

BARITE



Barite lumps photo



Barite lumps photo



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Barite lumps photo



Barite crystal lumps



Barite powder



Barite powder

The chemical formula for barite is BaSO_4 . It has a high specific gravity of 4.50 g/cm^3 . Its Mohs hardness is 3.0 to 3.5. Barite, which may be found in a variety of colors including yellow, brown, white, blue, gray, or even colorless, typically has a vitreous to pearly luster.

Barite may be found in conjunction with both metallic and nonmetallic mineral deposits. To be economically viable for extraction, barite usually needs to be the predominant material in a deposit. The types of deposits in which it is normally found include vein, residual, and bedded. Vein and residual deposits are of hydrothermal origin, while bedded deposits are sedimentary.

Since barite is found in colorless and multicolored state, identifying barite can be done only by determining specific gravity and hardness. Also it is a unique mineral that emits a yellowish green flame when exposed to blowpipe flame. Besides, barite chemically reacts with a moist paper after ignition resulting in an alkaline reaction. For instance, if barite were fused with sodium carbonate and charcoal dust, it leaves a residue behind. However if this residue is moistened, it produces a dark stain of silver sulfide on a clear surface of silver.

Barite, barites, or heavy spar, a white, yellow, blue, red, or colorless mineral. It is a sulfate of barium, BaSO_4 , found in nature as tabular crystals or in granular or massive form and has a high specific gravity. The mineral is widely distributed throughout the world. It often occurs in veins with lead and zinc minerals. It is insoluble in water, and this property is made use of in testing for the sulfate radical. It is practically insoluble under ordinary conditions in all the usual chemical reagents. Barite is used as a commercial source of barium and many of its compounds. Ground barite is used as filler in the manufacture of linoleum, oilcloth, paper and textile manufacturing, rubber, and plastics. Finely ground barite is used to make a thixotropic mud for sealing oil wells during drilling. Prime white, a bleached barite, is used as a pigment in white

paint but is not as satisfactory as blanc fixe, a chemically precipitated barium sulfate, or lithopone, a mixture of barium sulfate, zinc sulfide, and zinc oxide.

Barites is a material with environmental protecting function, it has a lot of advantages, such as a strong inertia, good stability, acid and alkali proof, moderate rigidity, high specific gravity, high whiteness, absorb in harmful radial. So, it is widely used in the fields of all kinds of dope, middle and high-grade paint, engineering plastic, medicine compounding chemical industry, rubber, paper-making, pottery, cosmetic etc.

USES

Weighting Agent: Most barite produced is used as a weighting agent in drilling muds. These high density muds are circulated down the drill stem and return to the surface between the drill stem and the wall of the well. This action effectively flushes the cuttings produced by the drill and carries them to the surface. The weighing agents that are used in drilling muds are made up of barite, an inert high density mineral found extensively in the hydrothermal veins of lime stones, marine deposits and cavities of igneous rocks. Barite, one of the useful types of minerals, is usually found in crystal groups (also known as "crested barite"). They are coarse and granular in nature.

Drilling Industry: The overwhelming majority of the barite that is mined is used by the petroleum industry as a weighting material in the formulation of drilling mud. Barite increases the hydrostatic pressure of the drilling mud allowing it to compensate for high-pressure zones experienced during drilling. The softness of the mineral also prevents it from damaging drilling tools during drilling and enables it to serve as a lubricant. The American Petroleum Institute (API) has established specifications for the use of barite in drilling mud.

Oil extraction: One of the primary barite uses is making weighing agents in **oil extraction**. Barite is finely crushed and mixed with water forming a mixture known as thixotropic mud. The mixture is now pumped into drill stem for **oil rigging**. Pertaining to the high density property of barite, the pressure exerted by the mixture on the walls of the oil well forces the oil and gas to release from the ground. This is also a reason as to why barites is used as an aggregate in preparation of heavy concrete and cement that find application in heavy construction equipment and making ballasts for tires of tractors. Many of the oil rig operators use barite mixture in oil and mineral extractions. Also this mixture prevents any probability of explosion during oil rigging. In United States, uses of barite are significant as a majority of oil rigging applications use barite mixture for drilling activities.

