Zeolite Technical Data Sheet

Why Choose Our Zeolite - Clinoptilolite?

ITALMEDCO is the leading natural zeolite mineral producer and exporter in Eurasia. It owns high quality reserves in Italy. Here are some quick facts why you should choose ITALMEDCO zeolite - clinoptilolite.

Incredible Purity

min. 93% to 97%

ITALMEDCO guarantees minimum 93-97% purity at its products. The purity of the product is constantly monitored by analysis. Regular tests are being carried out to check the reserve.

High Cation Exchange Capacity (CEC)

Up 1,5-2 meq/g

ITALMEDCO offers clinoptilolite with one of the highest Cation Exchange Capacity (CEC).

High Specific Surface Area

Up to 57 m2/g

ITALMEDCO's products can reach specific surface area (SSA) of up to 57 m2/gr.

Accurate Sizing & Naming

Dv90%

While naming a powder product, the name indicates that 90% of the product is below the “named size”. For example when we name the product 200 micron, we guarantee that 90% of the product is below 200 micron.

Simultaneous Production

16 products

We can produce up to 16 different grades of product simultaneously, at our two different facilities.

Non Stop Manufacturing

4 seasons

ITALMEDCO operates for 4 seasons of the year. Usually the orders in big bags and bulk orders are immediately shipped and delivered. Orders with smaller packages are usually shipped in 3 - 15 days.

Sustainable Supplier

320 hectares

ITALMEDCO has relation with owner of 320 hectares of high quality natural zeolite - clinoptilolite reservoir. Calculated reserve is more than 8 million tons.

Reliable Producer

20 years

ITALMEDCO has been in the zeolite business for more than 20 years now. We have established a mutual long term partnership with most of our customers. We have the know-how and experience for the manufacturing process and the application of zeolite - clinoptilolite.

Favorable Pricing

Discount 20%

If you are the first one to give an order from a country that we have never shipped before, we offer 20% discount at your first order.

Product Information Sheet

GENERAL INFORMATION

Chemical Name:	Calcium, Potassium, Sodium Aluminosilicate	**CAS No Clino Ptilolite:**	12173-10-3
Chemical Family:	Natural Zeolite	**CAS No Natural Zeolite :**	1318-02-1
Chemical Abstract Name:	Clinoptilolite	**EINECS No:**	215-283-8
Chemical Formula:	$(Ca,K_2,Na_2,Mg)_4Al_8Si_{40}O_{96}.24H_2O$	**HTS CODE - CUSTOM CODE:**	25 30 90 00 90 39

MINERAL COMPOSITION *

Clinoptilolite	90 - 97 %	**Other Clays**	3 - 8 %	**Opal**	0 - 7 %		

** Semi-Quantitative whole rock analysis (bulk mineralogy) has been done using powder X-ray Diffraction Method*

CHEMICAL COMPOSITION **

SiO_2	65 - 72 %	**Fe_2O_3**	0,7 - 1,9 %	**MnO**	0 - 0,08 %
Al_2O_3	10 - 12 %	**MgO**	0,9 - 1,2 %	**Cr_2O_3**	0 - 0,01 %
CaO	2,4 - 3,7 %	**Na_2O**	0,1 - 0,5 %	**P_2O_5**	0,02 - 0,03 %
K_2O	2,5 - 3,8 %	**LOI*** **	9 - 14 %	**SiO_2/Al_2O_3**	5,4 - 7,2 %

*** Analysed by XRF Spectrometer, *** Loss of Ignition*

PHYSICAL COMPOSITION

Clinoptilolite	90 - 97 %	**Plagioclase**	3-4%
Cristobalite	0.09	**Quarz**	traces
Clay mica	2-3%	**Dioxins & - PCB'S**	max. 1,5 ng 2,3,7,8-TCDD TEQ/kg
		Tested on heavy metals and samonella	

