

CENTAUR[®] CDC

Enhanced catalytic Agglomerated Coal Based Granular Activated Carbon

DESCRIPTION

CENTAUR[®] CDC is a liquid phase activated carbon that has been manufactured to enhance its catalytic functionality. With a minimum **chloramine destruction number** of 90, **CENTAUR[®] CDC** has been proven to be the most efficient activated carbon for continuous chloramine control in swimming pools.

FEATURES

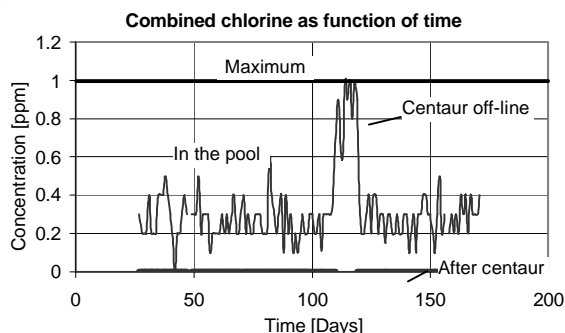
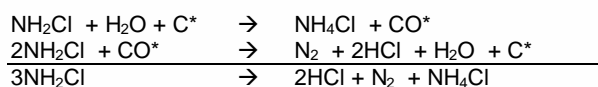
CENTAUR[®] CDC has several properties, which explain its superior performance for continuous chloramine control in covered swimming pools.

- Enhanced catalytic activity which gives faster destruction of chloramines without addition of chemical.
- **No eye irritation** for bathers due to high chloramine removal capacity.
- Chloramine removal in the pool water prevents them from escaping into the atmosphere, which results in an **improved work environment** of the lifeguards.
- Simple equipment design and thus low capital cost.
- Savings in pool operating cost.
- Produced from a pulverised blend, results in a **consistent high quality product**.

APPLICATION

CENTAUR[®] CDC is used for continuous chloramine control in covered swimming pools using fixed bed carbon technology. Chloramines (combined chlorine) are well known as contaminants, which cause poor air quality in public swimming pools and irritation of the eyes of both swimmers and lifeguards. These problems can be solved by adding more make-up water, adjusting the free chlorine level or venting the pool area. These solutions, however, lead to an increased water, chemical and energy consumption.

CENTAUR[®] CDC has shown to be more efficient than non catalytic carbons for continuous chloramine control. The reaction mechanism proposed is as follows:



PROPERTIES

SPECIFICATIONS	CENTAUR [®] CDC
Iodine Number, mg/g, min.	900
Abrasion Number, min.	75
Moisture, % As Packed, max.	3
Acid Soluble Iron, max., % ww	0.01
Extractable pH	5-8
Mesh Size (US sieve series)	12x40
> 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 Carbon test method used to define the above specifications. Copies are available upon request.)

TYPICAL PROPERTIES	CENTAUR [®] CDC
Chloramine Destruction number ¹ , %, min.	90
Peroxide Number, min.	12
Total Surface Area, (N ₂ , BET method ²), m ² /g	900
Backwashed and drained Bed Density ³ , kg/m ³	500
Particle Density (wetted in water), g/ml	1.25
Mean Particle Diameter, mm	1.0

¹ Chloramine destruction number is measured by mixing 1 g/l of pulverised carbon in a 300-350 mg/l monochloramine solution for 6 hours and then measuring the remaining chloramine concentration. It is expressed as the percentage of chloramine destruction. Conventional carbons have a chloramine destruction number of 35 to 40.

² Brunauer, Emmett and Teller, J. Am. Chem. Soc. 60, 309 (1938).

³ Backwashed and Drained Density for adsorber sizing.

