

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

1.1 COMMERCIAL PRODUCT NAME: ZEOLITE

- Clinoptilolite (Natural Zeolite) is a Calcium hydrated aluminosilicate of volcanic origin containing minimum of 85 % of Clinoptilolite and a maximum of 15 % of feldspar, micas and clays free of fibres and quartz.

- EINECS No: 215-283-8

- CAS No : 1318-02-Z

Natural Zeolite has been classified as a natural product having the above numbers.

1.2 SUPPLIER : S&B INDUSTRIAL MINERALS AD

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2. CHEMICAL COMPOSITION

Calcium hydrated aluminosilicate of volcanic origin (Clinoptilolite)

Typical Chemical Composition (on dry sample) % weight

SiO ₂	69.62	%
Al ₂ O ₃	13.62	%
TiO ₂	0.11	%
Fe ₂ O ₃	0.75	%
CaO	3.28	%
MgO	0.90	%
Na ₂ O	0.55	%
K ₂ O	2.94	%
LOI	8.23	%

Cation Exchange Capacity: min 150 meq/100 g

3. HAZARD INFORMATION

Clinoptilolite is a naturally occurring volcanic rock, being a Calcium hydrated aluminosilicate. During handling, non hazardous dust may be created, which may irritate unprotected eyes.

4. FIRST AID

Same, as in ordinary dust.

Remove to fresh air. Drink water to clear throat and blow nose. Flush the eyes with water.

5. FIRE AND EXPLOSION HAZARD INFORMATION

Clinoptilolite is inert, non-flammable and non combustible.

6. PRECAUTIONS AGAINST DUST CREATION

6.1. PERSONAL PRECAUTIONS

Use approved respirators against ordinary dust. Goggles are recommended.

6.2. ENVIRONMENTAL PRECAUTIONS

None. (Clinoptilolite has no negative ecological effects. On the contrary one of its applications is its use as soil conditioner, and for ecological restoration of heavily polluted sites.

6.3. SPILL AND LEAK PRECAUTIONS

Vacuum clean or wet sweep. Avoid dusting. Use a dust suppressant when sweep.

7. HANDLING AND STORAGE

-Avoid creating dust. Where applicable, provide good aeration by suction. In case of bagged product, repair broken bags.

-Chemical incompatibility: With hydrofluoric acid (see clause 16).

8. EXPOSURE AND PERSONAL PRECAUTION

8.1. GENERAL PREVENTION

Avoid creating dust. Where applicable, provide good aeration by suction.

8.2. PERSONAL PROTECTIVE EQUIPMENT

-Respiratory protection: Use approved respirators for protection against ordinary dust.

-Eye protection: Goggles are recommended for workers working in close proximity to Clinoptilolite dust, to avoid accidental contact with excessive Clinoptilolite dust.

-Hands and skin protection: Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Physical state:</i>	Solid
<i>Form:</i>	Various particle sizes : coarse rocks, granules and sand
<i>Odor:</i>	None
<i>PH (of water slurry, 20° C):</i>	6.5-7.0
<i>Melting point:</i>	982° C
<i>Boiling point :</i>	Non-applicable
<i>Vapor pressure:</i>	Non-applicable
<i>Vapor density:</i>	Non-applicable
<i>Evaporation rate</i>	
<i>(Butyl Acetate=1):</i>	Non-applicable
<i>Extinguishing Media:</i>	Non-applicable
<i>Special fire fighting procedures:</i>	Non-applicable
<i>Unusual fire & explosion hazards :</i>	None
<i>Flash point:</i>	Non-flammable
<i>Solubility (in water, 20° C):</i>	Insoluble
<i>Loose Bulk Density:</i>	1000 ± 100 Kg / m ³

10. STABILITY AND REACTIVITY

10.1. Stability

Material is stable. Hazardous polymerization will not occur.

10.1. REACTIVITY

-Hazardous reaction: With hydrofluoric acid.

-Hazardous decomposition products: Reaction with hydrofluoric acid forms toxic silicon tetrafluoride gas.

11. INFORMATION ON TOXICITY

Non toxic effects.

12. ECOLOGICAL INFORMATION

Clinoptilolite has positive ecological effects, since one of its applications is its use in soil conditioning and plant growth, and another application for the ecological restoration of heavily polluted sites.

13. WASTE MANAGEMENT

Clinoptilolite can be handled like ordinary sand and no special precautions are required for zeolite's disposal. Since it is an environmental improver, its disposal together with household waste is reducing odor and ammonia level in landfill, as well as the level of heavy metals.

14. TRANSPORT INFORMATION

All usual methods of transportation can be used. Avoid creating dust during transportation.

15. INFORMATION ON REGULATIONS

-No regulations from EU.

-Hazard symbol : None

-Risk R : None

-Risk S : None

-Observe the usual precautionary measures for handling materials creating non-hazardous dust.

16. FURTHER INFORMATION

This sheet is based on the best up-dated available information and is in accordance with Directive 91/155/EU. Thus, the foregoing information is believed to be accurate and is provided in good faith to comply with EU Directives and state law(s). However, no warranty or representation with respect to such information is intended or given.