

Natural Zeolite (Clinoptilolite)



Features

- ✚ High Cation Exchange Capacity
- ✚ Chemical & Physical Adsorption Properties
- ✚ Molecular Sieve Properties
- ✚ Can be Regenerated & Reused
- ✚ Can be Recycled
- ✚ Safe, non-toxic, natural, non-caustic, odorless
- ✚ Environmentally friendly & non-flammable
- ✚ More Cost Effective than Synthetic Zeolites
- ✚ Many Commercial & Industrial Applications
- ✚ Can be used by all industries

Natural Zeolites Occurrence

Zeolites are hydrated aluminosilicate minerals which are produced naturally when volcanic ash falls into a body of water. The water chemically reacts with the ash to form a light weight, porous material with a regular open molecular structure. There are many varieties of zeolites, but the one that is most abundant and offering the greatest commercial potential is clinoptilolite. This is the variety marketed by Govations.

Crystal Structure

Govations Clinoptilolite Zeolite is made up of three dimensional interconnecting frame works of alumina and silica. This arrangement gives rise to a honeycomb structure with a negative charge, connecting pores, channels, and a large surface area. It is this unique structure that makes Govations Clinoptilolite amenable for applications requiring molecular sieving, adsorption, ion exchange, and dehydration properties.

Specifications

Physical Properties						
Purity:	85% Clinoptilolite: balance opaline silica					
Cation Exchange Capacity:	1.5 to 1.8 meq/gram (as ammonium, -N)					
Maximum Water Retention:	>55 WT %					
Overall Surface Area:	24.9 square meters/gram					
Bulk Density	Approx. 55-60 pounds per cubic foot					
Hardness	Moh's no. 4					
Color	Pale green					
Chemical Composition						
Cations	Potassium	3.47%				
	Calcium	1.60%				
	Sodium	<0.5%				
Chemical Composition						
Other Elements	Cu	25ppm	Zr	480ppm	Nd	45ppm
	Zn	35ppm	Y	55ppm	La	55ppm
	Rb	120ppm	Nb	40ppm	Ba	1200ppm
	Fe	1.3%	Sr	560ppm	Ce	130ppm
					Pb	<30ppm
Analytical Data	SiO ₂	67.4%	Al ₂ O ₃	10.6%	Fe ₂ O ₃	1.7%
	MgO	0.45%	CaO	2.23%	Na ₂ O	0.59%
	K ₂ O	4.19%	TiO ₂	0.27%	P ₂ O ₅	0.10%
	MnO	<0.01%			LOI @925C	11.4%
General Physical Attributes						
Non dusting, resistant to attrition, non clouding in liquids (due to absence of clays), good permeability, relatively high density, high water retention.						

Major Exchangeable Cations

Govations Zeolite can undergo ion exchange with the following cations. The selectivity is dependent upon the hydrated molecular size and relative concentration:

Rb⁺, Li⁺, K⁺, Cs⁺, NH₄⁺, Na⁺, Ag⁺, Cd⁺², Pb⁺², Zn⁺², Ba⁺², Sr⁺², Cu⁺², Ca⁺², Hg⁺², Mg⁺², Fe⁺², Co⁺³, Al⁺³, Cr⁺³.

Primary Adsorbing Gases

Following are examples of gases that can be adsorbed by the Govations Zeolite. Many other molecules, too large to enter the pores, can be effectively adsorbed on the surface:

CO, CO₂, SO₂, H₂S, NH₃, HCHO, Ar, O₂, N₂, He, H₂, CH₂OH, Mercaptans, Freon.
















Environmentally Friendly

Zeolites are safe, non-toxic, natural, odorless, and recyclable. They are classified by the federal government as GRAS (general regarded as safe) in most applications and are exempted from regulations and reporting when they are used in accordance with good agricultural practice (40 CFR, Part 180.100 I). It may also be used (21 CFR Part 182.2729) up to 2 % in animal feed products.

Applications

Govations Zeolites are very versatile and have many applications due to its unique properties.

Following are some examples:

-  Air Purification
-  Agriculture
-  Aquaculture
-  Cat Litter
-  Catalysis
-  Construction
-  Detergents
-  Desiccation
-  Environmental Cleanup
-  Feed Additive
-  Fertilizer Carrier
-  Filler In Paper, Rubber, & Plastic
-  Fertilizer Amendment
-  Food Preservation
-  Floor Drying Material

- ✚ Heavy Metal Removal
- ✚ Herbicide/Fungicide Carrier
- ✚ Insecticide Carrier
- ✚ Land Reclamation
- ✚ Medical
- ✚ Methane Purification
- ✚ Mining
- ✚ Molecular Sieve
- ✚ Natural Gas Purification
- ✚ Oil Spill Cleanup
- ✚ Petroleum Purification
- ✚ Production of Oxygen / Nitrogen
- ✚ Radioactive Material Removal
- ✚ Soil Amendment
- ✚ Solar Heating /Refrigeration
- ✚ Synthetic Soil Component
- ✚ Water Treatment
- ✚ Wastewater Treatment

Disposal

The unused Govations Natural Zeolites are non-hazardous and environmentally friendly. However, this may change if it is exposed to hazardous or toxic substances. Used zeolites should be disposed according to all relevant local, state, and federal regulations.

Order Risk Free

When you purchase the Govations Natural Zeolites, you do so at absolutely no risk. It comes with a 100% satisfaction guaranteed warranty. If it fails to perform according to its specifications or is defective, we will replace it immediately. Govations Natural Zeolites are also available in custom sizes, bulk 1 ton and other super sacks or directly loaded in any bulk **truck or rail** car configuration including top loading or pneumatic carriers. *Please call for bulk pricing and volume discounts.*

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