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# SORB<sup>®</sup> ABSORBENTS

*Environmentally Friendly Spill Control*



*UNIVERSAL PARTICULATE*



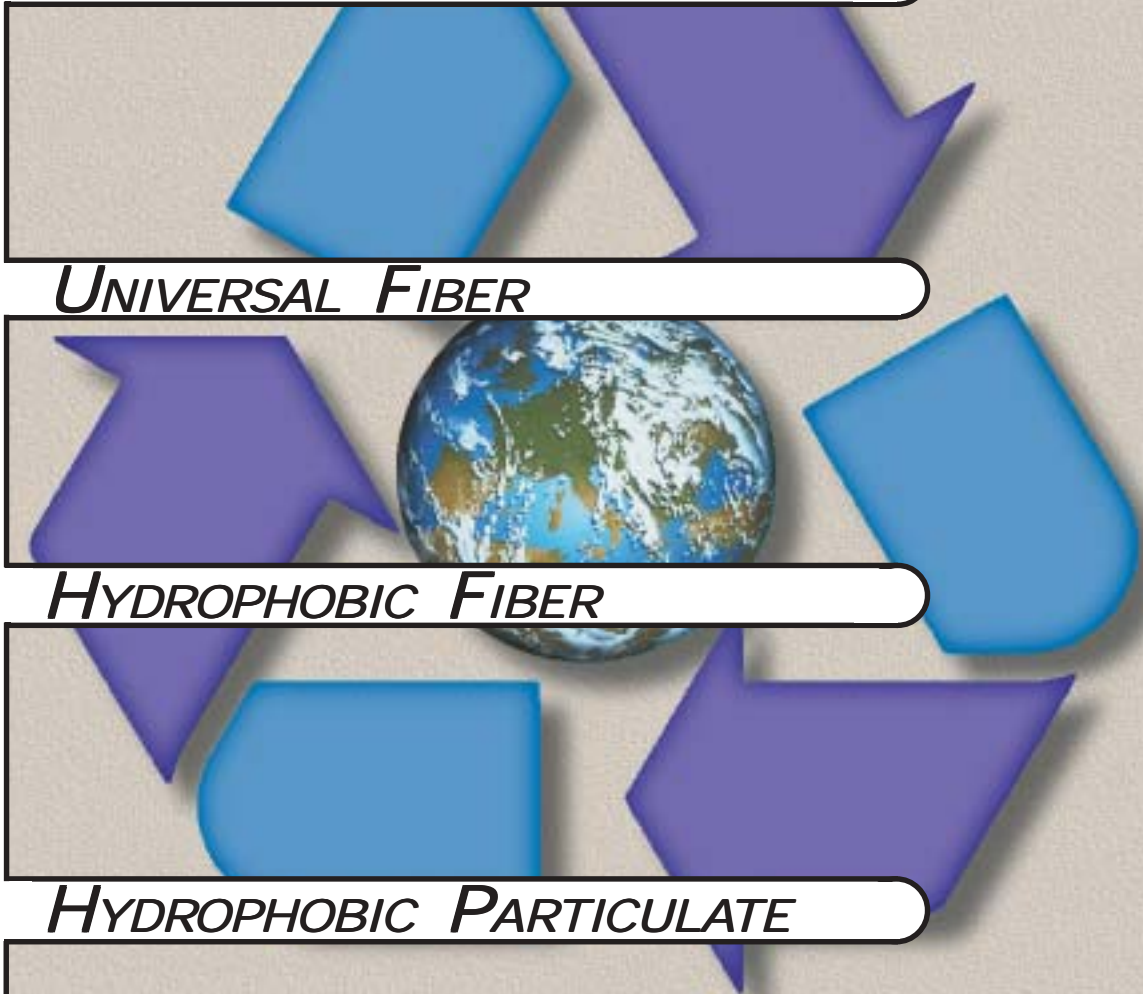
*UNIVERSAL FIBER*



*HYDROPHOBIC FIBER*



*HYDROPHOBIC PARTICULATE*



# THE K-SORB® ADVANTAGE



## Quick Cleanup

K-Sorb's high capillary wicking action instantly attracts liquids - locking them into its hollow cellulose fibers allowing for quick cleanup before spills spread. K-Sorb's superior absorptive capacity means less absorbent is transported to the spill site and less waste is removed for disposal, thereby effectively reducing manpower and material handling requirements.

