

# CENTAUR® HSV

Granular Activated Carbon



## Description

Centaur® HSV\* is a vapor phase virgin granular activated carbon that has been developed specifically for odor removal from sewage treatment operations. This agglomerated bituminous coal-based product is unique in that it **provides the highest adsorption capacity for H<sub>2</sub>S in the industry** without chemical impregnants and adsorbs volatile organic compounds (VOCs) in an effective manner.

Centaur® HSV, by its catalytic functionality, oxidizes H<sub>2</sub>S and converts it to water soluble sulfur compounds. As a result, H<sub>2</sub>S capacity can be restored simply by water washing the carbon, eliminating the safety concerns typically encountered with alkali impregnated carbons. Centaur® HSV is capable of being thermally reactivated, which eliminates the disposal concerns associated with alkali impregnated carbons.

## Applications

Centaur® HSV is designed for odor removal in sewage treatment applications. The product is ideal for use at pump stations and treatment plants where H<sub>2</sub>S and organic odors are a problem. On-site water regeneration and eventual thermal reactivation minimize operating and disposal costs.

## Regeneration

When odor breakthrough due to H<sub>2</sub>S occurs, the spent carbon can be regenerated in place. The H<sub>2</sub>S capacity can be restored by water washing the CENTAUR® HSV carbon. Regeneration efficiency and the number of regeneration cycles depend on the loadings of H<sub>2</sub>S and VOCs. For details on regeneration and cycle determination, please contact the Calgon Carbon Technical Sales Representative for your area.

\* Purchase of this product from Calgon Carbon Corporation includes a license under the following U.S. Patents: Numbers 5356849 and 5494869.

## Manufacturing

CENTAUR® HSV activated carbon is manufactured by Calgon Carbon Corporation in the United States and is held to ISO 9001:2000 quality standards.

## Typical Properties

## CENTAUR® HSV

Ultimate H <sub>2</sub> S Capacity	0.69 g H <sub>2</sub> S/ml Carbon* *(min)
Initial H <sub>2</sub> S Capacity	0.09 g H <sub>2</sub> S/ml Carbon (min)
Iodine Number	800 mg/g (min)
Peroxide Number	19*** (max)
Butane Activity, weight	15.6% (min)
Ash, weight	7% (max)
Moisture, as packed by weight	4% (max)
Hardness Number	97 (min)
Apparent Density	0.56 g/cc (min)
Mean Particle Diameter	3.6 mm (min)
Screen Size by weight, U.S. Sieve Series	
On 4 mesh	15% (max)
Through 10 mesh	2.0% (max)

\*\*The determination of ultimate H<sub>2</sub>S breakthrough capacity is based upon its ability to be regenerated 10 times. The determination of initial H<sub>2</sub>S breakthrough capacity will be made by passing a moist (85% R.H.) air stream containing 1% H<sub>2</sub>S at a rate of 1,450 cc/min through a 1" diameter by 9" deep bed of uniformly packed activated carbon and monitored to 50 ppm breakthrough. Results are expressed in grams H<sub>2</sub>S removed per cc of carbon.

\*\*\*The determination of Peroxide Number shall be performed per Calgon Carbon Corporation Test Method 25, without modification or addition. The test method must be provided by Calgon Carbon Corporation.

## Design Considerations

Effective removal of H<sub>2</sub>S requires the gas stream to contain at least an equivalent amount of oxygen and relative humidity above 10%. Since condensation of water on the carbon will reduce its performance, devices to prevent free condensation are recommended. CENTAUR® HSV can be used in a typical fixed bed mode with superficial velocities up to 100 fpm. The bed depth can range from 12" to 36" depending on the on-stream time and water wash frequency desired. For assistance in the design of a carbon system, please contact the Calgon Carbon Technical Sales Representative for your area.

## Features

Not chemically impregnated

Metallurgical grade high purity coal

Catalytic Activity

Pore volume not consumed by impregnant

Enhanced adsorption pore volume

Ability to be water washed

Ability to be thermally reactivated

## Benefits

Heat excursion potential caused by impregnants is eliminated thus making operations safer.

Organic capacity is significantly higher than impregnated carbons thus reducing operating costs.

Since multiple water washes are possible, CENTAUR® HSV is capable of treating higher H<sub>2</sub>S concentrations typically handled by chemical wet scrubbers.

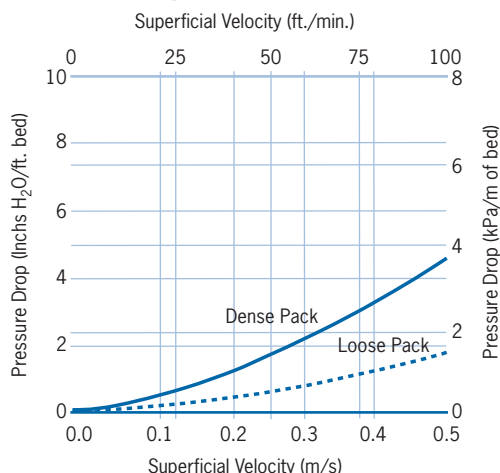
In contrast to impregnated carbons, CENTAUR® HSV has organic capacity equal to or higher than other virgin coal-based carbons.

CENTAUR® HSV has been specifically designed to show enhanced organic capacity at low contaminant concentrations typically found in sewage treatment plants.

In H<sub>2</sub>S service, CENTAUR® HSV can be field regenerated by water washing multiple times, thus eliminating safety concerns experienced with alkali regeneration and chemical handling.

Spent CENTAUR® HSV can be returned to Calgon Carbon for thermal reactivation, thus eliminating spent carbon disposal problems.

## Pressure Drop



## 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.

## Packaging

50 lb. (23 kg) bag

225 lb. (102 kg) fiber drum

1,000 lb. (454 kg) super sack



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