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### **Perma-Guard, Food Grade Diatomaceous Earth or Fossil Shell Flour**

Perma-Guard Food Grade Diatomaceous Earth is totally organic and safe. It contains less than 1% percent of Crystal & Silicon. Some of the uses for Diatomaceous Earth include; household pets, gardens, flowerbeds, field crops, grain storage, and livestock feeding. Diatomaceous Earth is Mother Nature's product that is harmless to the environment, pets or to people. Diatomaceous Earth is not an earth, it is the fossilized remains of microscopic shells created by one celled plants called DIATOMS. Diatomaceous Earth kills by physical action, not chemical by puncturing the insect's exoskeleton and absorbing its body fluids, thus posing no harm to warm-blooded life. Moreover, on any surface, these natural pesticide products have a remarkable repellency factor. As long as it is present, insects tend to stay away, making a serious infestation unlikely. Also, the more it is used, the more an environment is created that tends to make insects feel unwelcome.

#### **Household:**

Use Diatomaceous Earth for control of roaches, silverfish, ants, bedbugs, flies, fleas, box elder bugs, scorpions, crickets, and many others. Diatomaceous Earth can be used in and around the home, yard, animal housing, etc.

#### **Pets:**

Our best friends come in all shapes and sizes. Protect them with Diatomaceous Earth. When lightly rubbed into their coats it is very effective against fleas, ticks, lice, and other pests on pet dogs, cats, and their premises. It can also be used as an organic wormer and will kill any worms or parasites the pets may have. When using as a de-wormer mix the Diatomaceous Earth into your pet's food. Mix well into kibble and wet food. Ask your vet how much for your size pet. General guidelines are listed here.

**Cats** – 1 teaspoon/day

**Weaned Kittens** – 1/4 teaspoon/ day

**Dogs** – 100lbs+ -2 tablespoons/ day

50 – 100 lbs – 1 tablespoon/ day

under 50lbs – 2 teaspoons/ day

**Minidogs** – 1 teaspoon/ day

#### **Plants:**

For control of aphids, white fly, beetles, loopers, mites, leaf hoppers, and others. Use Diatomaceous Earth inside your home, greenhouse or outdoors on fruits, vegetables, flowers, grains and grass, up to and including day of harvest. For dry application of Diatomaceous Earth use a **duster** and cover entire plant, apply to both top and bottom of leaf. For young plants, as little as two pounds per acre may be adequate. For larger plants, five lbs per acre is probably sufficient. Diatomaceous Earth will need reapplication after a rain. Applies best when there is dew or after a light rain. It is a long lasting, effective powder. The insects can not build up resistance.

#### **Livestock:**

All livestock, Horses, Cows, Pigs, Sheep, Goats, Rabbits, Chickens and others will benefit from the use of Diatomaceous Earth. It is completely safe and nontoxic. Some of the benefits are; Control of fleas and ticks, stimulates basic metabolism, converts feed better, reduces odor and moisture in barns and stalls, results in better coat and hoof condition, keeps fly larvae from developing in manure, noticeably reducing the fly population, reduces annual vet bills, controls worms and internal parasites without chemicals, better egg production, stronger eggs, and reduces overall animal stress. Diatomaceous Earth can be mixed right in with the animals feed. Cows/Horses get 1-2 oz per day, Sheep/Goats/Hogs get 1/2 oz per day, For Chickens and other livestock you need to weight the feed and add 2% of that weight in Diatomaceous Earth. Your livestock will also get the benefit of over 14 trace minerals that make up Diatomaceous Earth.

#### **Stored Grain:**

Just add 7-10 lbs. of Diatomaceous Earth to each ton of grain as it is conveyed into the storage. When added to grain, Diatomaceous Earth killed the bugs that were present, and protected the grain from further invasions.

Bugs could not become immune and they were killed by physical action, not chemical.

**When using diatomaceous earth regularly and/or in large amounts, wear a dust mask, gloves and a good set of goggles.**

#### **PET & ANIMAL POWDER**

Presently we do not stock this product but you can use fossil shell flour the same way.

**Your best friends come in all shapes and sizes. Protect them with Perma-Guard! Effective against fleas, ticks, lice, and other pests on pet dogs, cats, their premises, and other warm-blooded animals subject to these parasites.**

**Perma-Guard** Pet & Animal product is licensed to be used in and around the home, yard, animal housing, etc. It can be applied as a dry dust, or mixed with water at the rate of 2 oz. per quart and sprayed as a liquid. It is Perma-Guard Diatomaceous Earth infused with Pyrethrin made from plants. It's is not food grade but it will not hurt your animals if they lick it off of their fur.

When applying anything to your pet's skin or your own for that matter, it's always a good idea to try just a little in one area first, to make sure there's no adverse reaction to the product, be it a hand cream, powder, shampoo or soap. No matter how natural something is, everyone is different and can have allergic or just adverse reactions to things.

- **Dry Application**

- Cover the affected area with DE Powder at the rate of 8 oz. to 16 oz. per 1,000 sq. ft.