## Waste Minimization

K-Sorb® Fiber products can absorb over 13 times their weight in liquids and still pass a paint filter test for solid landfill disposal. To absorb and solidify 1000 gallons of free liquid waste, it would require: (1) 8,000-11,000 lbs. of clay, (2) 6,000-8,000 lbs. of fly ash or diatomaceous earth, or (3) 650 lbs. of K-Sorb® Fiber. This not only saves the environment by creating less waste, but reduces hauling and disposal costs substantially.



## Disposal Options

K-Sorb® absorbents are made from recycled cellulose fibers, have between 8,400 and 9,800 btu/lb., and burn to less than 3% ash, making them ideal for incineration. Not only does this allow for traditional incineration and reduce the demand on a limited amount of landfill space, but it increases disposal options to include fuel blending facilities such as cement kilns and fossil fuel plants, which could use hydrocarbon saturated K-Sorb® as an alternative fuel source in their manufacturing process. K-Sorb® locks liquids into its hollow fibers allowing it to pass EPA Paint Filter Test Method 9095 and TCLP leachate standards required for landfill disposal. Because K-Sorb's natural organic elements can be broken down when microbial enzymes are added, bioremediation also becomes a disposal option. Polypropylene has restrictions on its incineration and is known to leach, while mineral sorbents (clay, diatomaceous earth, and vermiculite) do not burn and are also prone to leaching problems, often limiting their disposal to more costly means.



# Safety

The K-Sorb® product line is non-carcinogenic, nontoxic, and contains no furans or dioxins. Unlike clay, it contains no silica dust, which not only causes silicosis, a form of cancer, but is abrasive and can damage expensive machinery. Further, clay becomes slick when saturated with oils, causing problems for forklifts and pedestrians in traffic areas, whereas K-Sorb® does not.

# Environmentally Friendly

K-Sorb® absorbents are made from reclaimed cellulose fiber that, if not recycled, would contribute to the growing demands the world is placing on its environment. Because of their superior absorption, they greatly reduce the amount of waste that is produced at the cleanup site. Upon being used, the waste created can then either be incinerated (saving landfill space) or even be recycled once again as an alternative fuel source. Quite simply, no other absorbent on the market can offer such a positive impact on the environment combined with the cost effectiveness of the K-Sorb® line of absorbents.



*K-Sorb® Absorbents are made from natural recycled materials enhanced for superior absorption to minimize the amount of waste produced while allowing for economical and environmentally friendly disposal.*

## Summary of Absorbent Characteristics

Rankings relative to absorbents in the same class

	Absorbs Oil	Hydrophobic (oil only)	Incinerable	Non-Leaching	Absorbs Instantly	Waste Minimization	Made from recycled materials	Contains Silica (Carcinogen)	Abrasive to machinery	Anti-Static	Cost per unit absorbed	Disposal cost per unit absorbed
<b>K-Sorb Hydrophobic Fiber®</b>	●	●	●	●	●	High	●			●	Low	Low
<b>K-Sorb Hydrophobic Particulate®</b>	●	●	●	●	●	Medium	●			●	Low	Low
Polypropylene	●	●	Restricted		●	High					High	Medium
Peat Moss	●	●	●	●	●	Medium				●	High	Medium
Absorbent W	●	●	●	●	●	Medium	●			●	High	Medium
<b>K-Sorb® Universal Fiber</b>	●		●	●	●	High	●			●	Low	Low
<b>K-Sorb® Universal Particulate</b>	●		●	●	●	Medium	●			●	Medium	Medium
Clay	●					Low		●	●	●	Medium	High
Diatomaceous Earth	●					Low		●	●	●	Medium	High

# K-SORB® APPLICATIONS . . .



## Spill Control

On land or on water, K-Sorb® is the answer for spill control and cleanup. The K-Sorb® Universal line absorbs hydrocarbon, chemical, and aqueous liquids alike. It outperforms clay, corn cob, diatomaceous earth, and vermiculite absorbents. Greater absorbency results in reduced absorbent requirement, manpower, and waste generated requiring costly disposal. The K-Sorb Hydrophobic® line is more economical than polypropylene, peat, and other hydrophobic cellulose absorbents. It is an excellent selection for absorbing spills floating in sumps, pits, and lagoons, or offshore when used as boom, sock, and pillow filling.

