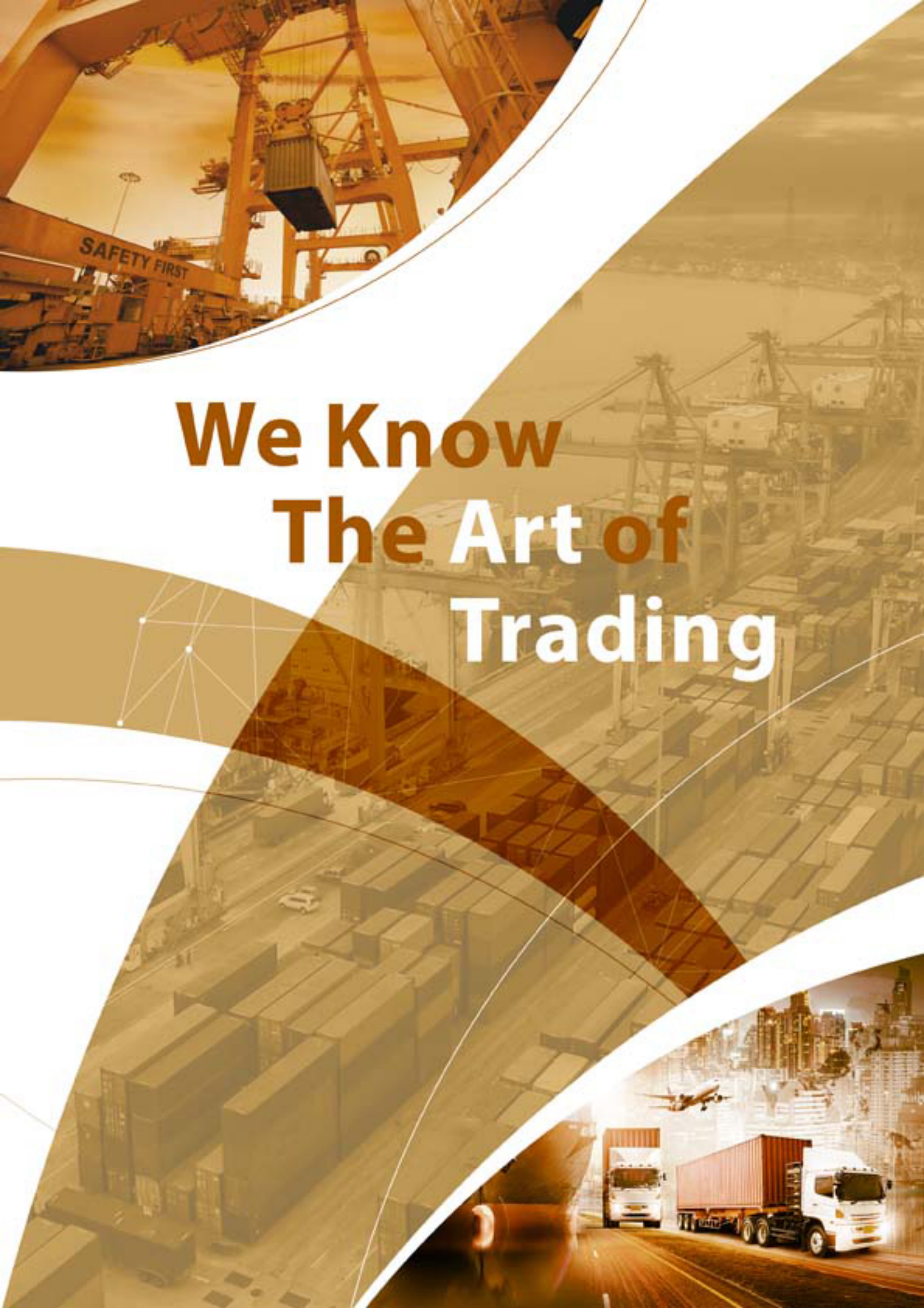
VORNA

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, Kaolin, Limestone, Silica, Dolomite, Iron ore, Bitumen, Urea, Petrochemical, Talc, Raw Gypsum, 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.

ISO 14001 ISO 45001 ISO 9001 ISO 10002

Products List

- Bentonite
- Bentonite Cat Litter
- Drilling Bentonite
- Drilling Barite
- Salt
- Kaolin
- Silica
- Limestone
- Dolomite
- Gypsum
- Bitumen
- Urea


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_2O_3%	13.41
Fet	0.91
CaO%	0.97
MgO%	2.13
Na_2O%	2.51
K_2O%	0.05
K_2O	0.05
Loss on ignition %	10.42

SiO_2%	75.5
Al_2O_3%	13.6
Fe_2O_3%	0.95
CaO%	0.48
MgO%	0.41
Na_2O%	2.36
K_2O%	0.3
Loss on ignition %	5.5

Bentonite Analysis

Physical Properties

Description	Bentonite CLAY	
	Ind	Max
water of Plasticity %	6.89	-
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	

VORNA
www.vornaco.com
vornaco
vornatrading
info@vornaco.com
export@vornaco.com
+98 912 293 9278
+98 922 100 1392

