

OILSORB GUARDIAN

Biomin, Inc.
Our 15th Year of Excellence

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Oilsorb: EPA and Army Corps Permitted Approved by the U.S. Dept. of Defense, Florida EPA. OILSORB is famous for removing up to 60% of its weight in oil from water.

Remove creosote (Pentachlorophenol, PCP) from water at 3-7 times the rate of activated carbon. Operations costs, by using OILSORB organoclay, are slashed by 50%. See our testimonials and case histories on Biomin's web site, www.biomininc.com. For further references, please contact us directly.

OILSORB is an organically modified clay (Organoclay). The removal mechanism is by "partition", like dissolves into like, like oil into oil.

For best results in the removal of creosote from water at wood treating sites: A

Creosote Removal

vessel filled with OILSORB, followed by one or more vessels filled with activated carbon.

What is CREOSOTE?

1. It is a bush found in the southwestern deserts of the U.S., *Larrea Tridentata*. Resins for wood preservation used to be extracted from these bushes. Its flowers are yellow petals, about an inch wide.
2. It is the name used for a variety of products; wood creosote, coal tar creosote, coal tar, coal tar pitch and coal tar pitch volatiles. These products are a mixture of many chemicals created by the high temperature treatment of beech and other woods, coal, or from the resin of the creosote bush. Coal tar pitch (creosote, CAS#8001-58-9) is the most widely used wood preservative in the U.S. It is used for the impregnation of railroad ties, telephone poles, pilings and other outdoor wooden structures. It is a thick,

oily liquid typically amber to black in color.

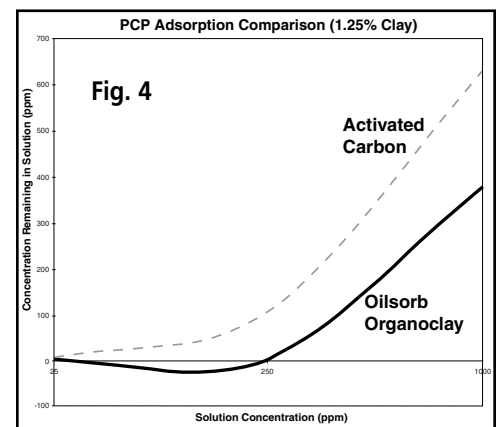
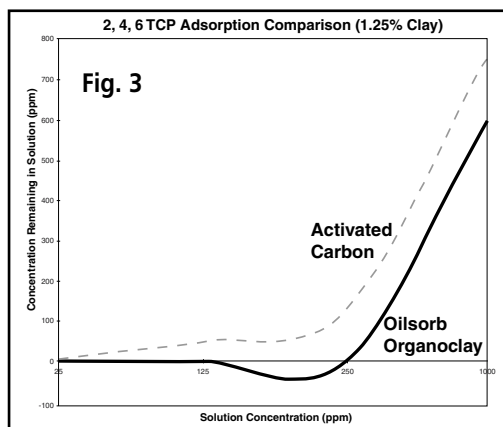
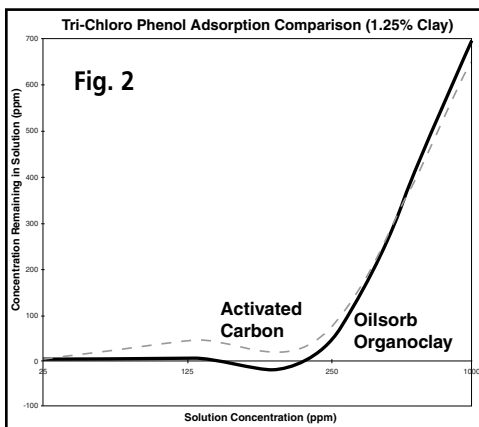
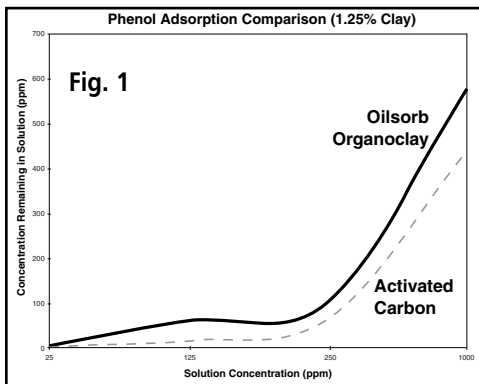
Chemically, it is a blend of several hundred compounds, the most prevailing ones being polycyclic aromatic hydrocarbons and phenolic compounds, particularly pentachlorophenol (PCP). PCP is a major constituent of wood preservatives. Trichlorophenol is used as a preservative for wood and leather, and as a biocide. Cresols have a methyl group attached to the benzene ring of toluene. In summary, creosote is like oil, it does not have a chemical formula, but is a blend of many chemicals.

