DOLOMITE

WHAT IS IT?

It is a naturally occurring mineral CaMg(CO3)2.

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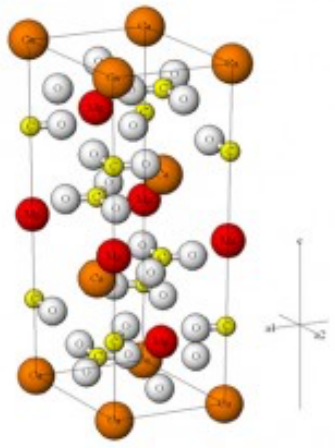
MOLECULAR STRUCTURE

Dolomite structure is formed by an ionic interaction of Mg2+ (magnesium cation), Ca2+ (calcium cation), and CO32- (carbonate anion). For every two carbonate anions there is one magnesium cation and one calcium cation, thereby making the structure electrically neutral. A common pattern of arrangement of ions is shown:



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PROPERTIES

1.Tactile properties: It is slightly rough and abrasive.

2.Visual properties:

- Color: It is often in pink or pinkish and can be colorless, white, yellow, gray or even brown or black when iron is present in the crystal white, grey, pink color.
- Lustre: It is vitreous to pearly to dull.
- Streak: It is white.
- Diaphaneity: It is opaque.

3.Structural properties:

- Hardness: 3.5-4 mohs.
- Specific gravity: 2.84-2.86.

4.Affinity to water: It has the ability to adsorb and absorb moisture. However, its solubility in pure water is poor though it readily disperses in water.

5.Affinity to oil: It has low oil absorption capacity.

6.Heat properties:

- Thermal conductivity: 5.1 W m-1 K-1 at 20 °C, It exhibits a two stage decomposition (750 ° Dolomite and MgO; 900 ° CaO and MgO).
- Specific heat capacity: 900 J kg-1 K-1 at 20 °C.
- Mean thermal expansion coefficient: 4.1×10-6/°C.
- Melting Point: 2570 °C.

7.Electric properties: It is poor conductor of electricity.

8.Combustion properties: It is non explosive and non-inflammable.

9.Chemical properties: It's effervesces is weak with warm acid or when first powdered, with cold HCl.

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APPLICATIONS

Theoretically, dolomite contains 54.35% $CaCO_3$ and 45.65% $MgCO_3$. Its composition can also be expressed in terms of the oxides. Thus, in other words, it contains 30.4% CaO, 21.7% MgO and 47.9% CO_2.

However, in nature considerable variations arise in dolomite due to the following factors:

- Varying proportions of lime and magnesia.
- Presence of impurities, chiefly silica, alumina and iron oxide.
- Differences in geological formations.

DOLOMITE IN PAINT

Dolomite in Paint

- Dolomite is a hard mineral. Thus, it imparts scrub resistance to the paint. Moreover, it offers tremendous durability to the paint film against weathering.
- Dolomite has high whiteness, and thus interferes minimally with the paint color, leading to intense, opaque, accurate shades.
- Dolomite powder is highly dispersible and doesn't clump together. This ensures homogeneous filler distribution in the paint which is important for uniform consistency in the paint.
- Dolomite has low oil absorption.
- Dolomite is a cost effective filler providing substantial cost benefits compared to other fillers For application in paint, dolomite must be very pure and in particular devoid of the color imparting impurities such as oxides of iron, chromium, manganese etc.

Galaxy Global can offer the ideal composition of dolomite for the paint industry. Its whiteness is extremely high and it has low oil absorption and low VOC content. We have been supplying to the paint industry for many years now and our product has good acceptance in the industry.

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DOLOMITE IN SOAPS & DETERGENTS

Natural Dolomite Powder is of White Color and is used as Filler in many applications such as Soap & Detergent, and many other Industries.

DOLOMITE IN RUBBER

We take pleasure to introduce ourselves as one of the renowned firms for offering the best-in-class collection of Rubber Grade Dolomite Powder which is used in rubber industry. This double carbonate mineral has an alternating structural assortment of magnesium and calcium ions. An additive for Thermoplastic and as a hardening agent for Rubber industry.

