



ProSorbents



Integrity, Reliability, Quality



Quick Sorbents Guide

Each business and organization has a completely unique requirement and to stay in compliance or to improve their bottom line with the products we produce.

Below we have laid out a basic out line as to help you determine which product group will benefit you the most. Each absorbent type is color coded and you will find this coding through out the catalog to alert you to the purpose of the product.

Oil Only Polypropylene

Designed to selectively absorb petroleum, hydrocarbons and other oil-based liquids made from polypropylene fibers, suitable for land fills.

The product is normally white in color, and will not absorb water. This product type is designed to absorb liquid's such as gasoline, kerosene, oil based pesticides, diesel, vegetable oils and animal fats.

Oil Only Natural Fiber

Designed to selectively absorb petroleum, hydrocarbons and other oil-based liquids , made from Natural Fiber designed to absorb petroleum based liquids.

Due to the current situation with petroleum and the quest for a recycled sustainable product source. Fiber booms are suitable for incineration with a very high BTU.

Universal (MRO)

Designed to absorb aggressive and non-aggressive liquids such as oils, water, coolants, acids, caustics and solvents. This sorbent is made from polypropylene fiber.

The product is normally gray in color, and is used in a wide variety of businesses. One of the big benefits is it can be used for any liquid, and has a high capacity.

General Maintenance

Designed to absorb all non-aggressive liquids such as oils, coolants, solvents, antifreeze and water. Sorbents made from cellulose universal material.

The product is normally gray/blue in color and will absorb coolants, motor oils etc. Not to be used for aggressive liquids and can be incinerated.

Hazardous Material

Designed to absorb aggressive chemical and acid spills, along with all other liquids. The Yellow Color is to alert the responder when disposing of used sorbents to prevent comingling of liquids.

The product is normally yellow in color, and will absorb all forms of liquids from acids, caustics, gasoline, pesticides, coolant , motor oil, etc.

What do you need?

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Everyone us has tried to make something work no matter what it took, believing it will save money and that MacGyver has nothing on us. It might prove that we have the ingenuity of an 80's TV Star, but we are most likely wasting time and money.

By simply taking the time to survey your area, you should start to notice things like:

- ◆ **Slope:** Warehouse floors, drive ways, parking lots and natural terrain will show you where the spill will travel. The trick here is not to chase the spill but meet the spill with the products in a strategic location.
- ◆ **Water Ways:** If you are near bodies of water, you will have to take stock and imagine the worse case scenario possible and prepare for it. Have an action in place along with adequate material on hand. When Hydrocarbons hit the water, it can spread very quickly.
- ◆ **Response:** How far and How much? How far away will your response team will be to get to a possible spill, and how much material will they need to carry to the spill. Shortening the response time and having adequate material in strategic locations allows your response team to adequately and effectively address the spill.

Loose Particulates: Used for damming the spill, and offers great coverage as the responder can broadcast the particulates into he spill. .

Socks, Pillows and Boom: Can be used to contain spills on water or land, absorbs as it blocks the spill. Used passively to catch drips and leaks.

Pads and Rolls: For quick coverage of a spill or to catch drips from machinery and vehicles. The ease of replacement and low cost per use makes this affordable solution.

Sweep: To “polish” the water by removing the oil sheen off the water. This product can be used passively or actively. A reinforced Polypropylene webbing allows the product to be dragged across the water or anchor the skimmer to allow the water to pass under it.

Snare: Used to capture very thick oil from the water making into a Tar Ball. Can be used individually by hand or used on a 50 foot rope with 30 attached to drag through the water. Can be steam cleaned to re-use a few times.

Pom Pom: Used to pick up light oils and fuels from the water. Can be used individually to scrub rock, trees and shore lines. Or 30 Poms on a 50' rope to drag through the water or used in place to catch oils as they pass by in the current.

Spill Kits: Spill kits contain a specific list of products that facilitates the adequate response to a spill or supports an established maintenance plan: Spill kits can be customized to meet the users needs.