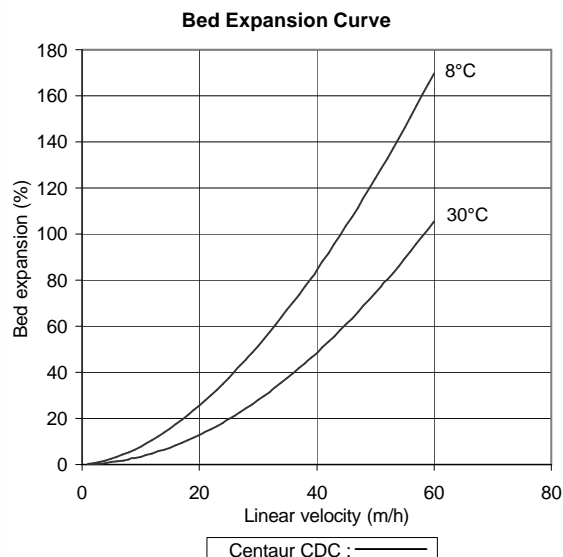
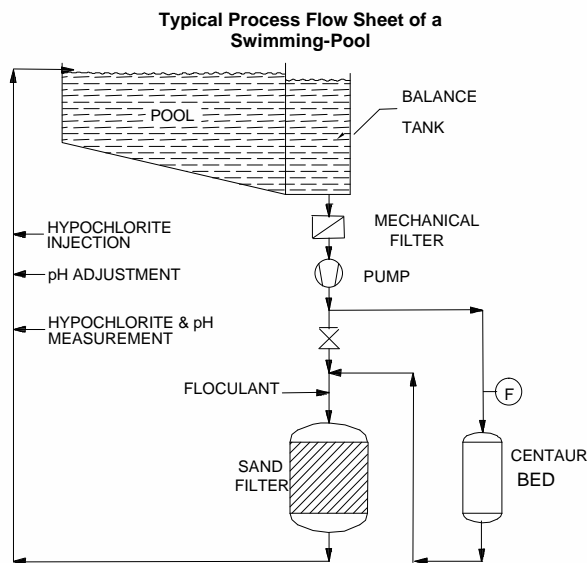
EXAMPLE

A trial carried out in a 90 m³ children's instruction pool showed good chloramine removal efficiency. Without the use of **CENTAUR[®] CDC** this pool had chloramine levels of 0.9 to 1 ppm. From the graph it can be seen that an average chloramine concentration of 0.3 ppm can easily be obtained. During the time when the **CENTAUR[®] CDC** bed was not in service (from day 110 to 119) chloramine levels went back up to the original high levels of between 0.9 and 1 ppm. When the **CENTAUR[®] CDC** bed was placed in service again chloramine levels of below 0.4 ppm were again obtained within four hours after start up. The combined chlorine level after the **CENTAUR[®] CDC** bed was always below the detection limit.

SAVINGS

In children's instruction pools with high visitor loads more fresh water is often added than is necessary for water quality control. Daily fresh water additions of 10 % of the pool volume are common. Heating of this water costs about 4 €/m³. The test work done using 400 kg of **CENTAUR[®] CDC** proved that the daily fresh water addition could be reduced by 50 % which represents an annual (330 days per year) saving of 5,920 €.

Product Bulletin



DESIGN INFORMATION

CENTAUR® CDC is intended primarily for use in liquid phase systems to promote catalytic reactions. With catalytic chloramine destruction reactions, the carbon can be utilised in a number of configurations with required contact times of less than 4 minutes. **CENTAUR® CDC** can be applied in a bypass by using a specially designed adsorber. As a rule of the thumb one should install about one cubic metre **CENTAUR® CDC** per 100 m³ pool volume to be treated. When more sand filters are available, a carbon sand filter conversion can be a good option. The total amount of water re-circulated over the **CENTAUR® CDC** should not exceed 75 % of the total circulation flow of the pool.

PACKAGING

- 25 kg bags
- Bulk tankers

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** certification for their quality management system related to activated carbon. **Chemviron Carbon** guarantees the specifications against representative sampling.

CHEMVRON CARBON

Chemviron Carbon, the European operation of Calgon Carbon Corporation, is a global manufacturer, supplier, and developer of granular activated carbon, 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 1,200 employees, Calgon Carbon Corporation can provide the solutions to your most difficult purification challenges.

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Visit our website at www.chemvironcarbon.com

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