PHYSICAL PROPERTIES

Appearance	Ivory white	**Oil Absorption (ml/100g)**	57	**Solubility**	None
Smell	None	**Abrasion (mg/100g)**	87	**Ph**	7,0 - 8,0
Porosity	45 - 50 %	**Single Point Surface Area**	43-57 m^2/g	**Softening Point**	1150 °C
Hardness	2 - 3 Mohs	**Micropore Area**	10-12 m^2/g	**Melting Point**	1300 °C
Mudding Down	None	**Micropore Area**	28-30 m^2/g	**Bulk Density**	0,6 - 0,8 g / cm^3
Water Absorption	42 - 50 %	**Effective Diameter of Pores**	4 angstrom	**Real Density**	2,2- 2,4 g / cm^3
Plasticity	Minor				

CATION EXCHANGE CAPACITY (CEC) †

Total CEC:	1,5-2 meq/g	† Methylene Blue Chloride Method
Total exchange:	Ca_2+ 0,64 - 0,98 mol/kg k+ 0,22 - 0,45 mol/kg Mg2+ 0,06-0,19 mol/kg Na+0,01 - 0,19 mol/kg	
Parrial exchang capacity NH4+	min. 0,70 mol/kg	
Total exchang capacity NH4+	1,2-1,5 mol/kg	
Sorption of steam by dehydrated rock	7,5 - 8,5 g H2O/100g	at relative humidity of 52 %
	13,5-14,5 g H2O/100g	at relative humidity of 98 %

Major Exchangeable Cations

Rb, Li, K, Cs, NH4, Na, Ca, Ag, Cd, Pb, Zn, Ba, Sr, Cu, Hg, Mg, Fe, Co, Al, Cr.

(selectivity of above cations is a function of hydrated molecular size and relative concentrations).

Selectivity

$Cs_+ > NH_{4+} > Pb_{2+} > K_+ > Na_+ > Ca_{2+} > Mg_{2+} > Ba_{2+} > Cu_{2+}, Zn_{2+}$

Primary Adsorbing Gases

CO, CO2, SO2, H2S, NH3, HCHO, Ar, O2, N2, H2O, He, H2, Kr, Xe, Ch2OH.

X Ray Diffractography :

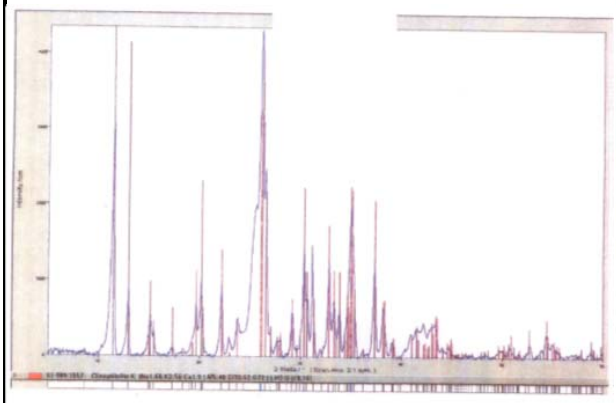


Figure 2: X-ray diffractogram
Natural Zeolite purity, mine: 97%

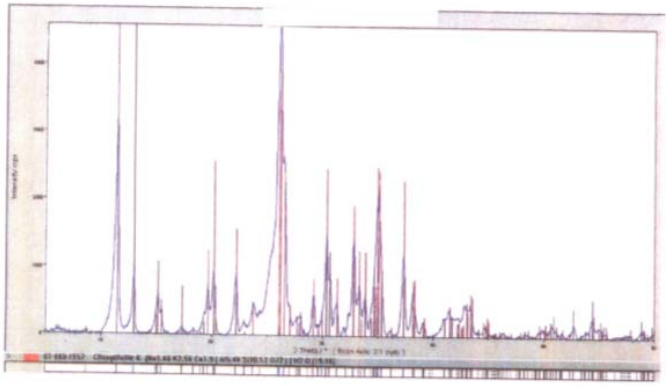


Figure 1: X-ray diffractogram
Natural Zeolite purity, mine: 93%

Information herein is accurate to the best of our knowledge, but may be subject to change without notice. Suggestions are madewithout warranty or guarantee of results.

Before using, user should determine the suitability of the product for its intended use and user assumes the risk and liability in connection herewith.

