

FACSIMILE TRANSMITTAL MEMO

TO: Denise
 COMPANY: Res Kom
 FAX: 610 358 9642
 DATE:

NO. OF PAGES:
 FROM: Mark
 COMPANY: Calgon Carbon
 PHONE: 301 452 2443

REACT pH

GRANULAR REACTIVATED CARBON

DESCRIPTION

REACT pH is a granular activated carbon specifically designed to alleviate the pH rise commonly found on start-up of fresh carbon beds. React pH carbon is produced from the thermal reactivation of granular bituminous coal-based activated carbons.

It has been reported for many years that granular activated carbon products can exhibit significant pH spikes when placed on-line for water treatment. When this occurs, effluent pH values may exceed water quality standards set by the USEPA or by the customer, which can lead to a significant loss in production, environmental problems, customer dissatisfaction, or expensive and tedious remedial actions. High effluent pH values can be expected to last for 150 to 300 bed volumes for most commercially available granular activated carbons, and can also be expected with powdered activated carbon applications. The phenomenon has been documented for various types of water treatment applications (municipal surface water, ground water, wastewater, process water, etc.).

During water treatment, anions are partially removed from the solution and a pH rise is observed. Laboratory studies have shown that the mechanism responsible for the pH excursions is an interaction ("ion-exchange type") between the anions present in the water (SO₄, Cl, NO₃, etc.), the hydroxide ion OH⁻, the hydronium ion H₃O⁺, and the surface groups of the activated carbon.

Additionally, laboratory studies have altered the historical perspective that ash was the source of the problem. The pH excursions depend neither on the ash content of the carbon nor on the raw material used to produce the carbon. Moreover, they do not appear to be caused by the leaching of species from the carbon.

The intensity and duration of the pH excursions depend on the type of carbon and the characteristics of the water to be treated, and especially of the water pH. The lower the influent pH, the longer and more intense the spike. Anion concentrations as low as 1 to 5 mg/l can trigger significant excursions. Above a certain threshold anion concentration (5 to 10 mg/l for common anions such as sulfate and chloride), the intensity and duration of the excursions are independent of the anion concentration.

The ability of activated carbon to exhibit pH excursions can be predicted by the measurement of the contact pH of the carbon. A modified contact pH method has been developed and optimized for this purpose.

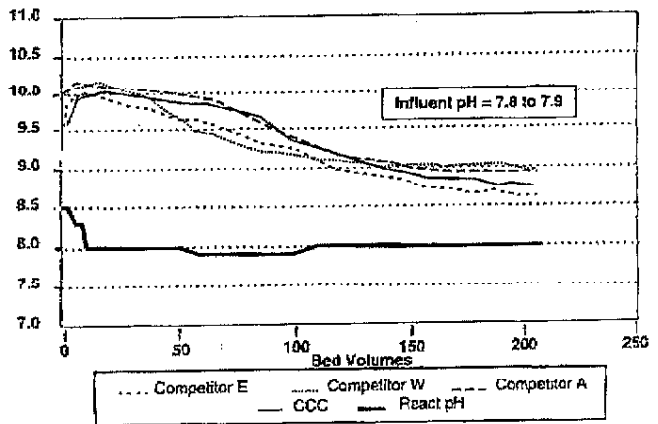
The pH excursions can be prevented or remedied by extending the backwashing step, by adding an inorganic acid (e.g. HCl, H₂SO₄) after GAC filtration, by treating the influent with an ion-exchange resin or by using React pH. (Acid washing the carbon does not alleviate the problem.) React pH contains no impregnates, nor is it acid washed to control the pH excursion.

SPECIFICATIONS

<u>Base Material</u>	
Iodine No., mg/g:	750 min
Apparent Density, g/cc	.060 max
Ash, by weight%:	12 max
Screen Distribution:	
U.S. Sieve series, weight %:	
Through 40	5 Max
<u>React pH</u>	
Modified Contact pH	8.7 Max

pH PROFILE

REACTIVATED CARBONS



APPLICATIONS

React pH is applicable in all situations where the pH of effluent or backwash water is a critical parameter, whether the limitation is due to process or permit restrictions. Influent must have a pH >3.

PACKAGING

Available in wet bulk only.

MANUFACTURING

Callensburg, KY