Absorbent capacity by volume

The definition of an absorbent is: "a material having capacity to absorb another substance"

If you look at absorbents as a container, you should be able to judge approximately how much something can hold or absorb based on the container size. Absorbents that are made from Polypropylene, Polyester, Clay, Perlite, Peat Moss, Cotton recycled fabrics and other like material are limited to a fixed capacity by their static volume, and do not swell in any meaningful way to increase the volume of the product.

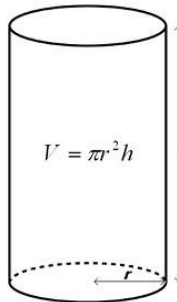
Absorbents such as Cellulose and some Polymers will swell to increase in volume to allow more liquid to be absorbed or solidified. Cellulose absorbs the liquids and pulls into its cells which makes it swell to accommodate more liquid. Polymers such as Sodium and Potassium Polyacrylate, are man made for a specific reaction with aqueous liquids and swell to the designed capacity.

To find the capacity of an absorbent, we have to do some math to determine the volume of the product. But there are few things we need to know:

- ◆ 1728" cu. inches is equal to 1 cu ft. (12" x 12" x 12" = 1728")
- ◆ 1 cubic foot of space will hold 7.5 gallons of liquid.
- ◆ Volume of a cube (bales of pads, pillows, sweep) $L \times W \times H / 1728 = X$ cubic feet
- ◆ Volume of a cylinder (boom, socks and rolls) $r^2 \times \pi \times h / 1728 = X$ cubic feet

First find the cubic footage of the product, then multiply by 7.5 and you have the volume in gallons of the empty container. We are not using empty containers of course, and depending on density, you can figure up to 80% of the volume of the container is your actual capacity or absorbency. However the more dense the absorbent is the less it will be able to absorb.

Volume of a Cylinder



$$V = \pi r^2 h$$

Where:

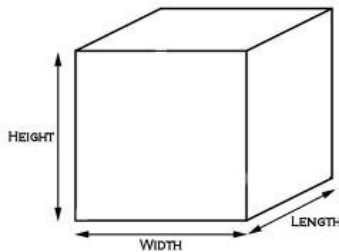
- ◆ V = Volume
- ◆ h = height
- ◆ π (pi) = 3.1416
- ◆ r² = radius squared (radius times radius)

After you find the volume of your roll, sock or boom, you can figure that the sock or boom will hold up to 80% of its total volume.

So if the total volume of a 5" x 10' boom equals 1.36 ft.³, or 10.2 gallons.

Then your actual capacity is approximately 8.16 gallons.

Volume of a Cube



$$L \times H \times W = V$$

Where:

- ◆ V= Volume
- ◆ L= Length
- ◆ H= Height
- ◆ W= Width

After you find the volume of your Pad, Pillow or Sweep, you can figure that it will hold up to 80% of its total volume.

So if the volume of a 15" x 18" x 18" bale of pads equals 2.81 ft.³ or 21.09 gallons.

Then your actual capacity is approximately 16.9 gallons.

Absorbent capacity by weight.

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Finding the absorbent capacity by multiplying the weight of the product.....

The problem with multiplying the weight of an absorbent to find the capacity, is that the liquids they absorb will vary in weight. We see on various websites and literature, claims of absorbency from 15 to 30 times its own weight for polypropylene absorbent pads.

Using the 15 times its own weight formula and if the bale of pads weigh in at 14 lbs., then we can conclude it will absorb 210 lbs. of liquid. ($15 \times 14 = 210$)

We know that a "Gallon" is a unit of measure and the volume capacity of a gallon never changes. We also know that different liquids have different densities and weights. One gallon of Water is 8.3 lbs. per gallon and Gasoline is 6.3 lbs. per gallon. So based on the absorbency ratio above, how is it that the same bale of pads can only pick up 25.3 gallons of water but can pick up 33.33 gallons of gasoline.

