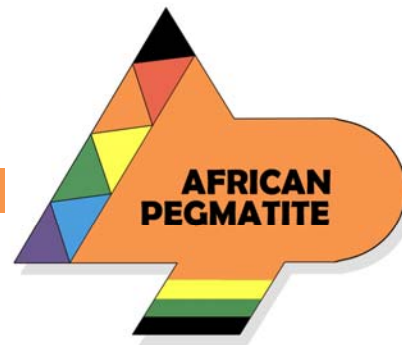


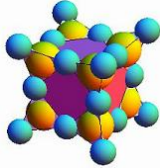
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**MILLERS & PROCESSORS OF BASE MINERALS**



**Data Sheet**



**Product: NATURAL ZEOLITE  
 ZEOLITE 500**

**CHEMICAL ANALYSIS %**

<p>Chemical Formula:          Clinoptilolite has the following formula:  <math>(MgCaNa_2K^2)_4 \cdot 6(AlO_2)_3 \cdot (SiO_2) \times 21H_2O</math>          The idealised chemical formula of Clinoptilolite is:</p>	<p>Note: The relatively high silica content-          Silica – Alumina ration 5.9.1</p> <p><math>Ca Na_2_5(SiO_2)_{30}24H_2O</math></p>																				
<p>1. Element analysis:</p> <table border="1"> <thead> <tr> <th>Element</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>SiO<sub>2</sub></td> <td>71.52</td> </tr> <tr> <td>Al<sub>2</sub>O<sub>2</sub></td> <td>12.10</td> </tr> <tr> <td>Na<sub>2</sub>O</td> <td>1.40</td> </tr> <tr> <td>K<sub>2</sub>O</td> <td>3.85</td> </tr> <tr> <td>MgO</td> <td>0.66</td> </tr> <tr> <td>CaO</td> <td>1.53</td> </tr> <tr> <td>Fe<sub>2</sub>O<sub>3</sub></td> <td>1.21</td> </tr> <tr> <td>TiO<sub>2</sub></td> <td>0.13</td> </tr> <tr> <td>MnO</td> <td>0.07</td> </tr> </tbody> </table>	Element	%	SiO <sub>2</sub>	71.52	Al <sub>2</sub> O <sub>2</sub>	12.10	Na <sub>2</sub> O	1.40	K <sub>2</sub> O	3.85	MgO	0.66	CaO	1.53	Fe <sub>2</sub> O <sub>3</sub>	1.21	TiO <sub>2</sub>	0.13	MnO	0.07	<p>Total water 7.30</p>
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<p>2. Cation Exchange Capacity (CEC)-          Practical MAXIMUM CEC is 1.8 meq/g. Very little change in CEC is given by Clinoptilolite below 1.0mm in size but, CEC rapidly decreases when size is increased above 1.0mm. Typical CEC's vary from 1.2 – 1.5 meq.g i.e. 22 – 27 grms of Ammonium Ion per kg of Clinoptilolite.</p>																					
<p>3. Gases absorbed – (@25°C)          NH<sub>3</sub>: Clinoptilolite 7.8g/100g</p> <p>It also absorbs CO<sub>2</sub>, AR, N<sub>2</sub>, H<sub>2</sub>S, SO<sub>4</sub></p>	<p>SO<sub>2</sub>: 15.3g/100g</p>																				
<p>4. Major Exchangeable Ions-          The selectivity series for ions is:</p> <p>Pb,<sup>+</sup>&gt;Cs&gt;Rb&gt;NH<sub>4</sub>&gt;Ba&gt;Sr&gt;Zn&gt;Cu&gt;Co&gt;Ni&gt;Hg&gt;NO<sub>3</sub>&gt;NO<sub>2</sub>&gt;Ca&gt;Fe&gt;Al&gt;Mg&gt;U.</p>																					
<p>5. Desiccant Ability -          Clinoptilolite absorbs 39 grms of water per 100g of Zeolite 500.</p>																					

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## PHYSICAL PROPERTIES:

6.	A MSDS is available on request but Clinoptilolite is a non hazardous material. Main phase:	80 – 85% Clinoptilolite (XRD, BET & analysis)
	Main impurities:	Opaline Cristobalite, K-Feldspar & trace of Sanidine (Montmorillonite and Quartz).
	Refractive index:	1.484
	Dry Bulk density: (Tapped)	920 Kgs/Cube M <sup>3</sup>
7.	pH Stability	1 – 13 Clinoptilolite is stable
8.	Colour -	Reflective whiteness: 80%
9.	Hardness	Hardness is 3.5 – 4 MOH.
10.	Pore size	3.5 anagstroms (3.5 A)
11.	Pore volume -	Approximately 10 – 12%, the bulk density of the rock as determined by immersion in mercury is 1.92g/m.
12.	Ammonia Ion Exchange –	Kieldahi distillation method. Ammonia Chloride: 1.2 – 1.5meq/g.
13.	Method of Regeneration –	5 – 10% Solution NAACL (common salt)– 10 Hours soak at Ambient temperature.
14.	Sodium exchanged/Calcium exchanged.	Size – 4mm + 2mm.
15.	Primary absorbed gases.	H <sub>2</sub> S, CO <sub>2</sub> , NH <sub>4</sub> , N, H <sub>2</sub> O

## DISCLAIMER:

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