



A.C.N. 000 038 497 ABN: 61 000 038 497

**Head Office
Mine & Processing**

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ESCOTT ZEOLITE MAJOR ELEMENTS

Escott Zeolite is a natural rock containing as the main crystalline component the zeolitic mineral clinoptilolite, together with minor amounts of mordenite (another zeolite mineral), quartz, clay (smectite) and mica.

Zeolitic minerals are hydrous aluminosilicates that in the soil environment can be considered very stable. Zeolite considerably raises the Cation Exchange Capacity in its agricultural/horticultural applications. The zeolite is able to freely exchange certain plant nutrients, acting to significantly improve fertiliser utilisation. Cationic nutrient ions, such as those of calcium, magnesium, potassium, sodium and particularly ammonia are exchanged in this way.

The Cation Exchange Capacity of Escott Zeolite is greater than 120 meq./100g. Only the exchangeable cations can be considered available in agriculture. In the natural state the exchangeable cations of Escott Zeolite are

**Na : K : Ca : Mg
3 : 1 : 21 : 5**

Zeolite Australia Limited makes no claims that the major elements listed below are available for agriculture nutritional purposes

CHEMICAL ANALYSIS OF MAJOR ELEMENTS IN ESCOTT ZEOLITE

Major Element	Zeolite Rock (%)	Major Element	Zeolite Rock (%)
SiO₂	68.26	CaO	2.09
TiO₂	0.23	Na₂O	0.64
AlO₃	12.99	K₂O	4.11
Fe₂O₃	1.37	P₂O₅	0.06
MnO	0.06	SO₃	0.00
MgO	0.83	LOI	8.87
		TOTAL	99.51

Notes: .1. Escott Zeolite XRF chemical analysis by J Bedford, UNE.

2. Information on Escott Zeolite remains the property of Zeolite Australia Limited and cannot be used without written Permission



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ESCOTT NATURAL ZEOLITE

APPEARANCE:	Light pink powder or granulated chips
PACKAGING	20kg paper sacks (Z3RP20), 1 tonne Bulker bags (Z3RPBB)
COMPOSITION:	Contains tabular clinoptilolite (zeolite) crystals as the main crystalline content. Minor components are quartz, mordenite (zeolite) clay (smectite) and mica.
SOURCE:	Escott property, Werris Creek, northern New South Wales.
CHEMISTRY:	Full major and trace element analysis is available on request.
AGE:	Late Carboniferous, 302 4 million years.
MINERAL GROUP:	Hydrous aluminosilicate.
HARDNESS:	7 Mohs
DENSITY:	1.1-1.6 tonnes/m ³
AMMONIA ODOUR	160 m.eq./100g (NH ₃ gas absorbed by 0.5g sample at "standard"
ABSORPTION:	conditions in a moist atmosphere)
LOSS ON	12.5 Wt% at 800 C for 2 hours
IGNITION:	
PARTICLE	From 75 micron powder to 6mm chips
DIAMETER:	
STABILITY:	Stable down to acid pH 2; temperatures up to 400 C.
MOLECULAR	7.9 x 3.5 angstroms, 4.4 x 3.0 angstroms from clinoptilolite.
CHANNEL SIZE:	
AMMONIUM ION	104 m.eq/100g
EXCHANGE	
CAPACITY:	
CATION	Na 12
EXCHANGE	K 4
CAPACITY ⁽²⁾ :	Ca 85
	Mg 18
SELECTIVITY	Cs>K>Sr=Ba>C>Na>Li
SEQUENCE ⁽³⁾	Ca>Rb>K>Na>Sn>Li
(typical for	Rb>NH ₄ >Ba>Sr>Na>Ca>Fe>Al>Mg>Li
clinoptilolite):	Cs>NH ₄ >Na
	Pb>Ag>Cd=Zn=Cu>Na
	Ba>Pb>Cd>Zn>Cu>Na
SAFETY:	Non toxic, non combustible and insoluble (H ₂ O). In conditions where dust is generated a non-toxic dust respirator should be worn.

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B.Sc(Hon), M.Aus.I.M.M., M.A.A.P.G.
PROJECT GEOLOGIST

- Notes:
1. Information on Escott Natural Zeolite remains the property of Zeolite Australia Limited and cannot be used without written authority.
 2. Exchange capacity depends on sample pretreatment and analytical method used. Zeolite Australia Limited uses methods outlined by N.S.W. Geological Survey (Fredrickson, 1986), values are for cations released from natural state Z3 during NH₄⁺ exchange.
 3. Sequence is generalised. Actual selectivity and exchange capacity for specific ions should be determined by tests with actual solutions to be used/treated.
 4. While technical data is presented as accurately as possible, being a natural product some variation is possible. Users should determine by independent testing suitability of product for particular uses.



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Zeolite Standard Sizes

Our standard sizes are.

<10 micron powder	Specialty suspensions
<75 micron powder	Animal Feeds, Pellets, Urea buffering / coating Organic fertiliser pellets, Flocculation of water, Aquaculture
<0.5mm	Animal Feeds, Pellets, Urea buffering / coating Organic fertiliser pellets
0.5-1.6mm	Turf
0.5-2mm	Agriculture & Horticulture, Fertiliser blending for banding & spreading, fertiliser carrier, potting mixes & composts. Aquaculture pond base
0.5-2mm	Filter Grade double screened
2-6mm	Agriculture & Horticulture, Fertiliser blending for banding & spreading, fertiliser carrier, potting mixes & composts