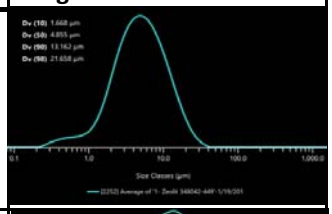
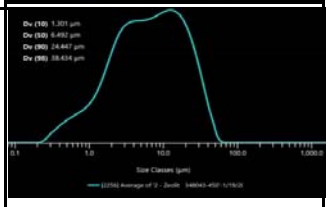
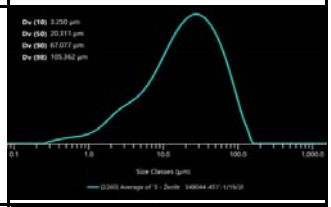
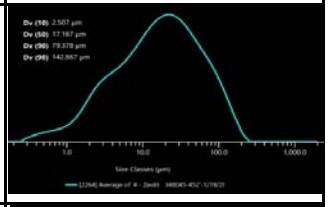
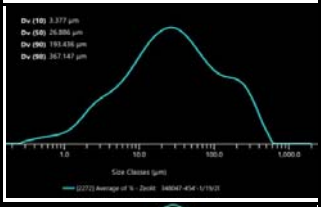
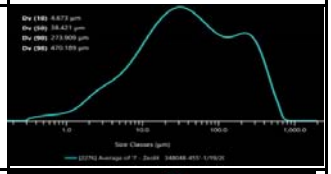
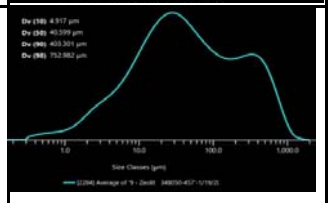
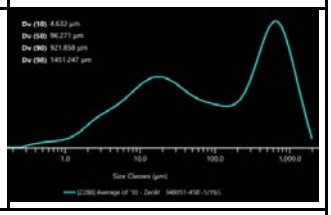
Zec Data S **Zeolite Types**

Granule Products

Size (mm)	Name	Packing	Applications	Image
0,3 - 0,7	Finest Granule Product. Sand Grade	Bigbag: 1 ton Pp bag: 25 kg Bulk	Industrial Construction & Building	
0,7-1,6	Special for turf management. USGA approved grade.	Bigbag: 1 ton Pp bag: 25 kg Bulk	Soil - Grass Conditioner Water Treatment Bedding & Litter	
1,6 - 3	Special for agriculture. Cost effective grade.	Bigbag: 1 ton Pp bag: 25 kg Bulk	Soil - Grass Conditioner Water Treatment WasteTreatment Bedding & Litter	
3-5	Popular for tree & landscape applications.	Bigbag: 1 ton Pp bag: 25 kg Bulk	Soil - Grass Conditioner Water Treatment WasteTreatment Bedding & Litter	
5-9		Bigbag: 1 ton Pp bag: 25 kg Bulk	Water Treatment	
9-16		Bigbag: 1 ton Pp bag: 25 kg Bulk	Water Treatment	
16 - 50		Bigbag: 1 ton Pp bag: 25 kg Bulk	Water Treatment	
Pellet		Bigbag: 1 ton Pp bag: 25 kg Bulk	Water Treatment Feed Additive	

Zeolite Types

Powder - Micronized Products

Size (mm)	Name	Packing	Applications	Image
10 micron	Activated & Enrinched. Very fine powder.	Bigbag: 500 kg Pp bag: 10 kg Bucket	Industrial Medical & Cosmetic	
25 micron	Activated. Very fine powder.	Bigbag: 650 kg Pp bag: 15 kg Bucket	Industrial Medical & Cosmetic Feed Additive	
50 micron	Specially produced for industrial applications. Very fine powder.	Bigbag: 800 kg Pp bag: 20 kg Bucket	Industrial Medical & Cosmetic	
100 micron	Popular as Feed Addive. Cost Effective Product.	Big bag: 1000 kg Pp bag: 25 kg	Industrial Medical & Cosmetic Feed Additive	
200 micron	Popular as Feed Addive. Cost Effective Product.	Big bag: 1000 kg Pp bag: 25 kg	Industrial Medical & Cosmetic Feed Additive	
300 micron	Popular as Feed Addive. Cost Effective Product.	Big bag: 1000 kg Pp bag: 25 kg	Industrial Feed Additive	
400 micron	Popular as Feed Addive. Cost Effective Product.	Big bag: 1000 kg Pp bag: 2	Industrial Feed Additive Construction & Buildings Waste Treatment	
0 - 1 mm (1000 micron)	Broadest powder product.	Big bag: 1000 kg Pp bag: 25 kg Bulk	Industrial Feed Additive Construction & Buildings Waste Treatment	