- **Fleas, Ticks, and Lice**

- Lightly work the material into the hair of the animal. Use brush or comb to work the material down to the skin. Pay strict attention to places where the animal cannot reach, such as the scalp. Dust the ears of the animal with care. Dust the animal's bedding and areas where the animal sleeps, as well as cracks and crevices adjacent to them. Repeat once a month or as necessary. Individual ticks observed on the animal should be dusted thoroughly.

- **Premise Application**

- For animals confined to a specific area infested with fleas and ticks, dust the entire area with Perma-Guard Pet & Animal Powder.

- **Large Application Areas**

- Use any hand application designed for the purpose of discharging powder. If using a small lawn fertilizer spreader, mix equal parts of dry sand with Perma-Guard Pet & Animal Powder for even flow. Dust thoroughly the first time and then periodically reapply as needed.

- **Wet Application**

- Mix with water at the rate of 2 oz. per quart of water (one oz. is about 8 level teaspoons). To help keep it in suspension, add one teaspoon of mild detergent and agitate the sprayer now and then while applying.

- **Re-infestation**

- Prevent re-infestation by keeping Perma-Guard Diatomaceous Earth in the pet

or animal's coat as a repellent. Dust as often as needed.

- Depending on the depth of your problem you may only have to use the product once or you may have to use it on an ongoing basis
- Some animal fur keeps the DE in it for a long time, up to a week or more. Other, wire hair types can shed the product in a day or less and may need reapplication more frequently.

**Special Notes:** Fossil Shell Flour (DE) works very well and is nontoxic and safe enough to eat. However, it is a mineral dust and like any dust be it saw dust or house hold dust it's not something you want to breath in on a constant basis or in large amounts. Most people are never bothered by it but if some one in your house or office has asthma or other lung problems they should not be exposed to the dust on a regular basis and wear a dust mask if they have to be around it.

Once you think you have the problem under control, you can vacuum up the dust and dead insects and throw away the bag or empty the canister of the vacuum cleaner. It'll clean out the vacuum cleaner too! some people have told us that the Dyson Vacuum cleaners do not work well with this product. A standard bag type of vacuum cleaner is recommended.

If you have a chronic problem with fleas, ticks and other pests, you can apply this material in a more permanent manner by doing the following. Apply it to the sills of the building and around the perimeter of the building, where people and animals don't go that often. These are entry areas for the bugs. They can live in the basement in cracks in the slab and in the sill area undisturbed. Diatomaceous Earth will make these areas uninhabitable over the long term.

You can drill holes in the walls of your house or building using a small drill bit and apply the Diatomaceous Earth through the hole using a puffer bottle or duster. Then, putty or spackle up the hole so the stuff is in there for good, killing any bug that tries to lay eggs or live in there. Taking off the baseboards and drilling behind them into each cavity can work very well too although it is a lot of work.

Applying the Diatomaceous Earth by these methods will give you permanent protection and help keep the dust level down in the house and reduce undesirable long term exposure to the dust. It's not harmful but it is a dust and who wants to breath dust all the time?

Pump dusters, Puffer bottles and Powder bottles are available on our web site at <http://www.dirtworks.net>.

## Fire Ant Treatment

**Presently we do not stock this product but you can use fossil shell flour the same way.**

Our Perma-Guard Household, Commercial or D-20 labels have information for treating fire ant-hills and beds. With different labels, the formulas all contain the main mechanical ingredient food grade Diatomaceous Earth. The D-20 formula was an added insecticide, Pyrethrin, a vegetable, digestible extract made from Chrysanthemum flowers and & Piperonyl Butoxide, a natural catalyst made from the Sassafras plant, used to enhance the effect of Pyrethrin and in so doing, reducing the amount of Pyrethrin in the product by as much as 90%. The products can be used as both a dry powder or mixed with water and a little detergent.

**As a dry powder:** Taking care not to be bitten, stir the surface of the nest. The ants will boil out by the hundreds. Liberally sprinkle the surface with the Perma-Guard. Every ant on the ground will be dead within fifteen minutes. This may or may not get the queen. If the ants resurface repeat the process. Come back in a little while to try to get more ants out of the nest if any survive.

**As a wet mix powder:** Mix 4 tablespoons of any Diatomaceous Earth with 1 tablespoon mild detergent and one gallon of water. Wet the ground with the mixture, in a circle around the nest and spiral towards the center. Pour slowly allowing it to saturate the soil and soak into the nest. The detergent allows the product to penetrate the nest better than with water alone. Repeat if necessary.

Treat with a pressure probe: Using the same mixture using a pressure probe or pump sprayer to inject the mixture into the ground. The purpose is to fill every chamber in the nest. Do this quickly so the workers won't have a chance to move the queen(s).

A pressure washer is also very effective at getting the product into even the hardest of grounds.

The stream should be directed at intervals 18 inches around the center of the nest. Shooting at an angle towards the center of the nest 3 or 4 feet under ground will saturate the whole

colony. Be sure to wear goggles for safety when using a power washer or sprayer.

