

## Coating colour preparation - dispersion combined with vacuum expansion

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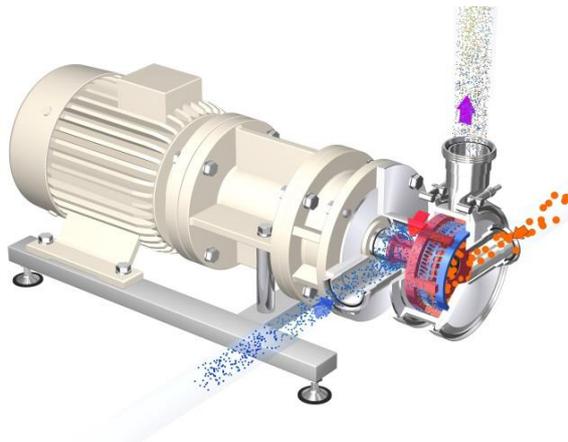
### Abstract

With coating speeds becoming faster and faster, it is necessary to adjust not only the applicator systems and formulations but also the coating colour preparation to new requirements.

Coating colour dispersions must be prepared from powders and liquids at increasingly higher concentrations. The lower their water content, the less water must be evaporated during drying. This leads to higher drying rates and, eventually, higher coating speeds.

The technology presented here makes it possible to prepare coating colours at significantly higher solids concentrations, i.e. with significantly reduced water shares. As a result, additives like wetting agents or defoamers that are needed only for coating colour preparation and can have adverse effects in the final coat layer are no longer necessary.

Basis of the new technology is a specially designed wetting process that utilises the volume expansion of flowing powders under vacuum. At the moment of dispersing, the powder is being expanded in such a way that each single particle is isolated from the rest and fully wetted by the liquid – without any wetting agent.



The new method consumes less than a third of the energy required for conventional preparation methods. Because the process is much faster and much more efficient, it is also gentler and causes less stress on the colour's binders and rheology agents. The dispersion quality obtained is generally considered to be much higher.

The energy savings refer also to the coating process because there is less water to be evaporated.

The new dispersion method makes it possible to achieve much narrower and fully reproducible particle size distributions. The quality of paper coatings can be accurately controlled by systematic dispersion.

Up to now, the corresponding machines have mainly been used for paper coatings with high quality demands.

Besides coating colours, they can also produce semi-finished materials like highly concentrated solids dispersions and slurries. Powder components, for example, can be introduced directly into the liquid and dispersed to the desired quality when unloading them from the silo truck. The resulting slurry can then be stored and processed like a liquid. This obviates the need for powder silos and the transport and handling of powders.