



mineralsponge™

Premium Industrial Absorbent



 Blue Pacific
MINERALS





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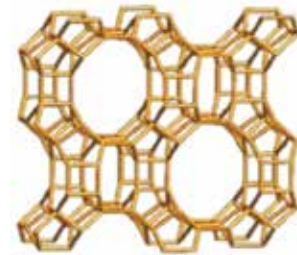
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What is Mineral Sponge?



How were they formed in New Zealand?

About 250,000 years ago, in Rotorua/Taupo area, intense volcanic activity generated huge ash showers, which were washed and eroded into lakes forming sediment beds up to 80 metres deep. Subsequent sub-surface thermal activity forced hot water (120 C) up through these beds transforming the clays into soft rocks with ordered internal structural sequences, which are now called zeolites. Also at a time severe block faulting drained the lakes exposing many deposits. Subsequent ash showers covered some of the deposits to depths of 30 metres.



What type of Zeolite?

There are about 40 different zeolite types and their occurrence depends on conditions during formation. The Ngakuru zeolites are predominantly mordenite and clinoptilolite. The location, duration and intensity of the thermal water flows during formation determines the degree of thermal alteration. Deposits close to thermal fissures are fully altered and often mechanically strong whilst those further away are often poorly altered and can breakdown into constituent clays.

How do they work?

Ionic adsorbing power. During the thermal alteration amorphous material was washed from the clays leaving a 3D skeleton of aluminium and silica oxides which due to a unique configuration have a high negative charge (cation exchange capacity, typically greater than 100 meq/100g). Positively charged cations in solution (or molecules suspended in air) can be absorbed onto the latticework and depending on pH, cation concentration and charge characteristics can later be released.

Physical absorbing power

The 3D-Lattice work also gives zeolite another property of large internal surface area (up to 145m²/g). Geologically young zeolites like those found at Ngakuru are able to absorb more liquids than other, older, glassy zeolites. When dried some of these zeolites are able to absorb up to 70% of their own weight as liquid. Each characteristic supports specific uses however the dual capacity enhances certain uses.



For instance in a sports turf situation zeolite will:

- i) adsorb soluble nutrients from fertiliser additions making them available subject to plant demand at a later date
- ii) absorb water, increasing water-holding capacity without detrimentally influencing pore space and infiltration rates.



New Zealand Zeolite Quarries

Blue Pacific Minerals has three active quarries with total surveyed deposits exceed 10 million tonnes. Zeolite from each of the quarries is unique.

One quarry contains zeolite that absorbs odour and liquids extremely efficiently and is therefore used as kitty litter, as a granular oil/chemical absorbent and as an odour absorbent for composts etc. Products from this quarry are marketed under the Blue Pacific label.

Another quarry contains zeolite that has a high cation exchange capacity, absorbs liquids but is very resilient to mechanical breakdown. This product is excellent for absorbing cations from wastewater and as a base for slow release fertilisers. Zeolite is also recommended by the New Zealand Sports Institute as suitable for addition to sand based sports turf areas, in particular golf and bowling greens.

Zeolite from the third quarry is used in cosmetics, as a filler and for other specialised products.



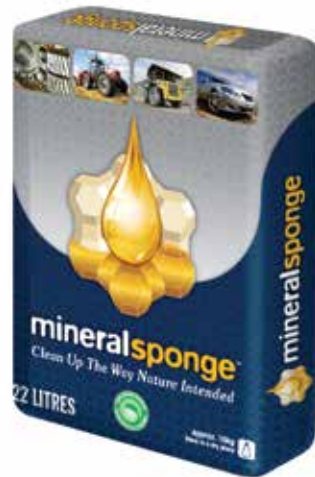
About Mineral Sponge



A success story for Blue Pacific Minerals zeolites is Mineral Sponge, the specifically sized zeolite granules with the ability to absorb up to 75% of its own weight of liquid. This ability allows Mineral Sponge to be used in a number of areas but predominantly as an absorbent for spills of oil/fuel and liquid chemicals.

Traditionally, sawdust or rags have been used to clean up oil/fuel spills in the workshop environment. These products can lead to a potential fire risk but when Mineral Sponge is used the chance of fire is significantly reduced. This is because the spill is absorbed internally into the granules with very little residue left on the outside.

It's also very easy to use. In the case of a small spill, just spread Mineral Sponge evenly over the top and leave to absorb or broom in to hasten the absorbing process. For larger spills, pour Mineral Sponge around the outside to "dam" the spill (stop it from spreading) then spread over the top.



This process is also used for chemical spills with the added advantage of not only physically absorbing but also chemically absorbing a spill and any vapours and toxic odours.

A couple of large users of this product are Fulton Hogan and Works Infrastructure. This is for maintenance of roads in their areas, mopping up spills at accident sites and general spills on roads of fuel and oil. They both

recommend that others in the same industry use this.

While Mineral Sponge is widely used in the industrial area it can be just as versatile at home for on the farm. It can be used around the cowshed for cleaning up excess oil from the vacuum pump, mopping up liquid chemicals, or in the workshop after oil changes.

The ability to absorb odours as well opens up a whole range of uses.

Some of the more common uses for zeolite are as, kitty litter, bbq fat absorber or as an additive to compost to retain nutrients and aid with odour reduction.

Mineral Sponge is packaged in 22 and 33 litre bags.

The uses of Mineral Sponge are limited only by your imagination.