Particle size plays an important role in many industries and applications since it influences many properties of particulate materials. It is a valuable indicator of quality and performance.

In mining, there are generally three values to define powders in terms of micron size: Dv10, Dv50, and Dv90. Simply, these values respectively represent 10%, 50%, 90% of the product below the named micron size. For example, 200 micron (Dv50) means that 50% of the product (in weight) is below 200 micron size. Whereas 200 micron (Dv90) means that 90% of the product is below 200 micron.

INSPECTION CERTIFICATE

Chemical Analysis, XRF:

According to ASTM E 1621-05, result of chemical compound, XRF is as following table:

Quote

Row	Compound	Weight (%)	Row	Compound	Weight (%)
1	Na_2O	2.2	7	Al_2O_3	10.4
2	P_2O_5	0.13	8	Cl	0.43
3	CaO	1.6	9	La & Lu	<1
4	MgO	0.99	10	SiO_2	67.6
5	SO_3	0.086	11	K_2O	3.2
6	Fe_2O_3	1.5	12	L.O.I	11.01

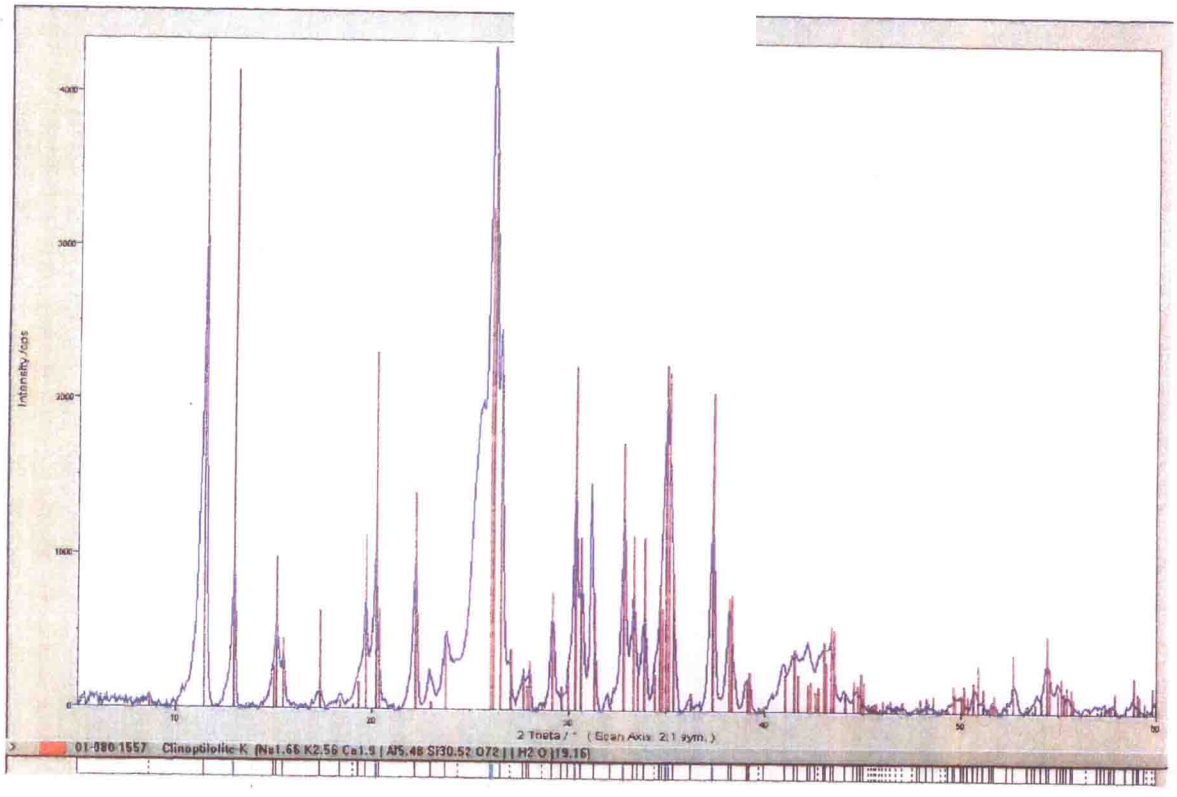


Figure 2: X-ray diffractogram
Natural Zeolite purity, mine: 97%

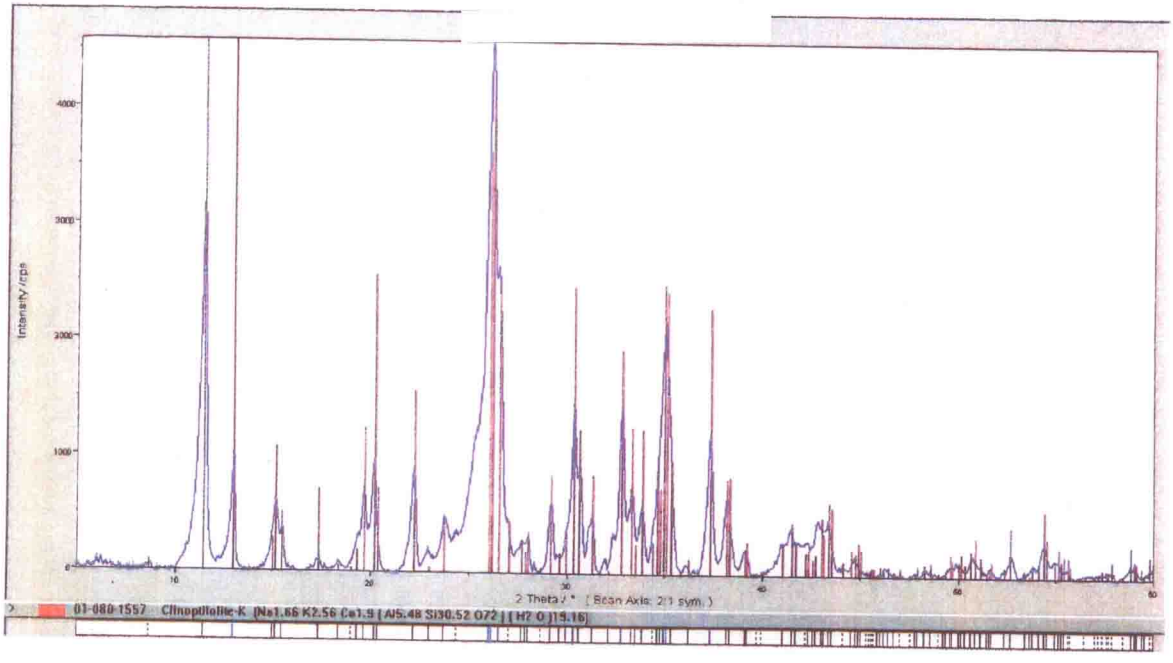
INSPECTION CERTIFICATE

Chemical Analysis, XRF:

According to ASTM E 1621-05, result of chemical compound, XRF is as following table:

Quote

Row	Compound	Weight (%)	Row	Compound	Weight (%)
1	Na_2O	4.1	7	Al_2O_3	10.0
2	P_2O_5	0.13	8	Cl	0.43
3	CaO	1.4	9	La & Lu	<1
4	MgO	0.73	10	SiO_2	67.2
5	SO_3	0.082	11	K_2O	2.2
6	Fe_2O_3	1.2	12	L.O.I	12.50



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