



Mine owner & Leading Premium Quality
Minerals and Petrochemicals Supplier & Exporter



We Know The Art of Trading

About Us

Vorna International Trading Company is a young and dynamic company which has the experience of more than 12 years.

Vorna Co aims at offering international business management services to the companies under the contract including minerals (Bentonite, Bentonite Cat Litter , Drilling Bentonite, Paper Bentonite, Detergent Bentonite, Drilling Barite, Salt, Kaolin, Silica, Limestone, Dolomite ,Crystal Gypsum and so on.)

At **Vorna co.** , we are one of most reputable international general trading companies that represents leading manufacturers and suppliers on an international scale. we have the innate capability to execute orders of all sizes. We strive to provide the highest quality products and services for the most affordable price.

Honesty, integrity, and value are what our company's reputation is built upon. We put our best foot forward to deliver only the highest quality products and services - we place our customers as the first priority in all stages of the product and service delivery chain.





Products List

- Bentonite
- Bentonite Cat Litter
- Drilling Bentonite
- Paper Bentointe
- Detergent Bentonite
- Drilling Barite
- Salt
- Kaolin
- Silica
- Limestone
- Dolomite
- Gypsum



Give Us A Try.

Bentonite

Bentonite is a clay generated frequently from the alteration of volcanic ash, consisting predominantly of smectite minerals, usually montmorillonite.

Applications: Ceramic Tile, Papermaking, Cat litter, Casting, Drilling, Detergent additive, Paint and varnish.

Bentonite is known for its very high water absorption, most of the island builders use bentonite for the sea drying process to build the island.

Bentonite is used as a bonding material in the preparation of molding sand for the production of iron, steel and non-ferrous casting. The unique properties of bentonite yield green sand moulds with good flowability, compactability and thermal stability for the production of high quality castings.



Bentonite Ocma Analysis

Requirements	Unit	Result
Viscometer dial at 600 rpm	-	30-66
Water loss	ml	13-15
Moisture	%	8-10
Residue on ASTM Sieve No:100(dry method)	W.t%	Max 2
Residue on ASTM Sieve No:200(dry method)	W.t%	Max 2.5
Ratio	-	Max 6

Chemical Analysis

SiO ₂ %	69.14
Al ₂ O ₃ %	13.41
Fet	0.91
CaO%	0.97
MgO%	2.13
Na ₂ O%	2.51
K ₂ O%	0.05
K ₂ O	0.05
Loss on ignition %	10.42

Bentonite Analysis

Physical Properties

Description	Bentonite CLAY	
	Ind	Max
water of Plasticity %	68.9	-
Dry MOR Kg/Cm2	48.5	-
Shrinkage%	10.42	7.5
Loss on ignition %	7.04	2.68
Fired MOR Kg/Cm2	430	-
Water Absorption	1.96	-
L*	81.08	76.47
a*	-0.07	1.08
b*	9.24	9.6
Temperature c	1206/1216	
Cycle min.	49	

SiO ₂ %	75.5
Al ₂ O ₃ %	13.6
Fe ₂ O ₃ %	0.95
CaO%	0.48
MgO%	0.41
Na ₂ O%	2.36
K ₂ O%	0.3
Loss on ignition %	5.5

Cat Litter

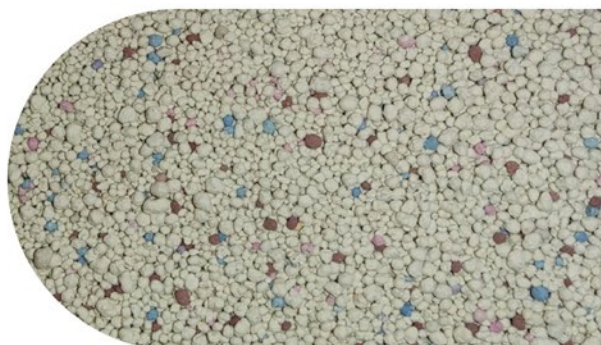
Bentonite is an ideal base for clumping cat litter because of its ability to absorb moisture and liquid (urine). When in contact with liquids, bentonite absorbs 3.5 times its own weight, causing cat litter to form clumps that can be easily scooped up.



