

The multi-purpose mixer

The mixing of powders in a batch mixer generally is not so straight forward when comparing to gasses or liquids. They have properties (e.g. agglomeration or cohesive properties) you won't find in liquids or gasses. Because of this phenomena most powder mixtures are rather complex and are often produced on very different types of mixing technologies. (figure 1)
 Based on this market problematic, the need to use many different types of mixers for different application, the Hosokawa Group has developed a mid shear mixer which is so multi-purpose that it can handle a very wide variety of applications in an extremely short process time.



To give you an idea of what this multi-purpose mixer can do, we selected 4 different applications :



Coating of granules with a cohesive wax

When mixing granules with a cohesive powder with the goal of coating the granules, one has to realize, that there is a need of shear in order to break the cohesive forces of the coating material. On the other hand too much shear will cause the granules to break. This type of coating has been done for a long period in conventional mixers and can still be done however if you want to reduce the mixing time by 300% and have limited height in your plant, the Vitomix may be the solution for you.

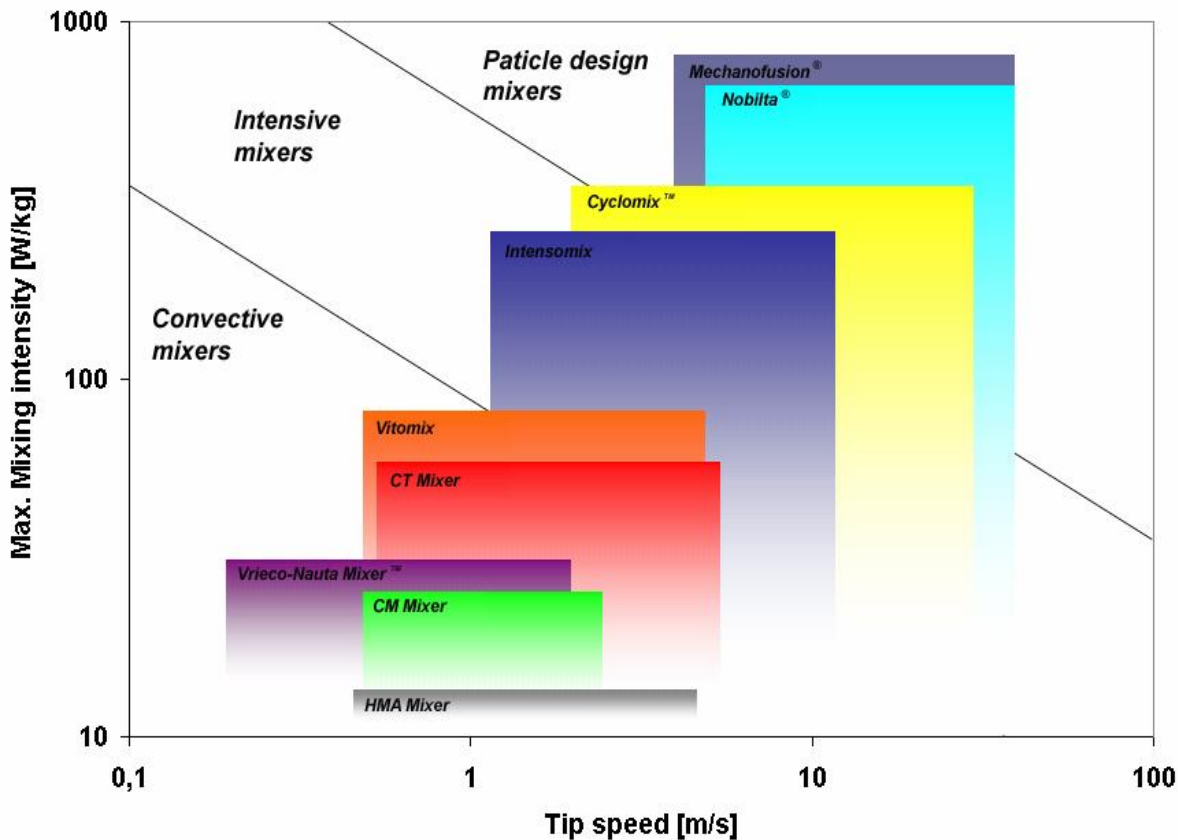


Fig.1

Mixing of non segregate free flowing powders

By mixing some crystals with graphite, it has been demonstrated that the Vitomix can very quickly (30 seconds!)

homogenize this delicate mixture. More mixing time and or shear will cause the graphite to be broken and the graphite will start coating the material. The following picture shows the result of mixing these powders with 1] the Vitomix, 2] the more shear producing Intensomix and 3] the high shear Cyclomix mixer.

Production of pastes

An even greater challenge is the preparation of a lump free paste. The Vitomix is successful in mixing water with gelifiant agents like guar gum and CMC, usually relatively difficult to mix in, without the formation of lumps. Even the homogenization afterwards of other powder additives showed not to be problematic at all. Here the extreme flexibility of the Vitomix proved to be essential: all mixing features could be realized in one mixer!

Conclusion

The above described examples show that the Vitomix really is an extremely flexible mixer. Production of pastes or homogenization of sensitive products like graphite, brittle granules or e.g. freeze dried products have proven to be easily possible, and this moreover in an ultra short mixing time.

Injection of fluids into flour

After the successful injection of vegetable oil into flour, up to as 20 % (w/w) oil content, it was decided to inject butter into a bakery mixture.

The bakery powders have been mixed for only 3 minutes with mid shear for obtaining a homogeneous mixture! Then, during 8 minutes, up to 20 % (w/w) of butter was injected through a nozzle system. Again the Vitomix not only showed short mixing time, but also the powdery properties of the mixture remained and no dough was created



Improve your mixing line

**Interested in testing the Vitomix to improve your mixing line...
Until October 1st 2008,
Hosokawa Micron BV offers you a
test free of charge.**