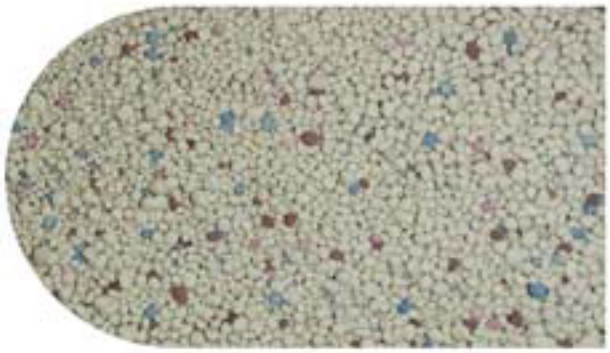
Cat Litter

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

Compond	Shatoot	Toot Farangi
SiO2	%62.19	%63.86
AL2O3	%12.95	%11.83
BaO	%0.04	----------
Fe2O3	%2.53	%1.78
K2O	%0.39	%1.69
MgO	%2.33	%1.05
MnO	%0.02	%0.098
P2O5	%0.05	%0.046
Na2O	%3.39	%1.68
SO3	%1.61	%0.852
TiO2	%0.38	%0.211
Cr2O3	nd	----------
CaO	%3.95	%4.14
L.O.I	%11.74	%12.26

Absorption Capcity	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	LO1
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	$\frac{lb}{100ft2}$	31
YP / PV Ratio	$\frac{lb/100ft2}{cp}$	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	LO1
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	$\frac{lb}{100ft2}$	27
YP / PV Ratio	$\frac{lb/100ft2}{cp}$	3.00
Fluid Loss	ml	14
Moisture Content	%	8.5
Residue > 75 micrometers	w.t%	2.5

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_2O_3	BaO	CaO	Fe_2O_3	K_2O	MgO	MnO	Na_2O	P_2O_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

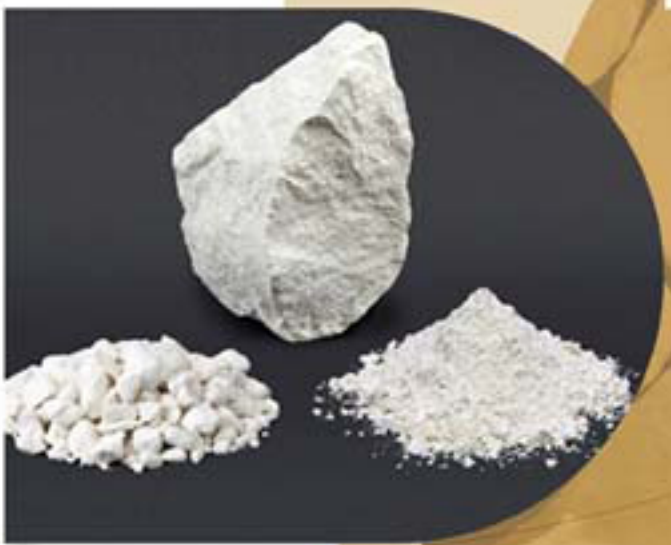
Most of the use and application of kaolin is in body of ceramics and glaze and spreaders or special polishes and bleaches or even to create resistance to abrasion and hardening. It is also due to its many properties and capabilities in other fields such as paper making,ceramics, oil,inks, paints, refractories, 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_2O_3 %	19.62
Fe_2O_3 %	<0.01
TiO_2	0.15
% CaO	0.13
% MgO	0.03
% Na_2O	0.12
% K_2O	0.03
P_2O_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.

Property	Composition (%)
SiO_2	>85%
C (free)	< 4%
S	< 1%
Fe_2O_3	< 2.5%
Al_2O_3	< 1%
CaO	< 1%
$K_2O + Na_2O$	< 3%
Cl	< 0.2%
L.O.I	< 6%
Moisture	< 2%
Specific surface	-20 m2/ gr

Glass silica: Silica is t he main element in all types of glass. The main glass products include utensils such as glass bottles and crystalcups and flat glass such as windows and mirrors and vehicle glass and light ing 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,sa nita ry wa re,jewel ry,and walland 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 indust ries, and in the production of plastics and agricultural products.

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 Carfbonate($CaCO_2$)	97.80%
Silica($Si0_2$)	0.48%
Sulfur Trioxide (SO_3)	0.20%
Chloride(Cl)	0.025%
Moisture(H_2O)	0.49%

Size in (MM)	Unit
Below I MM	2.87%
I 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 meta l processing, and as an ingredient in the production of glass, bricks, and ceramics. Dolomite is used as a source of magnesium meta land of magnesia (MgO), whic h is a constituent of ref ractory 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 oilor 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 f inds use as f iller 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 thewater penetration for acidic soil.

Applications

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

Typical Chemical Properties

CaO	30- 32%
MgO	20 - 21%
$Si0_2$	0.2- 0.5%
Fe_2O_3	0.1- 0.3%
Al_2O_3	0.05- 0.07%
L.O.I	45 - 47%

Product Size Gradation

0-120 mm	

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 materia ls, 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.