Chemical Analysis

Compound	VOSHCL	VOTFCL
SiO ₂	%62.19	%63.86
Al ₂ O ₃	%12.95	%11.83
BaO	%0.04	-----
Fe ₂ O ₃	%2.53	%1.78
K ₂ O	%0.39	%1.69
MgO	%2.33	%1.05
MnO	%0.02	%0.098
P ₂ O ₅	%0.05	%0.046
Na ₂ O	%3.39	%1.68
SO ₃	%1.61	%0.852
TiO ₂	%0.38	%0.211
Cr ₂ O ₃	nd	-----
CaO	%3.95	%4.14
L.O.I	%11.74	%12.26

Absorption Capacity	Type 1	Type 2
Shape	600	600
Granule size	1-2.2mm	1-2.2mm
Bulk Density (G/L)	980	980
Clump weight with 20ml Water	55	55
ph	9-10	9-10
Moisture	6	6



Swell Index	Water Absorption next 1 hour	Water Absorption next 2 hour	Water Absorption next 4 hour	Water Absorption next 24 hour
22	%488.1	%562.43	%646.07	%799.77

Dial Reading at 600 r/min	Dial Reading at 300 r/min	Plastic Viscosity	Yield Point
26	22	4	18

Drilling Bentonite

The most common use of bentonite is in drilling fluids. The bentonite in the flush fluid lubricates and cools the cutting tools whilst protecting against corrosion. As the drilling fluid generates hydrostatic pressure in the borehole, it hinders fluid and gas penetration.

Chemical Analysis

Sio2	Al2O3	Na2O	Mgo	K2O	TiO2	MnO	CaO	P2O5	Fe2O3	SO3	LOI
60.7	14.34	3.26	4.04	0.56	0.66	0.02	0.8	0.08	2.56	0.07	12.1

Physical Analysis (OCMA)

Parameters	Unit	Result
Viscometer dial reading at 600 rpm	r/min	43
Viscometer dial reading at 300 rpm	r/min	37
Plastic viscosity (PV)= R600-R300	CP	6
Yield point (YP)= R300-PV	$\frac{\text{ib}}{100\text{ft}^2}$	31
YP / PV Ratio	$\frac{\text{ib}/100\text{ft}^2}{\text{cp}}$	5.16
Fluid Loss	ml	13.20
Moisture Content	%	8.5
Residue > 75 micrometers	w.t%	2.5



Chemical Analysis

Sio2	Al2O3	Na2O	Mgo	K2O	TiO2	MnO	CaO	P2O5	Fe2O3	SO3	LOI
60.7	14.34	3.26	4.04	0.56	0.66	0.02	0.8	0.08	2.56	0.07	12.1

Physical Analysis (API)

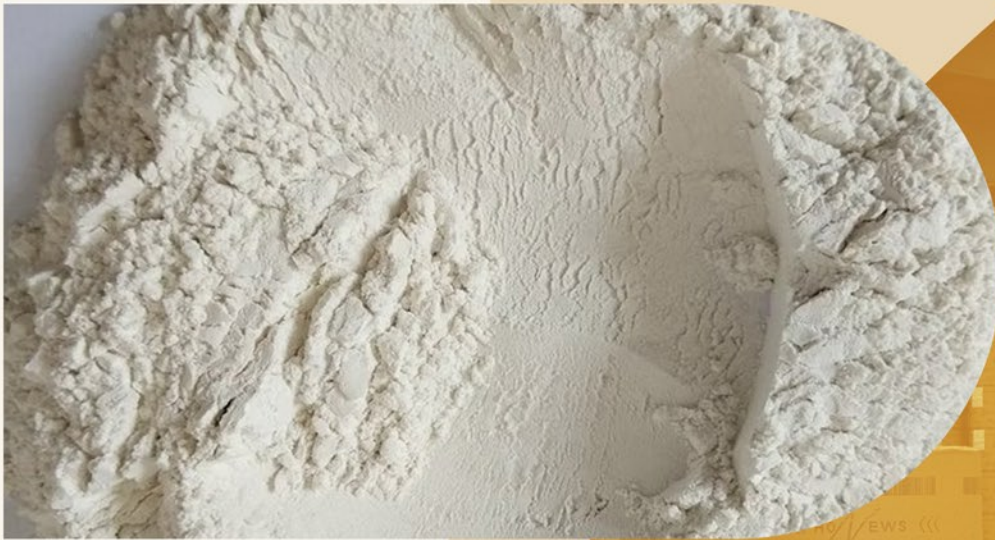
Parameters	Unit	Result
Viscometer dial reading at 600 rpm	r/min	45
Viscometer dial reading at 300 rpm	r/min	36
Plastic viscosity (PV)= R600-R300	CP	9
Yield point (YP)= R300-PV	$\frac{\text{ib}}{100\text{ft}^2}$	27
YP / PV Ratio	$\frac{\text{ib}/100\text{ft}^2}{\text{cp}}$	3.00
Fluid Loss	ml	14
Moisture Content	%	8.5
Residue > 75 micrometers	w.t%	2.5