3. How do they enter groundwater?
Creosotes are of very low solubility and are released at wood treating sites, entering soil and groundwater.

OILSORB organoclay to the rescue.

As one company at a creosote superfund site in the eastern U.S. just found out, treating water contaminated with creosote with activated carbon alone is a very expensive proposition. Biweekly changeouts are common. While activated carbon acts as an effective sorbent for the more soluble phenols, creosote (PCP), which is a large molecule with low solubility, will blind the

(Continued on back)



Figures 1-4 are graphic representations of sorption tests that show the increasing affinity of OILSORB for phenols as their solubility decreases and chlorine content increases. OILSORB is quite effective for removal of Phenol above 5 ppm, but below that it is advisable to use activated carbon for phenols, using OILSORB as a pre-polisher for the removal of less soluble compounds.

Case History

Problem: At an old wood treating site in Colorado, groundwater contains 30 ppm of oil and 25 ppm of PCP. The discharge limit for PCP is 50 ppb. When an activated carbon system was first installed, the carbon lasted for 1 month until a change-out was required.

Solution: Prior to the carbon vessel, two adsorbers filled with OILSORB were installed. Now the OILSORB and activated carbon are changed out once a year.

Problem: At a superfund site in Florida, where railroad ties were treated with creosote, the soil is excavated and treated thermally. This causes a condensate to leach out which contains PCP.

Solution: Using Oilsorb, instead of incinerating the condensate, allows the PCP removal project to remain within spending limits.

At an old wood treating site in Pennsylvania, Oilsorb is reported to not

only removing the PCP extremely well, but it also removes "dioxin" compounds.

The next time you specify an activated carbon system, consider the inclusion of OILSORB organoclay to save your customer money.

To order OILSORB, please call us at (248) 544-2552, fax your order to (248) 544-3733 or e-mail us at biomin@aol.com.

References and a performance guarantee are available on request.

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**Another Case History for
Oilsorb EC-100 Organoclay**

Save 50% of Operations Costs!
*by extending the life of activated carbon
by 7 times.*

Topic: CREOSOTE Removal

Creosote Removal continued from front

pores of the carbon quickly, resulting in frequent change-outs, at "HIGH COST TO YOUR CLIENT".

Additionally, the less soluble PCP may kick off the more soluble phenols, rendering the water hazardous again because it will re-appear in the effluent.

If "air strippers" are used for VOC removal, it is still advisable to pre-polish with OILSORB to prevent the air stripper media from fouling and eliminate frequent cleanups and the resulting interruption in the operation.

For expert advice on the cleanup of creosote contaminated groundwater, contact us, and we will put you in contact with an expert application engineer.

TABLE 1. Creosote site. Pond Closure. P & T System.

Contaminate	Raw Sample ppb	After Oilsorb ppb	After GAC ppb
PCP	2138	ND	ND
Phenol	3042	ND	ND
p-Chlor-o-m-cresol	694	ND	ND
2, 4-Dimethylphenol	765	ND	ND
Trichlorophenols	5336	ND	ND
Carbazole	779	ND	ND
Napthalene	959	ND	ND
Oil & Grease (ppm)	21	4	ND