



BIOMIN, INC.

State of the art water filtration media

We will lower operations costs by 50%, and bring them into compliance with discharge regulations.

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Technical Advisory #9

BIOMIN'S "TIP OF THE MONTH": INNOVATIVE SUSPENDED SOLIDS REMOVAL

Suspended solids can deposit in the interstitial pore spaces between the organoclay and anthracite, which makes up OILSORB. If the suspended solids consist of calcium carbonate rich silt, cementation can set in. This renders the media rock solid and prevents wastewater from passing through.

The preferred filter media used to remove suspended solids before they hit the OILSORB are yarn wound cartridges, made from a continuous length of yarn, which is wrapped around a core. The sizing of the pores between the yarn strands is determined by how closely the pores are spaced. The smaller the pore size, the smaller the size of sediments which can be blocked from entering the sorbent vessel. These cartridges also remove oil droplets.

The cartridges, which Biomin recommends, are nominally rated, and reach maximum efficiency faster than any other type cartridges. The higher retention capacity is based on a unique microprocessor controlled winding technology. They use an "absolute" rated cover around the core of the cartridge. The core acts as a final barrier to the sediments.

Sanopreme gaskets cover the ends of the cartridge to prevent any by-pass around the edges. This forces the water through the "absolute" rated cover.

Cartridges come in sizes from 0.5 to 100 micron ratings. If there is a lot of oil present in the water, pre-treatment with a cartridge rating of 5-50 micron may be needed. Such cartridges provide depth filtration without being blinded by fine silts and clays. One 40-inch cartridge can handle flow up to 25 gpm. These cartridges are placed into a steel vessel. Such vessels can accommodate 5 to 90 cartridges, and will handle flows up to 1000 gpm. For higher flow rates, multiple vessels are used.

For photos of such cartridges and vessels, go to: www.biomininc.com, under "Technical Advisory # 9". To order vessels and cartridges, contact us at: Biomin@aol.com.



CLEAR CREEK SYSTEMS, INC.
 CS ULTRA FILTER
 CARTRIDGE EFFICIENCY TEST RESULTS

Test #1 0.4 Microns to 2 Microns

	<u>Particle Size Range (In Microns)</u>				
	0.4-0.5	0.5-0.6	0.6-0.8	0.8-1	1-2
Initial Efficiency	57.11	64.53	68.73	73.09	76.72

40 psid Efficiency 94.98 96.03 96.56 96.63 96.78

Test #2 2 Microns to 10+ Microns

	<u>Particle Size Range (In Microns)</u>						
	2-3	3-4	4-5	5-6	6-8	8-10	>10
Initial Efficiency	76.18	84.6	91.38	95.05	97.2	99.12	99.6
40 psid Efficiency	92.61	93.25	94.32	95.26	97.07	98.6	99.23

The above test results are based upon independent tests conducted on a 10" cartridge in October 1999.