Paper bentonite

Bentonite is widely used in the paper industry due to its unique properties, such as high swelling capacity, ion exchange ability, and excellent adsorption characteristics. It acts as a retention aid, improving the retention of fine particles and fillers during paper production, which enhances paper quality and reduces material waste. Additionally, bentonite is used as a pitch control agent, helping to remove resin and sticky substances from the pulp, ensuring smoother processing and reducing machine downtime. Its application in coating formulations also improves the surface quality and printability of paper products. Overall, bentonite contributes to cost efficiency and environmental sustainability in the paper manufacturing process.

No.	Moisture 14 Max	FS 5 Min.	MB 70 Min.	Grit	Brightness	L 89 Min.	Other a	b
VBPPZ	2.82	14	50.68	9.649	71.68	88.36	0.25	5.17



Detergent bentonite

Bentonite is an essential ingredient in the detergent industry due to its excellent absorption and softening properties. It is primarily used as a fabric softener and as a binder in detergent formulations. When added to laundry detergents, bentonite helps prevent soil from redepositing onto fabrics during the washing process, ensuring cleaner clothes. Its ability to soften water also enhances the effectiveness of cleaning agents. Moreover, bentonite's non-toxic and environmentally friendly nature makes it a preferred choice in eco-friendly detergent products. By improving detergent efficiency and fabric care, bentonite plays a vital role in modern cleaning solutions.

No.	Moisture 14 Max	FS 5 Min.	MB 70 Min.	Grit	Brightness	L 89 Min.	Other a	b
VBPPD	6.4	17	92.91	3.880	68.09	86.87	0.2	6.11
ARB1	6.22	35	92.91	2.148	78.51	91.23	-0.05	3.72



Drilling Barite

Barite increases the hydrostatic pressure of the drilling mud, allowing it to compensate for high-pressure zones experienced during drilling. Barite's added advantage is that its softness enables it to become a lubricant, which reduced the damage to drilling tools during drilling.

Chemical Analysis

Element	SiO ₂	Al ₂ O ₃	BaO	CaO	Fe ₂ O ₃	K ₂ O	MgO	MnO	Na ₂ O	P ₂ O ₅	SO ₃	TiO ₂	L.O.I	SrO
Unit	%	%	%	%	%	%	%	%	%	%	%	%	%	%
DL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
CO	0.22	0.09	63.44	0.15	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	34.24	<0.05	0.35	1.45
SG:4.25 g/cm ³														



Salt

Salt is another mineral which we are able to supply different types with various purity in to category: 1: edible salt 2: industrial salt : it can be used as a raw material when manufacturing chemicals such as chlorine, soda ash, and caustic soda. In addition, industrial salt can be used to manufacture products such as sodium nitrate, sodium bicarbonate, liquid sodium, metallic sodium, sodium sulfate, and more.

Salt Analysis

Sodium Chloride (NaCl)	99-99.5% (approx.)
Potassium	280-290 ppm. (approx.)
Calcium (Ca)	65-75 ppm. (approx.)
Magnesium (Mg)	30-40 ppm. (approx.)
Iron (Fe)	10-15 ppm. (approx.)
Copper (Cu)	2 ppm. Max.
Cadmium (Cd)	0.2 Max.
Insoluble matters	0.10% Max.
Lead (Pb)	0.002 ppm Max.
Mercury (Hg)	0.001 ppm Max.
Arsenic (As)	0.0002 ppm Max.



