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Characteristics:

The most important mineral for natural or precipitated barium sulfate is heavy spar or barytes. Beside its high reflecting power, it has a relatively high density of 4.3- 4.6 g/cm³ and a hardness, according to Mohs, of 2.5- 3.5.

Appearance of natural barium sulfate:

Mother of pearl shine, almost transparent. Color: white to gray, yellowish, reddish. Line: white, broken: shell-like, brittle, complete cracking-ability, it colors a flame green. Appearance in ore veins. Crystals (rhombic) thin-tabular, column chromatography, rose leaves like (baryte-roses), granular, spary, dense.

Common criteria of BaSO₄- fillers are their **chemical inertia** and their **low oil absorption**.

Application for paint and varnishes:

The paint- and varnish-industry uses **natural** barium sulfates as well as **synthetical products**.

The **chemical inertia** is an extremely important factor which becomes more and more influential, due to an increasing air pollution, caused by SO₂ and SO₃. Therefore, BaSO₄ has its special **importance for outside-paints**.

Thanks to their **low oil absorption**, barytes are indispensable components for products with a high percentage of pigments, like oil pastes, knifing fillers, oil paints and flat paints.

So called **micro-types** are produced for cases, where **high polish grades and an easy dispersibility** are required. They have a very narrow grain-size-distribution in fine grain areas.

The **good dispersibility** and the low tendency concerning agglomeration of barium sulfate are mainly based on the smooth, crystalline surface of the primary particles. That is why natural heavy spar rarely causes any hard deposit. If there is a deposit, however, it can easily be stirred up.

Industrial varnishes with a high chemical resistance, like ground coats and fillings in the automobile industry, are among the most important fields of application.

The heterodisperse granulometry of natural barium sulfate leads to a dense packing of primary particles in the paint film (the finest particles fill the void spaces). The result is a dense, elastic film with an extra high abrasion resistance.

Application for adhesives and sealing matters:

The above mentioned qualities make barium sulfate an **excellent filler** for adhesives and sealing matters.

Application for the paper industry:

In former times, people used mainly precipitated barium sulfate - blank fixe - because of its high whiteness and fineness. Nowadays, even very white natural products can enter the paper industry due to an **improved finest grinding technique**. This material is not afflicted with sulfide sulfur, which occurs in a disturbing way in precipitated material.

Application for concrete industry:

Mixed with concrete BaSO₄ fits also as a **protecting material** for nuclear power plants since it has a **high absorption coefficient for G- and X-rays**.

Summary of the essential qualities:

- basically insoluble in acids and lyes
- non toxic
- high chemical purity (pharma quality)
- no catalysis of the aging process in opposition to precipitated barium sulfate
- low tendency to agglomeration
- excellent resistance against plasticizers and additives, acids, alkalies, solvents and weather effects

- high- quality materials with a high whiteness are a cheaper alternative to for instance TiO₂.
- low abrasion, careful treatment of machines
- good dispersibility
- low need of binder
- reduction of contraction, rise of paint resistance - improvement of the surface of the product
- acceleration of working speed
- reduction of plate-out in the processing machines (deposit of mixed particles)
- stabilization of brilliance and brightness of the pigments
- improvement of stability and aging- resistance
- advantageous increase in weight

Bibliography:

- Römpps Chemie-Lexikon
- H. Kittel: Lehrbuch der Lacke und Beschichtungen
- Gächter/Müller: Kunststoffadditive/3. Ausgabe

Our product range:



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