DOLOMITE IN CONSTRUCTION

As construction material, dolomite is crushed and sized for use as a road base material, an aggregate in concrete and asphalt, railroad ballast, rip-rap (armour shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour and water erosion), or fill. Dolomite is chosen as a construction material due to its increased hardness and density. Asphalt and concrete applications prefer dolomite as filler because of its higher strength and hardness.

DOLOMITE IN CERAMICS.

Dolomite in Ceramics

- MgO from dolomite offers hardness and physical resistance while MgCO3 offers weathering resistance thereby improving strength and durability.
- Dolomite gives longer firing range.
- Dolomite promotes hard durable surfaces in glazes.
- Dolomite promotes re-crystallization and matting in glazes.

At Galaxy Global we can offer dolomite powder of very high whiteness and a perfectly suited composition to meet the needs of the ceramic industry. Our dolomite is used in all kinds of ceramic products including art ware, porcelain, pottery, floor tiles, sanitary ware etc.

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DOLOMITE IN GLASS.

Dolomite is a very useful mineral in the glass industry since CaO and MgO perform the role of network modifiers in the glass manufacturing process. They interfere with the network of the glass forming oxides like SiO2. Since the network gets disturbed, the melting point and viscosity of the glass forming oxide decreases. Further, depending upon the concentration and composition of network modifiers, one can alter glass transition temperature, density, rigidity, durability and dimension stability.

Dolomite powder for glass industry must compose of a high consistent percentage of CaO and MgO and be devoid of color imparting impurities like Fe2O3 etc.

Galaxy Global offers premium grade dolomite powder taking due care of purity and consistency which is crucial for the glass industry to maintain uniformity in structure, color (rather, lack of colour) and diaphaneity.

DOLOMITE IN PAPER.

In the paper sector, dolomite has been used in paper and cardboard production by adding it into cellulose in different proportions. Dolomite increases the whiteness of paper due to which there is lesser requirement of additional optical brighteners. This makes it cost-effective as well as environmentally friendly. Further, it keeps less water and increases amount of drawn water thereby increasing production speed.

While dolomite is not mostly considered secondary to calcite in terms of whiteness, Galaxy Global has access to very high whiteness dolomite that can very well compete with calcite in its filler applications and is thus a good choice for use in the paper industry.

DOLOMITE IN AGRICULTURE

Dolomite is an excellent source of magnesium for the soil and therefore finds great use in the fertilizer industry. Since it can react with acid, it is also useful as a soil conditioner. Soils tend to become acidic from heavy use of nitrogen-containing fertilizers, unless a soil conditioner is used. Using finely-ground dolomite, to change the soil from acidic to nearly neutral particularly benefits crops by maximizing availability of plant nutrients, reducing aluminium or manganese toxicity, promoting soil microbe activity and improving the soil structure. In

horticulture, home gardening and container gardening too, dolomite is added to soils or soil less potting mixes as a pH buffer and magnesium source

Galaxy Global offers the ideal composition of dolomite powder for use in agriculture in terms of price as well as functionality. For use in agriculture, the right pH of the dolomite powder is an absolute necessity. We at Galaxy Global have a tight watch on the pH of our powder, constantly monitoring and regulating it, thereby ensuring its effectiveness in the agriculture industry.

DOLOMITE IN FODDER

Dolomite has long been used as a source of calcium and magnesium for animal feedsas it provides the minerals in a form easily absorbed by the animal body. Moreover, when used within recommended dosage it is harmless for consumption generating negligible side effects. At Galaxy Global we offer highly pure dolomite powder fully devoid of toxic contaminants, perfectly suited for livestock consumption.

DOLOMITE IN METALLURGY IRON AND STEEL.

Dolomite is required in vast quantities as flux in the production of iron and steel. It is added to the ore during the agglomeration phase (sintering or palettization) and/or the reduction phase.

ADVANTAGES OF FLUX DURING THE AGGLOMERATION PHASE:

Sintering: The process of sintering is basically a pre-treatment process step during iron making to produce charge material called sinter for the blast furnace from iron ore fines and also from metallurgical wastes (collected dusts, sludge and mill scale etc).

The principle of sintering involves the heating of iron ore fines along with flux and coke fines or coal to produce a semi-molten mass that solidifies into porous pieces of sinter with the size and strength characteristics necessary for feeding into the blast furnace.