Kaolin

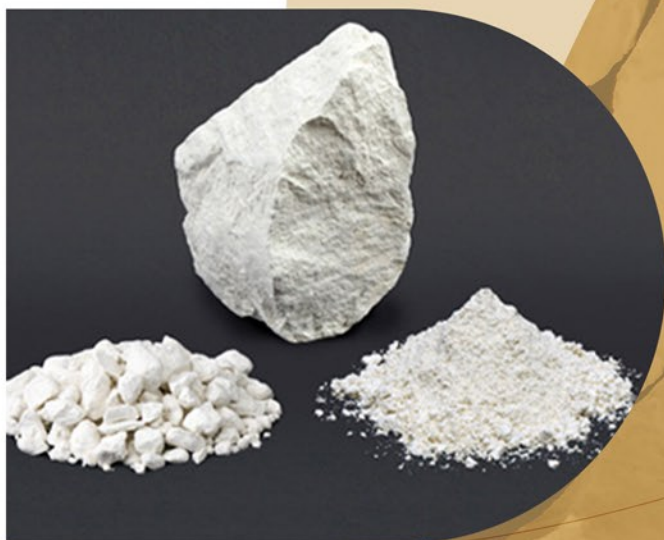
Most of the use and application of kaolin is in body of ceramics and glaze and spreaders or special polishes and bleaches or even to create resistance to abrasion and hardening. It is also due to its many properties and capabilities in other fields such as paper making, ceramics, oil, inks, paints, refractories, rubber, pharmaceuticals, fiberglass, refractory industries, construction materials and plaster, insecticides, food and so on. It is used in agricultural industries. In Iran, this mineral material is used in chamotte bricks and internal covering of furnaces, heating boilers and tiles. It is interesting to know that about 50% of kaolin is used in paper making and as a coating or 30% in the ceramic industry. Also 20% is used in rubber and paint. The absorbency of the compound as well as its good coverage and transparency in the paper are some of the advantages of using kaolin in this industry.

Physical Analysis

Density(gr/ ml)	1.43
Viscosity	11
%Residue(63 micron.#230)	9.7
Dry M.O.R(kg/c m2)	14
Fried Shrinkage	0.7
Fired colour	white
*L	96
*a	-1.6
*b	5.5
%Water absorption	24

Chemical Analysis

SiO ₂ %	72.78
Al ₂ O ₃ %	19.62
Fe ₂ O ₃ %	<0.01
TiO ₂	0.15
% CaO	0.13
% MgO	0.03
% Na ₂ O	0.12
% K ₂ O	0.03
P ₂ O ₅	0.03
MnO	<0.01
S	0.05
%Loss on ignition	6.89



Silica

This material is used in the industries of glass and ceramics, fillers, electronics, optics and semi-media, lighting and infrared, and optical fibers and computers. It is used in porcelain, concrete, grass, rice paddies, ferrosilicon production, ceramics, lime sand brick production, casting, and sodium silicate production. In general, this material is the main constituent of many ceramics and glass. This material also has many uses in technical applications.

Glass silica: Silica is the main element in all types of glass. The main glass products include utensils such as glass bottles and crystal cups and flat glass such as windows and mirrors and vehicle glass and lighting glass and tableware are used and silica is cast. It is widely used in casting metal parts. Molten metal is poured into molds made of silica sand. Fine-grained silica is also a component of most clay bodies and a major component of ceramic glaze. Everyday products include tableware, sanitary ware, jewelry, and wall and tile. Home Jacuzzis usually use different grades of premium silica. Silica is also used in sports venues, for example for the floors of equestrian clubs, in the production of artificial turf, golf and football fields, and in parks as a playground. In general, this useful substance is used in the production of chemicals and metals, filters in some industries, and in the production of plastics and agricultural products.

Property	Composition (%)
SiO ₂	>85%
C (free)	< 4%
S	< 1%
Fe ₂ O ₃	< 2.5%
Al ₂ O ₃	< 1%
CaO	< 1%
K ₂ O + Na ₂ O	< 3%
Cl	< 0.2%
L.O.I	< 6%
Moisture	< 2%
Specific surface	-20 m ² / gr



Limestone

Limestone is a sedimentary rock composed principally of calcium carbonate (calcite) or the double carbonate of calcium and magnesium (dolomite). It is commonly composed of tiny fossils, shell fragments and other fossilized debris.

In the production of steel, a large amount of limestone and crude lime is used, which can be said to be one of the applications of lime in this field. Also, some insulating materials that are molded as units are silica and lime. Lime as a factor The bond reacts with the silica in a mixture of its own, and as a result the reaction of silicate and lime is used in the manufacture of insulation.

One of the applications of lime is in the preparation of cement, in which about 60 to 70% of lime is used, and after heating it, carbon dioxide is released.

