ULTRATECH INTERNATIONAL, INC

# Comparison of Oil-Absorption Capabilities

## Ultra-Filter-Tex vs. Traditional Polypropylene Fact Sheet

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### Introduction to Ultra-Filter-Tex

Ultra-Filter-Tex is a patented hydrophilic (water attracting) and lipophilic (oil attracting) material made of recycled synthetic fibers. The fibers are blended and processed to form a lightweight fiber mass with enormous surface area and interstitial spaces. These properties make Ultra-Filter-Tex an extremely high performing oil sorbent and filter material. Ultra-Filter-Tex is offered in bulk media form (for use in booms and socks) and also in roll form (which can be used like a silt-fence or processed further by UltraTech for our Ultra-Oil Blanket and Ultra-Oil Boom products). Ultra-Filter-Tex has been used for over 10 years.

### What are the benefits of using Ultra-Filter-Tex versus traditional polypropylene sorbents?

+ Polypropylene is a hydrophobic (water repelling) material. This means that a polypropylene sorbent material will not allow water to freely pass through it. Oil will absorb at the surface of a polypropylene boom, and the polypropylene will eventually blind over and the center will not absorb any oil.
+ Ultra-Filter-Tex is a hydrophilic material, allowing water to freely pass though. Ultra-Filter-Tex is also lipophilic, with a very high affinity for hydrocarbons. This unique combination allows water to flow completely through Ultra-Filter-Tex products, absorbing oil throughout instead of just on the surface, as is the case with polypropylene.
+ Please see the Video on Ultra-Filter-Tex versus Polypropylene on our website: www.SpillContainment.com
+ Polypropylene claims to absorb 20-25 times its weight in oil, but this is only true at the surface. When calculating the amount of oil absorbed by a polypropylene boom, you can't take credit for the weight of the polypropylene that comprises the core, as oil never comes in contact with the center of the boom.
+ Ultra-Filter-Tex absorbs over 13 times its weight in hydrocarbons. Because Ultra-Filter-Tex is hydrophilic, oil in water will be able to be absorbed throughout the entire diameter of an Ultra-Filter-Tex boom. This makes Ultra-Filter-Tex a more cost-effective solution when measuring gallons of oil absorbed.
+ Ultra-Filter-Tex products can be infused with Ultra-Microbes – oil-eating microbes carried by bentonite clay (for beach and on-shore application) or corn starch (for open water applications) that metabolize hydrocarbons into lipids, carbon dioxide, trace carbon, and bacterial cells.

## Cost Comparison of Ultra-Filter-Tex versus traditional polypropylene sorbents

| Target Quantity of Oil Absorbed = 1 gallon per foot of boom | Ultra-Filter-Tex Boom 5 inch Diameter | Polypropylene Boom 5 inch diameter |
|---|---|---|
| Cost per foot of 5" diameter Oil Absorbing Boom | $9.75 | $3.50 |
| Gallons of Oil absorbed per foot of boom[1] | 0.79 | 0.19 |
| Number of times a boom needs to be deployed to absorb the target quantity of oil | 1.27 | 5.26 |
| Labor cost to deploy booms needed to absorb the target quantity of oil[2] | $19.05 | $78.90 |
| Labor cost to retrieve saturated booms to absorb the target quantity of oil[2] | $19.05 | $78.90 |
| **Total Cost per foot of Boom to absorb the Target Gallons** | **$50.48** | **$179.21** |

[1] Based on the thick crude oil from the Deepwater Horizon Gulf oil spill vs. refined oil. Assumes full saturation of the hydrophilic Ultra-Filter-Tex booms based on actual testing and industry information data and partial absorption (based on discussions with First Responders, polypropylene booms are only absorbing oil into the outside 1 inch of the boom before blinding over, resulting in only a 36% effective area for a 5 inch diameter boom) by the polypropylene boom based on testing and industry information.

[2] Based on discussions with First Responders, a typical charge to deploy a boom in calm water is $14-$16/foot of boom. For the purpose of this exercise, $15/foot of boom will also be used for the retrieval of each boom, although in reality this charge will be slightly higher.

Summary: When taking into account the costs to deploy and retrieve each boom, the Ultra-Filter-Tex material ($50.48/foot of boom per gallon of oil) is over three-and-a-half times more cost effective than traditional polypropylene booms ($176.21/foot of boom per gallon of oil).