

Applied Chemicals Anwendungstechnik
Technical Service is our Success



BentStar®

Bentonites for Paper- and Pulp Industry and Waste Water Treatment

APPLIED CHEMICALS INTERNATIONAL GROUP

BentStar®

All products of the **BentStar®** range are highly effective bentonites, especially developed for paper and pulp industry as well as for waste water treatment.

The wide range of available bentonites of this series is the result of intensive development work and worldwide practical experiences on-site.

The large variety of products to choose from offers the optimal bentonite for each individual application.

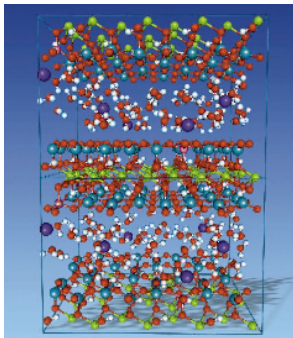
Product Description

The **BentStar®**-products are bentonites, usually mined by surface mining and prepared for our special purposes.

Bentonite is composed chiefly of montmorillonite, a crystalline, layer-built hydrated aluminium silicate ($4 \text{ SiO}_2 * \text{Al}_2\text{O}_3 * \text{H}_2\text{O} + n * \text{H}_2\text{O}$). The silicate lamellas consist of three layers, two SiO_4 tetrahedral sheets sandwiching a central hydrated aluminium oxide octahedral sheet. 15 to 20 silicate lamellas form a crystal.

Substituting 3-valent aluminium of the octahedral sheet by 2-valent ions (for example: by magnesium), each lamella gets a negative excess charge, which is compensated by the incorporation of exchangeable cations, like calcium- and/or sodium ions into the interlayer.

A chemical after-treatment can intensify the properties of montmorillonite.



The alkaline activation is based on an ion-exchange reaction, replacing the alkaline earth ions by alkaline ions. These particles are situated along the edges and in the interlayers; in the presence of water they tend to hydrate. The effect is the absorption of water between the layers, and consequently, a significant increase of the interlayer spacing. The inner crystalline swelling causes an extension of the surface area – this explains the high adsorption- and water retention capacity of bentonite.

To achieve maximum adsorption, alkaline activated bentonites are normally used in a pre-dispersed and fully swelled form.

The products are characterized by thixotropic behaviour. Products containing these additives change from the gel state to the liquid state, when shaken or stirred. When left standing, they coagulate again.

Of course, we can deliver the equipment you need for the preparation of bentonite-slurries on-site.

Technical Service

Our team of extensive experienced staff is available for non-binding laboratory tests and on-site testing with **BentStar®**-products.

For your special requirements we will develop a concept, including a calculation of profitability.

Especially because of the various application details, which have to be considered in using bentonites, we recommend to make use of this non-binding service.



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