Chemical Analysis

Calcium Oxide(CaO)	54.77%
Calcium Carbonate(CaCO ₂)	97.80%
Silica(SiO ₂)	0.48%
Sulfur Trioxide (SO ₃)	0.20%
Chloride(Cl)	0.025%
Moisture(H ₂ O)	0.49%

Size in (MM)	Unit
Below 1 MM	2.87%
1 MM to 10 MM	9.74%
10 MM to 20 MM	17.72%
20 MM to 30 MM	35.12%
30 MM to 40 MM	25.72%
40 MM to 50 MM	8.83%
Above 50 MM	0.00%



Dolomite

Dolomite long has been used as a source of calcium and magnesium for animal feeds. It is now available in a number of dosage forms including tablets and chewable wafers, to be taken as dietary supplements. Dolomite is used as a source of magnesia (MgO), a feed additive for livestock, a sintering agent and flux in metal processing, and as an ingredient in the production of glass, bricks, and ceramics. Dolomite is used as a source of magnesium metal and of magnesia (MgO), which is a constituent of refractory bricks. Dolomite serves as the host rock for many lead, zinc, and copper deposits. Dolomite also serves as an oil and gas reservoir rock. This can produce pore spaces in the rock that can be filled with oil or natural gas that migrate in as they are released from other rock units. This makes the dolomite a reservoir rock and a target of oil and gas drilling. Agriculture grade dolomite used for soil neutralization and conditioner to correct acidity. It also finds use as filler in fertilizers. The main ingredient is calcium carbonate, it helps to increase the pH of acidic soils and it provides a good source of calcium for plant. It improves the water penetration for acidic soil.

Applications

- 1- Steel of iron and steel and metal industries
- 2- Petrochemical industry
- 3- Glass industry
- 4- Painting industries
- 5- Consumption in refractory products

Typical Chemical Properties

CaO	30- 32%
MgO	20 - 21%
SiO ₂	0.2- 0.5%
Fe ₂ O ₃	0.1- 0.3%
Al ₂ O ₃	0.05- 0.07%
L.O.I	45 - 47%

Product Size Gradation

0-120 mm	
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Gypsum

It is found in many items we use every day, like toothpaste and shampoo. It is also used to make drywall, create molds for dinnerware and dental impressions, and to build roads and highway. The usage of raw gypsum lump is for increasing setting time in producing cement and to reduce the salinity of the soil in agricultural lands. The properties of this product are so wellknown that by improving the soil, it can increase the efficiency and effectiveness of agricultural products. In addition to building materials and cement raw materials, gypsum can also be used to many other fields such as making sulfuric acid, rubber, plastics industry, fertilizer, pesticide, paint, textile industry, foodstuff, medicine, daily chemical products, arts and crafts and culture and education.



Crystal Gypsum Chemical Analysis

Component	Result	Requirement According to:
Loss on Ignition	1.19	ISIRI 389
SiO ₂	21.50	Max = 3
Al ₂ O ₃	4.95	Min = 20
Fe ₂ O ₃	3.97	Max = 6
CaO	63.52	Max = 6
MgO	1.75	-
So ₃	2.20	Max = 5
Cl	-	Max = 3
Insoluble Residue	0.50	-
Free CaO	1.4	Max = 0.75
Alkalies(Na ₂ O%+0.658 K ₂ O%)	1.0	-
C ₃ S	50.0	-
C ₂ S	24.0	-
C ₃ A	6.4	-
C ₄ AF	12.1	Max = 8

High Quality Raw Gypsum Analysis Result On Dry Basis:

Property	Unit	Weighted average results
CaSO ₄ .2H ₂ O Purity	%	99
Moisture (Free Water)	%	0.07
CaO	%	31.96
MgO	%	0.082
So ₃	%	45.64
SiO ₂	%	0.43

Size Determination:

Description	Weighted average results
-50mm	93.75
+50mm	6.25
Total	100a



Gypsum can be also be used as a food additive to enhance the texture of ingredients in processed foods. Pure white rock gypsum is also known as alabaster and has been used to make carved status and sculptures. Nearly all modern homes and buildings use gypsum in the form of wall board, also known as gypsum board, drywall or sheet rock. In the food industry, gypsum may be used as drying agent, color enhancer, stabilizer and thickener. Pure crystalline gypsum that used in food industries pharmacy and agriculture. This type of gypsum is layered, which is obtained by the adhesion of thin sheets of calcium hydro sulfate, or in the form of silk, which is the product of the adhesion of crystalline fibers of calcium hydrosulfate.





**We Are Better Than
Our Competitor**





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