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Makers of OilSorb™ and Other State-of-the-Art Filtration Media

Technical Advisory #29

Recontamination of water with activated carbon; OILSORB to the rescue.

George Alther, Dr. Henry Novicki, Wayne Schuliger.

When granular activated carbon is used to remove BTEX from water, a detrimental phenomenon can occur. The molecules with lower solubility, such as toluene and xylene, can kick off benzene, which has a higher solubility. The amount of benzene is now higher in the effluent than in the influent, causing the water to become hazardous again. This phenomenon is called “Roll-Off or Roll-Over.

Definition:

Roll-off or Roll-over is defined as the elution of adsorbate exhibiting concentrations greater than the influent, caused by desorption of fast-moving bands by components in the slow moving bands.

The desorption is due to differences in the adsorbate capacities on the carbon in the slower and faster moving adsorption bands.

Roll-Over of Fast-Moving Bands, Description:

The extent of Roll-Over (Roll-Off) is determined from the multi-component adsorption isotherms.

Every component of the influent mixture will experience Roll-Over, except the most slowly moving component.

The fastest moving band will experience Roll-Off from every other component band in the column.