- It generates slag with the impurities present in the iron ores and solid fuels producing a suitable matrix for cohesion of the particles.
- It improves the physical and metallurgical properties of sinter.
- It reduces the melting temperature of the iron ore blend.
- It promotes the calcination reaction of the limestone (CaCO3CaO + CO2) outside of the blast furnace hence saving heat consumption in the blast furnace.

ADVANTAGES OF FLUX DURING THE REDUCTION PHASE:

- It reacts with impurities to produce slag which floats on top of molten iron. Not only this, It also bring about purification of the iron, since the slag floats on top it acts as a barrier preventing the re-oxidation of iron as well as heat loss from the furnace.
- The slag produced with dolomite has lower viscosity as compared to slag produced by limestone.
- Dolomite contains magnesia whose presence in the charge (the collective term for iron ore + reducing agent + flux) is required to protect the refractory lining of the steel furnace or converter, increasing the life span: a crucial parameter from a financial viewpoint.

Galaxy Global provides crushed as well as powdered dolomite for iron extraction purpose. The mineralogical composition of the dolomite powder plays a vital role here. Our dolomite powder is highly pure and minimum 95% of it comprises of $CaCO_3$ and $MgCO_3$. Silica, alumina and iron oxide impurities are minimal. Moisture content too, is negligible. Our grains are hard and compact and can be sized as per the requirement of the customer.

MAGNESIUM:

Dolomite is used as an ore in the extraction of magnesium metal by the Pidgeon process also known as the ferro-silicon process. Galaxy Global provides crushed as well as powdered dolomite for this magnesium extraction purpose. The mineralogical composition of the dolomite powder plays a vital role here.

Our dolomite powder is highly pure and minimum 95% of it comprises of $CaCO_3$ and $MgCO_3$. Silica content is less that 2%. Alumina, iron oxide and other insoluble impurities are in all not more than 1.5%. Moisture content too, is negligible. Moreover, our grains are hard and compact and can be sized as per the requirement of our customer.

DOLOMITE IN REFRACTORY PRODUCTS.

Dolomite's thermal properties make it an attractive choice as a raw material for making refractory products, as a fettling material for hearth maintenance and for door banking in open hearth furnaces. It can be used in raw form, calcined form, dead burnt form or in the form of stabilized refractory dolomite.

Galaxy Global offers high grade dolomite powder containing minimum impurities that can be suitably employed as a high durability refractory material in the raw form or after calcination or dead burning depending upon the requirement.

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SPECIFICATIONS

PRODUCT	DOLOMITE POWDER
State:	Powder
Whiteness:	88% - 92%
Brightness:	90 % and Above
Calcium Carbonate as CaCo3:	45% - 55%
Silica as SiO2:	Less than 1%
Magnesium Carbonate as MgCo3:	28% - 32%
Alumunium Oxide as Al2O3:	0.05
Potassium Oxide as K2O:	0.021
Sodium Oxide as Na2O:	0.01
Titanium Oxide as TiO2:	0.7
Ferrous Oxide as Fe2O3:	0.11
Other Oxides:	1 to 3%
Molecular Formula:	CaMg(CO3)2
Grade Standard:	Industrial Grade
Appearance/Color:	White
Other Name:	Carbonic acid, Calcium magnesium dicarbonate
Molecular Weight:	184 g/mol
pH Value:	6.5-7.5
Refractive index:	1.505 to 1.743
Specific Gravity:	2.8 to 2.9 g/ml
Melting Point:	~2570- 4660°
Loss on ignition:	41%- 46%
Moisture:	6 %
Solubility:	80 % - 90%
Hardness:	3.5 to 4
Bulk Density:	0.70 - 1.35
Oil absorption value:	(16 - 20g/100gm)

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CaCl2:	2.84 g/cm³ (Average)
Thermal Conductivity:	Low
Fracture:	Brittle - Conchoidal - Very brittle fracture producing small, conchoidal fragments.
Lustre:	Vitreous
Streak:	white
Diaphaneity:	Transparent to translucent
Lumps:	Yes
EC Number:	262-530-0
CAS Number:	60937-55-5
PubChem CID:	61833

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OUR PRODUCTS:

DOLOMITE || CALCITE || SOAP STONE || CHINA CLAY || CALCIUM CHLORIDE || CALCIUM CARBONATE || MARBLE CHIPS