If the temperature rises above 60° F, the lighter fuels will start to expand and they will start to weigh less per gallon. If one gallon of gasoline in volume is equal to one gallon of water, then how do you get different numbers on bale of pads that does not expand.

Some examples of average gallon weights of different liquids, at 60° F. (FAA Standard Benchmark Temp)

- ◆ 50% Sodium hydroxide 12.8 lbs. per gallon
- ◆ Water 8.3 lbs. per gallon
- ◆ 30 weight Motor Oil 7.5 lbs. per gallon
- ◆ No. 2 diesel 7.15 lbs. per gallon
- ◆ Jet A 6.6 lbs. per gallon
- ◆ Gasoline 6.3 lbs. per gallon

If the above example is true, then the one bale of pads able to absorb 28 gallons of 30 weight motor oil, has to somehow increase in size to pick up 33.3 gallons of gasoline.

To pick up 28 gallons of 30 weight oil you will need a bale of pads measuring 3.73 cubic feet (15" x 18" x 24" bale) and then expand to a 5.2 cubic foot (15" x 18" x 33") bale to pick up 33.3 gallons of gasoline. We are asked to believe that somehow, a Polypropylene bale that does not expand, grows 9" taller based on a liquid type and weight of the liquid.

However, this method of figuring out capacity is used in factoring budgets and to determine what is required to address emergencies in some of the largest companies and agencies. Which over time, it has proven out that every emergency spill has fallen short

Conclusion.....

There has to be some sort of balance between volume and weight of the product. You can't have such a high loft product that weighs almost nothing. Having a high loft underweight bale may look nice but the fibers are so weak and far apart they will not be able to hold the liquid or even stay together when saturated. And then if the product is so dense and heavy, the fibers will be so close together the capacity of liquid it can handle is restricted.

Essentially, we have to find the product that exhibits enough loft to give us the capacity, and the proper weight of material to give you the strength. Of course other factors come into play such as the quality of resin used, the machine, and the methods of producing the absorbent.

The best method is to ask for the dimensions (LxWxH) and weight of the bale and if it falls within an average weight of 3.3 lbs to 4.3 lbs per cubic foot, then this should be ok for a quick assessment.

Work Place Safety

29 CFR 1910.22(a)(2) - Floors in your workplace should be, "maintained in a clean and, so far as possible, a dry condition."

You can see the action word "Maintained in a clean...dry condition", this is stating that you should have a PM (preventive maintenance) in place and this should be looked at every day. Keeping floors clean and dry, reduces the chance of having a slip and falls in the work place.

Employee and customer slip and falls is a very costly and the long term costs of higher insurance rates over several years far out spends the cost of maintaining a simple PM program to prevent such accidents.

Beside the obvious penalties a business can face from what was mentioned above, one of the most over looked benefits of using spill products in your preventative maintenance programs is to improve the bottom line profit of a company.

By using the proper tools and disciplines, you will cut down on the cost of labor, improve productivity and gives the sense of pride in your business. It makes a very strong statement to the employees and all who come by for a visit.

You can purchase inexpensive products that would normally be used to address spills related to incidents or accidents, and use them to help keep your work area clean and safe. Some people read the CFR regulations as something a business has to buy and store and hope to never to use it.

Albeit this is one of the topics that are not on the forefront of many business owners and managers minds. But it should be. It is one of those hidden costs that hurt at the end of the year when you are looking at what costs hit your profit margins.

There are many business unfortunately make the fateful statement " Well we have never had an incident", and all the years of not buying spill products, one incident wipes out everything they believe they saved, and maybe the entire business.

Below are some of the costs you should be aware of, but keep n mind that "*Indirect Costs*" are normally many times more expensive than that of direct costs.

Indirect costs such as:

- ◆ Lost or decreased productivity
- ◆ Administrative costs
- ◆ Overtime pay
- ◆ Replacement hiring
- ◆ Employee morale
- ◆ Slowed work pace due to fear of injury

Direct costs such as:

- ◆ Workers' compensation
- ◆ Medical costs,
- ◆ Higher Premiums
- ◆ Possible Law Suit and Legal Fees

Incidents and accidents always come at the worst time, be it bad economies, low sales or tight profit margins. But these are the times where you should protect your self the most, this is when you can not afford a fine or an accident.