Barite is also mixed with cement to make special radioactive storage containers to store radioactive materials. The leaded glasses used in computer monitors and television tubes to minimize radiation effects, also use barite chemicals. Even clutches of cars, trucks and brake pads use barite. Ground barite is used as fillers in floor coverings (linoleum flooring) and in manufacture of paper, oil cloth, rubber and cosmetics. Besides, precipitated barite serves as an additive in paints, plastics and enamels. Barite is a key player in preparing white pigment (lithopone) which is a mixture of barium sulfate and zinc sulfide. This pigment is used in making white paint that is used to give a chic appearance to wooden artifacts. Barite compounds are also used as a catalytic agent in initiating aluminothermic reactions in welding rail tracks.

Barite serves effectively when it comes to driving away rats from your home, as it is an important ingredient in rat poison. Also it is used in commercial applications like sugar refining. Besides, barite compounds containing nitrates are used in ceramic glazes and fireworks. Barite compound containing fluorides are used in infra red applications for making optics. Even fuel

cells and electronic vacuum tubes (used as oxygen scavengers) use elemental form of barite. Not to miss on an interesting fact, barites form huge sedimentary deposits on ocean plates. The oxygen content in these sedimentary deposits aids in containing paleotemperatures of ocean crust.

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Industrial Applications

Barites are supplied in crude/lump form. Barites, after suitable grinding and pulverizing, have many uses. It is mainly used in oil-well drilling and it is estimated that 90% of the barites produced in the world is used only for drilling purposes. It is also found useful in the manufacture of white pigment or extender in pigments and barium chemicals, in the glass industry and as filler in rubber, leather, textile and paper goods.

Paint Industry: In the Paint industry, it is used for Chemical resistant coating, Industrial undercoat, Floor coating, Interior wall paint, etc; Grey Barites is used in Knifing Paste filler (putty). It is also used in Chemical Industry, Glass Industry (as clarifier), Rubber Industry (as filler) and Paper Industry (for improving brightness and bulk). In dope and painting, it can be used as filling and can take the place of some expensive material such as basofor, crypton, titanium dioxide, activity, monox etc. Control the viscosity of the paint compatibly to make the products with bright color, good stability.

Barite is also used as a pigment in paints and as weighted filler for paper and cloth. It is the primary ore of barium. Barite's high density makes it opaque to x-rays. If it is given to a patient as a drink or enema it can be used to image the shape of internal organs by x-ray.

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Medical Science: One of the major uses of barite is in **medical science**. Special X-ray tests designed for examining colons and intestines, use barite. Actually, barite acts an enema for patients who are being treating for any intestinal disorders and gives a clear picture of the organs during scan. This is because barite has a unique ability to absorb gamma and X-rays completely. The opaque nature of barite pertains to its high density and specific gravity. However, there are a few barium sulfate side effects which should be taken into consideration before going for a scan.

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An application where many people have heard of barite is within the medical field. A high-purity form of barite is used in the gastrointestinal tract where its density prevents x-ray penetration, and thus is visible

on an x-ray. The outline of the gastrointestinal tract thus becomes visible allowing the determination of normal and abnormal anatomy.

Plastic Industry: In plastic industry, it is used as the filling of plastic ABS to make the products with bright color. It also can improve the intensity, stiffness and abrasive resistance.

Rubber Industry: In rubber industry, the products less than 500 mesh can be used as the filling of rubber products to save cost. It can improve the intensity, and acid, alkali, and water proof, and also has benefit for the Natural Rubber and Synthetic Rubber.

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Pharmaceutical Industry: In medicine, it can be used as barium meal material for the intestines and stomach reflection, and also the filling for plaster and dope to extend the time limit.

Paper-Making Industry: In the papermaking industry, high-refined barites powder can be used as the filling of white paperboard and coat paper, improve the whiteness and percentage of coverage.

Cosmetics Industry: In cosmetics, it can be a substitute of titanium dioxide, for its white and gentle, and harmless to the skin.

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Other Uses - Barite is also used in a wide variety of other applications including plastics, clutch pads, rubber mud flaps, mold release compounds, radiation shielding, television and computer monitors, sound-deadening material in automobiles, traffic cones, brake linings, paint and golf balls.