## Sludge Stabilization and Liquid Waste Solidification

K-Sorb® Fiber products are ideal for sludge stabilization and liquid waste solidification projects. Lightweight and highly absorbent, K-Sorb® passes TCLP and paint filter testing, has a high heat content (over 8,400 btu/lb), and burns to less than 3 percent ash. In summary, no other product available can absorb 13 times its weight in free liquid while providing the same level of disposal freedom and environmental protection as K-Sorb® Fiber.



## Oil Filtration

K-Sorb Hydrophobic® products can also be used to filter hydrocarbons, chemicals, and grease from contaminated water sources. Simply run the water through a column or drum containing K-Sorb Hydrophobic® Particulate or K-Sorb Hydrophobic® Fiber. The contaminant is absorbed and contained for disposal, and clean water is discharged for reuse.



K-Sorb® Product Line	PN	Description	Absorption Capacity	Number of Bags Per		
				Pallet	Truck	40' HC
K-Sorb® Universal Particulate	5500001	22 lb. particulate	8-13 gallons	54	1890	1700
K-Sorb® Universal Particulate	5500015	10 lb. particulate	3-7 gallons	100	4200	3740
K-Sorb® Universal Fiber	5500008	40 lb. compressed bag	44-88 gallons	24	1032	840
K-Sorb® Universal Fiber	5500013	30 lb. compressed bag	33-66 gallons	24	1056	840
K-Sorb Hydrophobic® Particulate	5500002	22 lb. particulate	8-13 gallons	54	1890	1700
K-Sorb Hydrophobic® Fiber	5500036	30 lb. compressed bag	42-55 gallons	24	1056	840

# SPILL CONTROL SOLUTIONS

## K-Sorb® Universal Particulate

A highly absorbent cellulose product used to absorb and control liquid spills in industrial settings. It is manufactured from recycled cellulose fiber and is non-selective (universal) in what it absorbs. It is a non-carcinogenic, low dust alternative to clay, vermiculite, and d.e. Ideally suited for spill cleanup on land, K-Sorb® Universal Particulate can absorb 3 to 5 times its weight in liquid spills, making it over 400% more absorbent than clay. A 10 gallon spill would require one 22 lb. bag of K-Sorb, or 88 lbs. of clay. Lightweight and highly absorbent, K-Sorb® Universal Particulate is an excellent choice for solidifying liquids and stabilizing sludge. Its use can reduce inbound transportation costs and material handling by 75% versus clay, while reducing hauling and disposal cost 40%. It has high btu value (8,484 btu/lb) and qualifies under RCRA for cost-effective and permanent disposal as fuel through incineration. Inorganic absorbents such as clay, fly ash, vermiculite, and d.e. do not, making their disposal means more limited and costly. K-Sorb® Universal Particulate is available in 22 lb. and 10 lb. bags.



## K-Sorb® Universal Fiber

A highly absorbent cellulose product used to solidify liquid waste and stabilize sludge for transportation and disposal on remediation projects such as tank cleanouts, lagoon dredging, and pond closures. This specialty fiber is ideal for absorbing free liquid in roll-off boxes and can be disposed of as a solid waste. K-Sorb® also satisfies EPA test requirements (i.e., paint filter and TCLP tests) for waste prior to disposal. K-Sorb® Universal Fiber can absorb an amazing 13 to 17 times its weight in water and/or oils, meaning less absorbent is used and the amount of waste product is minimized tremendously compared to fly ash, d.e., clay, corn cobs, rice hulls, and lime kiln dust. Not only does K-Sorb® Universal Fiber reduce the amount of waste requiring disposal up to 46%, it is made from 98.5% recycled fiber that otherwise would go to a landfill. Furthermore, this product has 8,484 btu/lb and burns to less than 3% ash, making it ideal for incineration projects. Inorganic absorbents such as clay, fly ash, and lime kiln dust do not burn, which limits disposal options to more costly methods. K-Sorb® Universal Fiber is available in 30 lb. and 40 lb. compressed bales measuring 18"x22"x12".