The National Safety Council (NSC) reports that slips and falls are the most common cause of emergency room visits. The most frequent complaints related to slips and falls are shoulder, back, elbow, wrist and knee injuries. According to the U.S. Department of Labor (DOL), an average slip/fall injury costs roughly \$28,000.

This puts a financial strain on individuals and companies alike, since slips and falls are the third largest cause of workplace injuries. Within North America, these injuries lead to approximately 104 million lost workdays each year which translates into approximately \$36 billion dollars annually.

The profits you are trying to hold to now could be gone in a instant if you are not prepared for an accident or incident.

Spill Kits

The use of Spill Kits helps you comply with 40 CFR 112.7 (1) (v11) & 40 CFR 263.30(a)

Spill kits normally come in three different types, Oil Only, Universal and Hazardous Material. Each one is used as a tool for a specific purpose, such as Spill Control, Regulatory Compliance and Preventive Maintenance and can be customized to meet the individual needs of the user.

Incase of a Spill:

If you are looking to keep a few spill kits on the floor in case of a spill, you are going to have to be honest with yourself and try to imagine what would be the worst case scenario. Your worst case scenario would probably determine how many gallons of liquid you are going to have to address. This will determine the size of your spill kits, either by itself or in combination of several kits.

Compliance:

If you are looking just for compliance, you are going to have to focus on what I mentioned above. Because they are going to ask “*what if’s*” and they are also going to ask, what is your worst case scenario and what are the plans to do deal with.it..

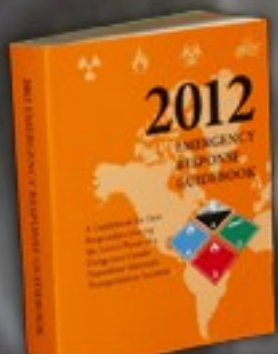
Preventive Maintenance:

If you are supporting a preventive maintenance program, you will pay back your investment by ten fold. By simply following your PM program, you will reduce your exposure to costly slip and falls, if there is a spill you are ready, and save on labor cleaning up messes with the correct tools and getting your employees back to work.

The preventive Maintenance the best methods to employ. By using this method are incorporating all three areas mentioned above, Spill, Compliance and Maintenance. Not only are safeguarding your bottom line, you are actively involved in making sure that your employees and customers are safe and you are protecting your business.

Below is a sample list of the instructions we put into the spill kits we produce. If you have specific instruction you would like to have in the spill kits for your business, contact us and we will be more than happy to help.

<i>Spill Kit Instructions</i>	
<i>Identify</i>	Ensure you are using the correct spill kit for the spill. If spill is unknown, follow your established policies.
<i>Notify</i>	Notify the proper personnel, dept. or agencies as per your contingency plan.
<i>PPE</i>	Don appropriate safety gear prior to addressing spill.
<i>Contain</i>	Use socks, boom or dikes to damn the spill from spreading.
<i>Clean</i>	Use pads, pillows or loose particulates to pick liquids. Place used material in disposal bags.
<i>Disposal</i>	Dispose of spill clean-up per your local, state and federal regulations. Contact your local disposal company for clarification.
<i>Replace</i>	Replace the used contents or kit as soon as possible. You should have at least one in reserve to ensure you have a kit in the ready, as you replace the used material or kit.
<i>Update</i>	Make sure your call list is up to date. You should be able to contact someone in your chain of command or the responsible agency / dept. you are required to call in case of a spill incident.
<i>Review</i>	Review your contingency plan. Was it adequate, clear and helpful in the containment and clean up of the spill. Was the kit adequate for the spill?



UNIVERSAL(MRO)

OIL ONLY (POLY)

HAZARDOUS MATERIAL

OIL ONLY NATURAL FIBER

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