



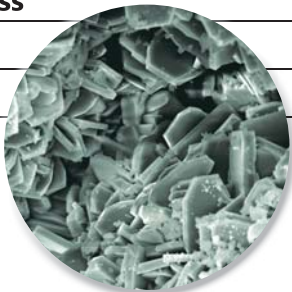
### CLINOPTILOLITE (Na, K, Ca)<sub>2-3</sub>Al<sub>3</sub>(Al, Si)<sub>2</sub>Si<sub>13</sub>O<sub>13</sub>·12H<sub>2</sub>O (Clinō-tē-ō-līte)

“Zeolite” refers to a group of approximately 40 minerals that are basically hydrated calcium potassium sodium aluminosilicates, in which the water is held in cavities in the lattice. Bear River Zeolite is a clinoptilolite zeolite and has the ability to exchange one cation for another, known as “cation-exchange capacity” or “CEC”. Cation exchange capacity is a measure of the number of cations per unit weight available for exchange, usually expressed as milliequivalents per 100 grams of material.

Clinoptilolite lattices are negatively charged and they loosely hold cations such as calcium, sodium, ammonium, and potassium; and also water.

#### PHYSICAL CHARACTERISTICS

<b>Mineral Component</b>	85-95% Clinoptilolite, balance opaline silica	
<b>CEC (Cation Exchange Capacity)</b>	190 to 220 meq/100 gram (as ammonium)	
<b>Water Retention (maximum)</b>	>55 WT %	
<b>Overall Surface Area</b>	24.9 square meters / gram	
<b>Bulk Density</b>	Approximately 55-60 pounds per cubic foot	
<b>Specific Gravity</b>	2.1-2.2	
<b>Hardness</b>	Mohs 3.5 to 4	
<b>pH</b>	8.64	
<b>Color</b>	Pale green	



#### Major Cation Range

<b>Potassium</b>	2.93-3.47%
<b>Calcium</b>	1.60-2.02%
<b>Sodium</b>	<0.5 %

#### TYPICAL ELEMENTAL ANALYSIS BY ICP-4A/M-ICPMS-4A

<b>Ca</b> (Calcium)	20200 ppm	<b>Mo</b> (Molybdenum)	<2.00 ppm
<b>Co</b> (Cobalt)	<2.00 ppm	<b>Na</b> (Sodium)	2910 ppm
<b>Cr</b> (Chromium)	7.85 ppm	<b>Na</b> (Soluble Sodium)	450 ppm
<b>Cu</b> (Copper)	7.98 ppm	<b>P</b> (Phosphorus)	231 ppm
<b>Fe</b> (Iron)	15900 ppm	<b>S</b> (Sulfur)	273 ppm
<b>K</b> (Potassium)	29300 ppm	<b>Se</b> (Selenium)	<1.00 ppm
<b>Mg</b> (Magnesium)	3450 ppm	<b>Zn</b> (Zinc)	53.4 ppm
<b>Mn</b> (Manganese)	314 ppm	<b>Cl</b> (Chlorine)	<0.01%

#### BEAR RIVER ZEOLITE Co., Inc.

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Industry

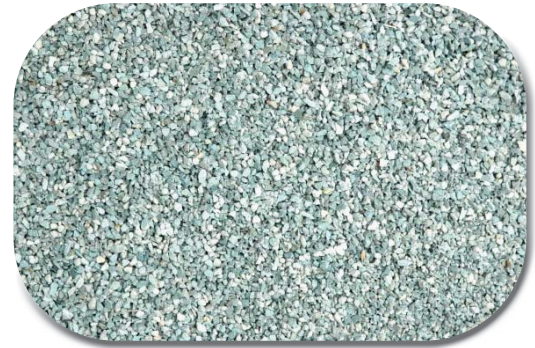


Air & Water



### ROCK ANALYSIS

<b>SiO<sub>2</sub></b>	67.40%	<b>TiO<sub>2</sub></b>	0.27%
<b>MgO</b>	0.45%	<b>Fe<sub>2</sub>O<sub>3</sub></b>	1.70%
<b>K<sub>2</sub>O</b>	4.19%	<b>Na<sub>2</sub>O</b>	0.59%
<b>MnO</b>	<0.01%	<b>P<sub>2</sub>O<sub>5</sub></b>	0.10%
<b>Al<sub>2</sub>O<sub>3</sub></b>	10.60%	<b>LOI @ 925°</b>	11.40%
<b>CaO</b>	2.23%		



### REGISTRATIONS AND CERTIFICATIONS

GRAS (generally regarded as safe) anti-caking agent, CFR Title 21, Sec. 182.2729 & Sec. 582.2729*
CFIA (Canadian Animal Feed Inspection Agency), Registration No. 990643*
OMRI NOP: Minerals - Feed, Livestock feed ingredients, Product No.: ber-7707
OMRI COR: Minerals, trace minerals, elements, non-synthetic - Livestock feed ingredients, Product No.: ber-7708
OMRI NOP: Mined minerals- unprocessed, Crop fertilizers and soil amendments, Product No.: ber-3083
OMRI NOP: Grizzly Grip, Mined minerals- unprocessed, Crop fertilizers and soil amendments, Product No.: ber-11309
ANSI/NSF Standard 61 - Drinking Water System Components (ChemSorb® Filter Granules)
ANSI/NSF Standard 60 - Drinking Water Treatment (ChemSorb® Sorbent Powder)
ANSI/NSF Standard 50 - Equipment for Pools, Spas, Hot Tubs (ZeoSand® Natural Zeolite Filter Media)
DOT Class 50: Non-hazardous

\*Bear River Zeolite BRZ™ is approved by the FDA and CFIA for use as a flow/anti-caking agent in feed at up to 2% inclusion in the daily ration

### DEPOSIT

The clinoptilolite deposit includes an 800 foot mountain. The current pit covers more than 4 acres. Within the pit, the zeolite is remarkably homogeneous.

### PRODUCTION

The mine is capable of producing 120 tons per hour.



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