The treatment can be repeated if necessary but extermination is almost assured, and the ants will not return. After all, the whole area above and below ground is saturated with Diatomaceous Earth. This is deadly to all ants but is particularly effective against fire ants. It is nice to know that ants and other insect pests can be controlled without the use of expensive and dangerous chemicals.

### Wet or Dry?

Sometimes it is simply quicker and easier to dust the powder around on the ground. In other situations the spray can get into cracks and seep into underground cavities. When mixing with water is important to remember that the Diatomaceous Earth doesn't dissolve, so agitation is necessary for even distribution. In order to keep the product in suspension it is helpful to add 1 tablespoon of mild detergent per gallon. This also helps to carry the product into cracks that water alone won't take it. Using large amounts of the mixed, wet product requires a sprayer with an agitator in the tank to keep the DE in suspension because the diatomaceous earth does not dissolve. The water, soap or neem oil is only a carrier for the product. Without agitation the DE will settle to the bottom of the tank.

### Bed Bugs

Bed Bugs are getting to be a serious problem after decades of almost no reports in the US. The fact that we live in such a mobile world with people traveling so often has brought them back into prominence as a problem here in the developed world.

DE has not been clinically tested for killing bed bugs but since bed bugs are just another bug really they can be killed using DE. The application methods are about the same as for fleas and ticks except that you need to pay particular attention to the bed and bed room and linens you keep there.

People all over the world are using diatomaceous earth to kill bed bugs now and they have imparted these simple tricks unto us and we will pass them along to you.

### Some Basic Data

- Bed Bugs can be as much as 4 millimeters long.
- To Make sense of mm as remembering that a 22 rifle barrel is about 5 mm. (actually 5.7 mm, with the rim being almost 7 mm)
- <http://en.wikipedia.org/wiki/Bedbug>

•Bed Bugs go through 5 different stages of life, from tiny to terrible and can be killed using DE at every stage of life but the younger the better.

### **In the Walls**

If you want to treat inside wall cavities or other hard to reach spaces, use the "Puffer" bottle on the list to the left of this table.

You can drill or puncture a small hole in the plaster or sheet rock at the bottom of the wall, between the studs and "Puff" the powder into the space. Spackle or caulk the hole to provide a permanent seal and long term effectiveness of the Diatomaceous Earth. This treatment can prevent them from hiding in the walls and prevent new infestations from coming in from next door if you happen to live in an apartment building.

#### **Treating the Room**

Bed Bugs are persistent creatures that may take some time to eliminate because, they only come out at night and they don't live on the bed during the day. They are attracted to body heat.

I recommend treating the room and waiting 48 hours. Then vacuum up all the areas you treated to get all the dead Bed Bugs, feces and eggs they leave behind. Then, retreat the area again only this time leave the product down for good. When you clean the room on your usual schedule, retreat after vacuuming so you always have the protection from the Perma-Guard Fossil Shell Flour working for you. They can come back just by some one coming into your home who met somebody who met somebody etc.. You can get rid of them and they can come in from an outside source or another apartment in your building so it's good to always have diatomaceous earth applied and around for use. Wash all bedding materials and cloth material in the room often. This includes curtains, carpets(Vacuum), furniture covers, throw rugs and clothing. Treat any couches or soft furniture in the room with Diatomaceous Earth too.

### **Other Steps You Can Take**

Bed Bugs are not good climbers and they don't live in the bedding during the day although, some people say they do. There's some disagreement on this point. There may be some stragglers but, it's generally not their style. They climb up the legs of the bed once you're in it and climb off the wall, base boards or any where else the bed comes in contact with the room. They are attracted to the heat signature of your body much like mosquitoes. Here's something you can do about that.

Place the base of the legs into some type of smooth metal or glass container. If you use glass, make sure it's completely smooth and very rugged. Glass could break. If you use metal, use as smooth a surface as you get. Stainless steel would be best. You can put a coating of the Diatomaceous Earth in the bottom of

these containers to capture and kill the most ambitious of the Bed Bugs that might fall in there.

Move your bed away from the wall about a foot if you can and keep it out of contact with other furniture and objects in the room.

Place the DE between the box spring and the mattress and keep it there at all times. If the problem is really bad you can put DE right in your bed and sleep on it if necessary. you'll wake up coated with white powder but unless you have asthma or some lung problem it can't hurt you and it will hurt the bed bugs.

If you buy a new mattress keep the plastic cover on it at all times. Get a plastic cover for older mattresses from a bedding store if you can. Put DE in the cover and seal it up tight.

Apply in between the mattresses, carpet and all soft materials in the room where the bugs can live, lay eggs and hide. Bed bugs can live and breed in the cracks of hardwood floors and base boards as well, so make sure you cover these places well. Closets are another place they can live too. Wash all your clothes and keep them in another room until you're certain the Bed Bug problem is under control. The product is a dusty powder. Although non-toxic it will make you sneeze so you might want to wear a dust mask when applying it.

Other Products sold at Dirt Works and New England  
Natural.com to Help with Fleas, Ticks and Bed Bugs

Sharp Shooter  
Nematodes  
Neem Oil  
Natural Pet Soap  
Powder Bottles  
Puffer Bottles  
Hand Dusters