High Quality Raw Gypsum
Analisis Result On Dry Basis:

Property	Unit	Weighted average results
CaS04.2H20 Purity	%	99
Moisture (Free Water)	%	0.07
Cao	%	31.96
MgO	%	0.082
So3	%	45.64
SiO2	%	0.43

Size Determaination:

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

Crystal Gypsum
Chemical Analysis

Component	Result	Requirement According to:
Loss on Ignition	1.19	ISIRI 389
SiO2	21.50	Max = 3
Al2O3	4.95	Min = 20
Fe2O3	3.97	Max = 6
Cao	63.52	Max = 6
MgO	1.75	-
So3	2.20	Max = 5
Cl	-	Max = 3
Insoluble Residue	0.50	-
Free Cao	1.4	Max = 0.75
Alkalies(Na20%+0.658 K20%)	1.0	-
C3S	50.0	-
C2S	24.0	-
C3A	6.4	
C4AF	12.1	Max = 8

Gypsum can be also be used as a food additive to enhance t he 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, drywallor 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.

Bitumen

Bitumen is mainly used as an adhesive in asphalt, it also used in construction in all parts of the world as the main sea ling materialfor service bitumen, garden bitumen, balcony sealing, and pre- roofing bitumen substructure. Tile bedding such as bathrooms and toilets that are constantly exposed to moisture must be sealed with water to prevent water from penetrating them. There are also different types of bitumen in construction, such as mixed bitumen, emulsion bitumen, Trinidad bitumen, modified bitumen, tar bitumen, loose and mixed construction bitumen, hard construction bitumen, each of which has its own application.

Test	Methodology	30-40	40-50	60-70	85-100	100-120
Density	ASTM D-7	1/01-1/06	1/01-1/06	1/01-1/06	1/01-1/06	1/01-1/06
PenetrationRate at 25°C	ASTM D-5	30-40	40-50	40-50	40-50	40-50
Softening Point °C	ASTM D-36	55-63	52-60	52-60	52-60	52-60
Ductility at 25°C (cm)	ASTM D-113	100 Min	100 Min	100 Min	100 Min	100 Min
Flash Point °C	ASTM D-92	250 Min	250 Min	250 Min	250 Min	250 Min
Solubiity in Disulfide %wt	ASTM D-4	99/5	99/5	99/5	99/5	99/5
Stain Test	AASHTOT 102	Negative	Negative	Negative	Negative	Negative
Weight Loss by Heating %wt	ASTM D-6	0/2 Max	0/2 Max	0/2 Max	0/2 Max	0/2 Max
Penetration Loss by Heating %	ASTM D-6-D-5	20 Max	20 Max	20 Max	20 Max	20 Max

Urea

Urea is a chemicalraw ingredient used to make a variety of products,including polymers, urea-formaldehyde resins, and adhesives.It is also used to make feedstock, glue, fertilizer, commercialproducts, and resin.

Urea can be applied dry to the soilor dissolved and applied through irrigation water for irrigated crops. Urea dissolves in water in its own weight, but as the concentration rises, it becomes more difficult to dissolve. When urea dissolves in water, it becomes endothermic, lowering the temperature of the solution.

Urea is a raw materialused to make a variety of essential compounds, including: Several plastics, particularly urea-formaldehyde resins. Various adhesives used in marine plywood, such as urea-formaldehydeorurea-melamine-formaldehyde Another industrialfeedstock is potassium cyanate. The explosive urea nitrate. Urea is used in topical dermatological products to help the skin rehydrate. 40 percent urea preparations can also be utilized for non-surgical nail debridement if they are protected by an occlusive bandage. This medication is also used to remove earwax.

De-icing using urea is a safe, non-corrosive fertilizer solution. The chemicalis simple to apply to runways and walkways, as well as landing gear and other critical sections of an aircraft's undercarriage that must be corrosion-free at alltimes. In many regions where extremely corrosive chloride salts cannot be used for de-icing operations, urea is the favored choice.

Technical Grade

Parameter	Specification	Result
Total Nitrogen	46% MIN	46.1%
Biuret	1% MAX	0.9%
Moisture	0.5% MAX	0.25%
Physical Condition	White, Granular, Free, Flowing	White, Granular, Free,Flowing

Granulometry

1-2.84 MM	90%	98.7%
Formaldehyde	0.1- 0.3%	0.15%

Fertilizer grade urea

Property	Units	Test Method	Value
Nitrogen Content	wt%	ISO 5315	46 MIN
Moisture	wt%	ISO 2753	0.5 MAX
Biuret	wt%	ISO 2754	IMAX
Particle Size (2-4 mm)	%	ISO 8397	90MIN
Formaldehyde	wt%	BS 6806-1	0.55 MAX


ZOOMLION

We Are Better Than Our Competitor

VORNA

www.vornaco.com

vornatrading

Vorna international trading company

info@vornaco.com
export@vornaco.com

+98 912 293 9278
+98 922 100 1392