## K-Sorb Hydrophobic® Fiber

A loose cellulose absorbent which is oleophilic (readily absorbs oil-based liquids) and hydrophobic (does not absorb water). It is used to absorb hydrocarbons, chemicals, oils, and greases on land and on open water. K-Sorb Hydrophobic® Fiber is an excellent choice for solidifying chemical waste and stabilizing oil-based sludge prior to transportation and/or disposal. K-Sorb Hydrophobic® Fiber effectively separates free oils from water, and can be used to remove contaminants from shores, lakes, rivers, ports, marinas, lagoons, and ponds. It passes US EPA Paint Filter Test Method 9095A after absorbing 13 times its weight (1.8 gallons per lb) in oils, making it much more cost efficient than other cellulose absorbents, sphagnum peat moss, and polypropylene. K-Sorb Hydrophobic®'s high capillary wicking action instantly attracts hydrocarbons, locking them into its hollow fibers and allows for quick cleanup before the spill spreads. K-Sorb Hydrophobic® fiber passes the TCLP and prevents the leaching problems associated with clay, d.e., and polypropylene. Once saturated with hydrocarbons it has absorbed, K-Sorb Hydrophobic®'s additional 9,809 btu/lb and low ash content make it an exceptional candidate for disposal as an alternative fuel source at cement kilns, fossil fuel plants, and traditional incinerators. This product is available in 30 lb. compressed bags measuring 18"x22"x12".



## K-Sorb Hydrophobic® Particulate

A densified version of K-Sorb Hydrophobic® Fiber. It has the same characteristics as the fiber, but it is pourable in nature and more resistant to windy conditions. K-Sorb Hydrophobic® Particulate can absorb 4 times its weight (over half a gallon per pound) and is used for controlling and remediating CERCLA liquid hazardous waste on land and on open water. It is a cost effective alternative to Absorbent W, polypropylene, and peat moss. In addition, K-Sorb Hydrophobic® Particulate is used as a filter media to remove oils and greases from contaminated water sources. It is available in 22 lb. bags (approx. 1.5 CF) of loose particulate.



## Universal Absorbency Analysis (1000 gallons free liquid)

Source: Pollution Technology Review No. 150

Product	Absorbency Ratio	Absorbent Required (lb.)	Disposal Weight (lb.)
K-Sorb® Universal Fiber	13	640	8,980
K-Sorb® Universal Particulate	4.0	2,085	10,425
Clay	1.0	8,340	16,680
Fly Ash, Diatomaceous Earth, or Corn Cob	1.4	5,900	14,240

## Hydrophobic Absorbent Market Analysis

Product	Material	Absorbency 40W Oil (lb waste absorbed / lb)	Absorbent Cost Truckload Pricing (\$/gal absorbed)
K-Sorb Hydrophobic® Fiber	cellulose	13.1	\$0.13
K-Sorb Hydrophobic® Particulate	cellulose	4.1	\$0.55
Absorbent W	cellulose	4.3	\$1.48
New Pig PLP405	cellulose	2.6	\$1.86
New Pig MAT403 Pads	polypropylene pad	9.5	\$1.50
3M HP156 Pads	polypropylene pad	24.4	\$1.05
Spill 911Hydrophobic	chopped polypropylene	11.5	\$1.58
New Pig PLP404	peat moss	5.2	\$1.40
Sphag Sorb	peat moss	4.7	\$1.31
Oclansorb	peat moss	7.4	\$0.89
Oil Gator	cotton	4.1	\$1.41

**The K-Sorb® line of absorbent products serves the following industries:**

- **PETROLEUM INDUSTRY** (refineries, drilling platforms, oil rigs, bulk storage plants, loading facilities)
- **EMERGENCY SPILL RESPONSE** (spill response contractors, EPA, Department of Environment, fire departments)
- **TRANSPORTATION INDUSTRY** (ports, harbors, shipping companies, railways, trucking companies, transit authorities)
- **MANUFACTURING INDUSTRY** (chemical, automotive, heavy equipment, paint, steel mills, pulp and paper, food)
- **SERVICE INDUSTRY** (environmental contractors, waste haulers, service stations, laboratories, painters)

**The environment and your budget agree . . . Make it K-Sorb®!**



**Please call 800-551-9956 for free product support and pricing.**

**\*K-Sorb® products are patented\***

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