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Advantages of using Mineral Sponge

- 1.** Mineral Sponge is not only able to physically absorb a chemical spill it can also chemically absorb it. This is because positive cations bond onto the negative sites contained within the structure of the zeolite
- 2.** Mineral Sponge is specifically tailored to the optimum grain size for the maximum absorption of petroleum based and chemical based spillages.
- 3.** Mineral Sponge is versatile enough to clean up also any toxic spill and therefore will assist users to comply with the Resource Management Act.
- 4.** NZ Natural Zeolite has the ability to absorb gases. This gives it a massive advantage over other absorbents in odour suppression. In fact, it has been used in fish processing plants purely for this purpose.
- 5.** The ability to absorb gases is a major advantage in situations where a hazardous chemical spill has occurred. In this instance Mineral Sponge will not only absorb the liquid it will also absorb the gases emitted from the spill. A major plus safety of the spill site is concerned.
- 6.** Mineral Sponge is that much more absorbent than competing products that when worked into a spillage, it will remove most fresh stains from concrete pores.
- 7.** Mineral Sponge is safe to use around machinery. It is mined from a volcanic tuff deposit, which contains no quartz. This means that it is totally non- abrasive and will not harm machinery
- 8.** Mineral Sponge is completely non-toxic, non- hazardous, clean, white coloured, natural product, which fits well in today's environmentally sensitive world.

Characteristics

- All natural heat sterilised mineral – contains no chemicals
- Exceeds EPA landfill leachate tests – “significantly the most impressive result that I have seen by any absorbent” (Haztech)
- Absorbs immediately on contact
- Super absorbent capacity
- It will not leach back absorbed fluids – ecologically safe.
- Maintains strength integrity when fully absorbed reduces slippage and makes clean-up easy
- Natural bonding action of zeolite makes it far more active in the absorption and absorption process
- Particle size gradation designed to maximise absorption efficacy and minimise floor residue
- De-Dusted to reduce surface bogging and improves handling
- Strong wicking action to pull spills from the surface



Application of Mineral Sponge



IDENTIFY THE HAZARD

Oil spill on floor in main work area has potential for workers to slip and cause injury and to be tracked around workshop.

ISOLATE THE HAZARD

Spread Mineral Sponge around spill to contain and then apply liberally over spill until completely absorbed.



ELIMINATE THE HAZARD

Sweep up and dispose of according to hazardous goods recommendation





Absorbance Capacity

Absorbance capacity of Mineral Sponge for differing solutions

Sample	Mineral Sponge
	mls absorbed per 100mls absorbent
Cold Tap Water	41.0
96 Octane Petrol	56.3
Xylene	43.3
Petroleum Spirit	55.9
Turpentine	4.6
Ethyl Acetate	51.5
Cloudy Ammonia	48.5
Javac Oil	48.7
Used Motor Oil	41.6
10W-40W Oil	48.0
n-Hexane	51.0
Hydrogen Peroxide 30%	38.1
Sulphuric Acid 98%	47.3
Hydrochloric Acid 37%	47.9
Nitric Acid 65%	46.4
Sodium Hydroxide 50%	50.9
Ethanol	51.1
Chloroform	48.9
1, 2 - Dichloroethane	46.0

Note:

1. All figures quoted on the above table are absorbed volume (mls) per 100mls of absorbent.
2. Figures are not total absorbency, but a measure of liquid uptake to a point which allows the absorbent to be conveniently disposed of.

Alternative uses for Mineral Sponge



Pets

Use Zeolite as a cat litter. Place in a box approx 50 to 75mm deep. Remove solid waste as needed and completely change litter once a week or as required.

To remove dog odours from dogs bedding, sprinkle an ample amount of zeolite over the bedding. Wait 1 hour and then vacuum up. For more stubborn odours leave zeolite over night before vacuuming.

Mice/ Rats/ Hamsters/ Birds. Sprinkle zeolite in the bottom of cages to remove odours. Replace weekly.

Oil/Fuel/Chemical Spills

Spread zeolite around the outside of the spill to form a barrier to stop the spill from spreading. Then sprinkle zeolite generously over the spill. Allow to absorb. To hasten the absorbing process, broom the zeolite into the spill. NOTE: The used zeolite should be disposed of as recommended by your local authority.

Gas BBQ's

Spread zeolite evenly in the drip tray. Zeolite will not only absorb fat but also odours, which deters fly nuisance. Also by absorbing fat zeolite reduces the chance of flare up. As with common practise, change regularly.

Odours

Place 1 – 2 cupfuls of zeolite in a breathable bag (pantyhose are ideal) or an open container in your wardrobe. This will absorb moisture and musty odours. Replace every 3 months.

When going on holiday leave zeolite in an open container in each room in your house to absorb those “closed up” smells.

Place a cup full of zeolite in an open container (an empty margarine container is ideal) on the top shelf in the fridge and near the fan preferably to ensure air circulation around the zeolite. This will neutralize odours. Replace every 3 months.

Gardening

When you pot a plant, be generous with zeolite. Mix potting soil with approximately 25% zeolite. The zeolite absorbs water, acts as an aerator and a natural fertilizer. This will save money and water resources and also cut the number of times you must water.

The best compost has a 10% mix of zeolite. As all your compost materials break down some of the nutrients may be lost due to run off or leaching. If you continually add zeolite to your compost pile the zeolite will absorb all the nutrients and they will go back into the planting medium. The amount of zeolite you use depends on the size of the pile. Be generous.

When fertilizing your lawn or garden, mix a 50/50 ratio of zeolite and fertilizer. Apply as usual.

The zeolite not only acts as a water absorbent, natural fertilizer and soil aerator but it also assists your fertilizer in doing its job. As the fertilizer liquefies from watering or rainfall the zeolite will absorb the excess fertilizer that might otherwise be washed away and hold it until the plant requires and release it through cation exchange. Most golf courses and rugby stadiums are using zeolite as part of their fertilizer mix for repairing greens and establishing turf.



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