

Deflocculants and dispersants



DOLAFLUX, DOLAPIX, GIESSFIX

Application

During the manufacture of ceramic products, energy costs represent a significant proportion of the total costs of the final product. If during the preparation process a slip phase occurs, a **high slip density should be the aim**. The **reduction of the water required within the slip or liquid phase** makes it possible to **lower the drying costs by energy cost savings**.

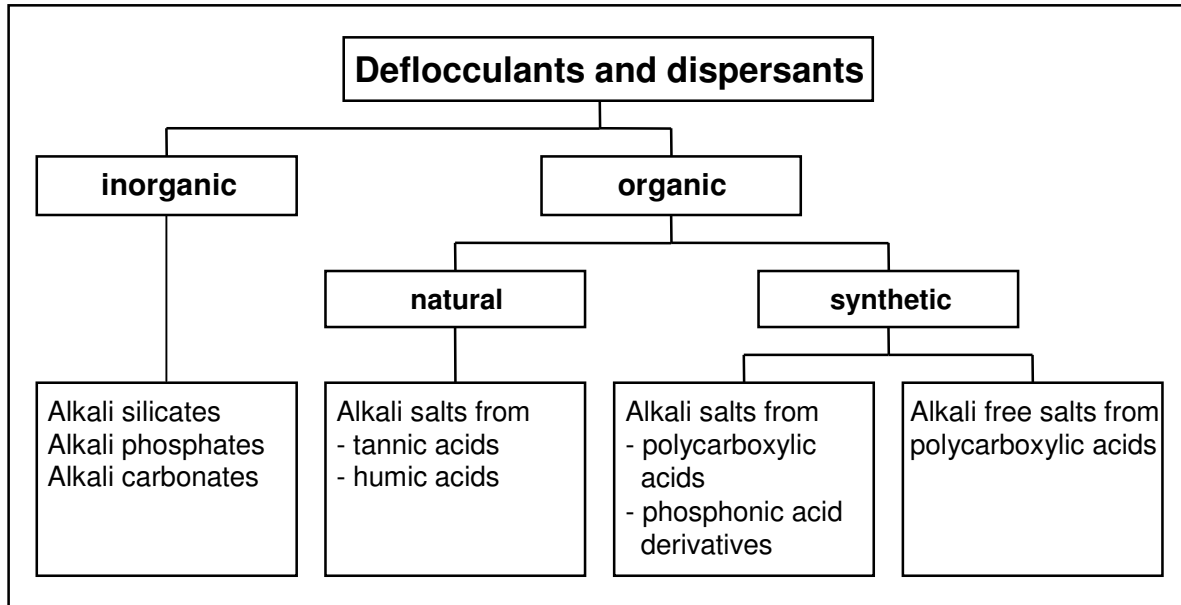
Tableware bodies are prepared by a liquid phase which is, on the one hand, followed by dewatering with the aid of a spray dryer or a filter press. Or alternatively, the slip is directly poured into moulds, i.e. into plaster moulds during conventional casting and into plastic moulds when using the pressure casting method.

During both procedures, **an optimal rheological slip behaviour is an essential prerequisite for a favourable processing cycle**.

Through the use of deflocculants and dispersants, the **rheology of a slip** (viscosity, thixotropy, structural viscosity, dilatancy, rheopexy and Newtonian flow) can be further influenced in the desired manner. **Casting rates and green strengths may be increased, sedimentation phenomena and the formation of streaks may be prevented**.

Mode of action

Inorganic as well as organic components are used in the deflocculants and dispersants available from Zschimmer & Schwarz, as set out in the following overview:



The mode of action of deflocculants and dispersants is based on their **definite composition**, which is directed towards an **optimum ion exchange** in connection with the deflocculated slip. Through this ion exchange, a **charge compensation** is achieved so that **attraction forces** are no longer effective **between the ceramic particles**.

The **synthetic polyelectrolytes** for the tableware sector being **liquid** and hence **dissociated** are **particularly suitable for the subsequent and fine regulation** of slips that have already been adjusted.

The **effectiveness of the deflocculants and dispersants** is **not only dependent on** the solids content and the kind of raw material used, **but also on** various other parameters, such as for example

- water hardness
- particle shape
- particle size distribution
- clustering of particles

There are only a few cases where a general recommendation is possible and as there is a wide variety of influencing factors, it is **necessary to adjust each slip to the required rheological values by means of separate deflocculation tests**.

A detailed description on how to determine the most suitable deflocculant and its optimal addition quantity for each individual application is given in our ***special information "Testing bodies for their deflocculation behaviour"***.