BoniFibers H®
Removing Oil and Other Hydrocarbons From Water

BoniFibers H clean industrial waste water very economically to produce reusable water without using chemicals, heat, vacuum, or special equipment, and no sludge is formed!

What are BoniFibers H?

BoniFibers H are unique interlaced synthetic fibers made in the U.S.A. They are very oleophilic and very hydrophobic—they love oil and hate water.

BoniFibers H are composed only of carbon and hydrogen. They are nontoxic and are inert to acids and alkalis.

Oil-saturated BoniFibers H are a valuable fuel. Oil-saturated BoniFibers H melt at about 300°F (149°C) and they stay liquid at room temperature. One pound of BoniFibers H holds up to 25 pounds of oil. As a fuel, the combination of melted BoniFibers H and entrapped oil has a fuel value of about 15,000 BTU/lb. Therefore, 15 pounds of saturated BoniFibers H provides about 5,000,000 BTU.

BoniFibers H function in depth filtration. The individual fibers of BoniFibers H are so fine, that 9,000 meters (about 6 miles) of the fiber weigh only 2.2 gms. (0.08 oz.). The unique construction of the interlacing results in a density of 2 pounds per cubic foot. Therefore, there is a myriad of open spaces to entrap and retain suspended oils and solids as well as emulsions.

In entrapment of emulsions, the first droplet of emulsion impinges on the fine fiber of the BoniFibers H, and then the following droplets coalesce on the first and on each other.

BoniFibers H are a profit source by recycling. Maximum value for BoniFibers H is attained by using them in a closed container. When they are saturated with oil and emulsions, just applying air pressure to the container will force out of the container the oil and the emulsion held in the open spaces in the BoniFibers H. Therefore, the oil is salvaged. Otherwise, used BoniFibers H may be either sold to waste oil recyclers or melted to become a valuable fuel.

If valuable (e.g. gold, silver, platinum, iridium, etc.) suspended solids are entrapped in the open spaces of BoniFibers H, when the BoniFibers H are melted the heavy suspended solids settle out to be salvaged from the melted material.

Solving wastewater headaches with BoniFibers H

- You do not pay to truck away your industrial waste water.
- By recycling, you minimize make-up water costs.
- You install a low-cost, easy-to-use, system.
- You exchange an expensive operation for a new profit source.
- Dissolved materials are chemically precipitated and then removed in BoniFibers H. No Sludge is Formed.

Results	
Feed: 180 mg/l, oil	Product: 4.6 mg/l, oil
Feed 5,000 mg/l, oil	Product: 4.0 mg/l, oil
Feed 231 ppm SS*	Product: 1.4 ppm SS
* Suspended solids passing a 200 mesh screen and held on a 325 mesh screen.	

- You remove more oil from spills into open water. A pound of BoniFibers H in a pad holds up to 25 pounds of oil.

How to treat wastewater with BoniFibers H

Employing either of the following two methods, the cleaned water is either reused or discharged in a single step.

In pretreatment before your existing system. Emulsions are removed, preventing your system from becoming fouled.

Industrial wastewater containing oils, emulsions, and/or suspended solids enter the General, our 55 gallon drum containing 15 lbs. of BoniFibers H. Dissolved material (VOC & < 10 PPM oil, < 2 PPM solids) leaves the barrel where it is then filtered through activated carbon, a membrane filter, ion-exchange system, or reverse osmosis, leaving you with cleaner water.

In post-treatment to do a better job (emulsions are removed).

Water that has already been treated by gravity separation, oil skimming, air flotation, or centrifugal separation is filtered through our 55 gallon drum containing 15 lbs. of BoniFibers H.

The Control Barrel

Our water pollution control barrel, has the following specifications:

Size:	55 gallons
Diameter (A):	24"
Height (B):	35"
Inlet:	C-1"MPT
Outlet:	E-1"MPT
Drain:	E-1"FPT
Flow rate:	10 GPM
Max. pressure:	10 psig
Max. design temp.:	140º F
Cover:	• Removable 16 gauge lid. • Ring-and-bold closure. • Poly-clad cellulose gasket.

Experiences with BoniFibers H

In the hundreds of installations of BoniFibers H, most of our customers do not take an analysis of oil concentration of the waste water entering and exiting the container of BoniFibers H.

They are happy just as long as they can reuse the exiting (cleaned) water, or discharge it to either the municipal sewers or the local streams with the approval of the local Pollution Control Authorities.

But, following are results that some of our customers have reported. The variation in the results is due to the variety of the kind of oils being recovered.

Oil Concentration in water entering BoniFibers H	Oil Concentration in water leaving BoniFibers H	Percentage Removal of oil
150 ml/l	3.5 ml/l	97.70%
180 ml/l	4.6 ml/l	97.40%
20 ml/l	0ml/l	100.00%
5,000 ml/l	4ml/l	99.90%
129 ml/l	6.5 ml/l	95.00%
200 ml/l	2ml/l	99.00%
80 ml/l	10 ml/l	87.50%
405 ml/l	0ml/l	100.00%
Suspended solids		
231 ppm	1.4 ppm	99.40%

Further Questions

Please feel free to call Gardner & Clark, Inc. at 1-866-312-6611 or (970) 241-6470 if you have any questions about BoniFibers H that are not addressed in this document.