

Technical Data Sheet

Material Designation

Material	Natural Zeolite
Chemical description	Natural Aluminiumsilicat alkaline and alkaline-earth metals, crystalline and hydrated, tectosilicat.
Mineral name	Clinoptilolite - Heulandite
Empirical formula	$(Ca,K_2,Na_2,Mg)_4Al_8Si_{40}O_{96}.24H_2O$

Physical and mechanical properties

Softening temperature	1250 °C
Melting temperature	1320 °C
Flow temperature	1400 °C
Appearance and odour	Grey-green, odourless
Porosity	32% - 44%
Effective pore diameter	0,4 – 0.6 nm (4 - 6 Angstrom)
Hardness on the Mohs scale	3.5 - 4
Water absorbing capacity	34% - 36%
pH-value	8.75 – 9.2
Density	$2,377 \pm 0,002$

Reactivity

Resistance	Resistant to acids and bases
Thermic stability	Up to 450 °C
Solubility in water	Insoluble
Dangerous decomposition	Not applicable
Dangerous polymerization	Not applicable
Toxicity	Nontoxic

Chemical composition

Compound	Percentage (%)	Compound	Percentage (%)
SiO ₂	- 68.75 % - 71.30 %	Fe ₂ O ₃	- 1.90 % - 2.10%
Al ₂ O ₃	- 11.35 % - 13.10 %	MgO	- 1.18 % - 1.20 %
CaO	- 2.86 % - 5.2 %	Na ₂ O	- 0.82 % - 1.30 %
K ₂ O	- 3.17 % - 3.40 %	L. I.	8.73 % - 8.86 %

Mineralogical composition (typical)

Type	Percentage (%)
Clinoptilolite	87 - 90
Plagioclaz	2 - 5
Anherite	2 - 3
Cristobalite	4 - 5

Ion Exchange capacity

Total exchange capacity	237.5 meq / 100g
Cation exchange capacity for Ca ²⁺	160.4 meq / 100g
Cation exchange capacity for Mg ²⁺	38.4 meq / 100 g
Cation exchange capacity for K ⁺	39 meq / 100 g
Cation exchange capacity for Na ⁺	27.5 meq / 100 g