrapped polyethylene. The pre-piped assembly has a maximum operating pressure of 75 psig at 140° F.
- Protect FX adsorber vessels are lightweight, non-corrosive fiberglass pressure vessels with polyethylene liners well suited for most harsh chemical environments.

Medium Flow Units

Along with our low flow series, Calgon Carbon also provides compact, portable liquid treatment units for medium flow systems.

- TW series adsorbers are economical steel canisters with corrosion-resistant interior coatings and PVC underdrains that have been pressure tested to 75 psig, and are capable of treating up to 90 gpm.
- LM series adsorbers are coated steel pressure vessels with PVC underdrains that can be provided as single adsorbers or two-stage systems.
- CR modular adsorption vessels are combined with PVC pipe racks to form a complete two vessel system that can operate in parallel or in series.
- Cyclesorb® and Cyclesorb®-HP are compact, portable units constructed of Type 316L stainless steel. The Cyclesorb® is hydrostatic pressure tested at 12-15 psig, while the Cyclesorb®-HP is rated at 75 psig.
- Cyclesorb® FP2 is made from fiberglass-wrapped polyethylene

High Flow Units

Calgon Carbon modular adsorption systems offer complete liquid-phase adsorption and are widely used for municipal drinking water, industrial processes and wastewater, and groundwater remediation. These downflow fixed-bed systems can operate in series or parallel and are designed for the removal of dissolved organic contaminants. Adsorbers are ASME code-stamped carbon steel pressure vessels with an internal vinyl ester lining. Systems are provided with piping for series or parallel operations, backwash, or carbon exchange. Four model sizes are available to cover a variety of flow rates and treatment needs:

- Model 6
- Model 8
- Model 10
- Model 12

Services

Equipment Services

Calgon Carbon offers several service packages for equipment

- Calgon Carbon services are widely used for short- and long-term applications where spent carbon is economically and safely returned for reactivation to Calgon Carbon's central reactivation facilities.
- The Cyclesorb® units, which serve both as adsorber and shipping container, are typically provided for short-term service and can be returned to Calgon Carbon with the spent carbon.
- Mobile Adsorption Service includes the activated carbon fill adsorption equipment, carbon transfer, transportation, and off-site reactivation – all for a fixed fee. Our trailer-mounted mobile adsorption equipment can be dispatched on 24-hours notice. The system is self-supporting and only requires a flat supportive surface on which it can be set.
- The Dual Model Carbon Adsorption system is ideal for emergency response situations; start-up can begin within hours of the arrival of the unit at the site.
- Calgon Carbon's Dual Express is designed to provide a rapid solution to a temporary problem. Dual Express is a skid-mounted backwashable system pre-filled with activated carbon that can be returned for reactivation.

Reactivation Services

Calgon Carbon owns and operates three activated carbon reactivation sites in the U.S. These plants are the largest, most sophisticated facilities in the world dedicated to the reactivation of carbon. Two of the reactivation facilities are fully permitted under RCRA Part B to accept manifested spent carbon.

Field and Transportation Services

Calgon Carbon's Field Services organization has over 35 years of experience in media removal, vessel exchange, and inspection and maintenance at customer facilities. In addition, Calgon Carbon has a dedicated fleet of over 80 trailers used to transport fresh and spent carbon anywhere in the United States.

Flow Rate	Model	Carbon Amount per Adsorber	Maximum Operating Pressure
1 – 30 gpm	Flowsorb®	165 lbs.	5.0 psig
	Disposorb® – 55 gallon unit	165 lbs.	7.5 psig
	Disposorb® – 350 gallon unit	1,000 lbs.	7.5 psig
	Cyclesorb® FP1	1,000 lbs.	75 psig
	Protect FX-2	50 lbs.	150 psig
	Protect FX-3	80 lbs.	150 psig
	Protect FX-7	180 lbs.	150 psig
	Protect TW 18	500 lbs.	75 psig
	Protect TW 36	1,000 lbs.	75 psig
	Protect LM 18	500 lbs.	75 psig
	Protect LM 36	1,000 lbs.	75 psig
1 – 60 gpm	CR 2000	2,000 lbs.	50 psig
	CR 5000	5,000 lbs.	50 psig
	Cyclesorb®	2,000 lbs.	15 psig
	Cyclesorb® HP	2,000 lbs.	75 psig
	Cyclesorb® FP2	2,000 lbs.	75 psig
	TW 72	2,000 lbs.	75 psig
	LM 72	2,000 lbs.	75 psig
1 – 700 gpm	Model 6	6,000 lbs.	75 psig
	Model 8	10,000 lbs.	75 psig
	Model 10	20,000 lbs.	125 psig
	Model 12	20,000 lbs.	125 psig
	Mobile Adsorber	12,000 lbs.	60 psig
	Dual Module	20,000 lbs.	75 psig
	Dual Express	20,000 lbs.	75 psig



Protect TW 36 Low Flow Unit



Cyclesorb® HP Medium Flow Unit



Model 10 High Flow Unit

Combining Technologies

Calgon Carbon has the capability to engineer combined treatment systems for the cost-effective reduction of water contaminants. For example, Calgon Carbon's adsorption systems can be used with ion exchange resins for the removal of perchlorate in groundwater remediation. Additionally, our technical staff can design systems that include both UV disinfection and carbon adsorption for inactivation of *Cryptosporidium* and for the removal of volatile organic compounds. Our knowledge of various processes allows us to select the most economical treatment system design that will meet your needs. Our engineers can also include effective pre-treatment systems for solids filtration or insoluble oil removal. This comprehensive ability to evaluate, design, and deliver economical solutions to contamination problems has been an invaluable asset to our clients worldwide.

Calgon Carbon Corporation Company Overview

Calgon Carbon Corporation (NYSE: CCC) has been a global leader in services and solutions for making water and air safer and cleaner and for purifying food, beverage, and industrial process streams. Headquartered in Pittsburgh, Pennsylvania, Calgon Carbon operates 15 carbon manufacturing, reactivation, and equipment fabrication facilities and 20 sales and service centers. Calgon Carbon is known as Chemviron Carbon in Europe, the Middle East, and Africa. Calgon Carbon serves more than 4,000 customers around the world. In 2006, the company's sales totaled \$316 million.



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