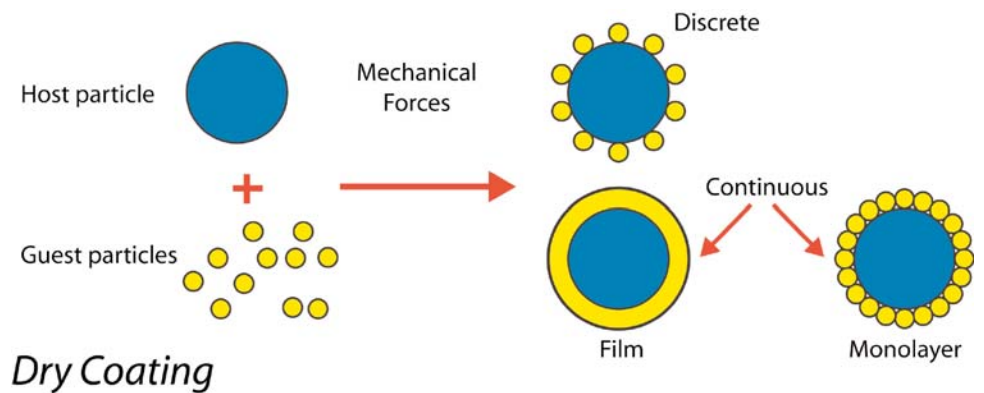


Dry Powder Coating using Hosokawa Cyclomix

Recent trials carried out on silica gel and starch particles confirm the effectiveness of the Cyclomix, a high shear mixer available from Hosokawa Micron Ltd., for use as a dry coating device. In many new application areas or where improvements to product functionality require the modification of surface properties the Cyclomix offers a controllable option.

Changes in the surface properties can affect important powder properties such as wettability, flowability, solubility, dispersibility, flavour or shape.

Dry powder surface coating is one technique which can be used to achieve such surface modifications where the larger host particles (1-500 μm) are mechanically coated with much smaller guest particles (0.1-500 μm). This treatment creates a continuous or discrete coating and allows, under certain conditions, the design of multiple layering with different species of guest particles. See Fig. 1



Hosokawa's Cyclomix is a conical high impact mixer granulator which uses a specially designed high speed mixing paddle which, when combined with the conical vessel shape, forces the material from the bottom to the top of the mixing vessel thus achieving very efficient mixing.

The design of the Cyclomix ensures a gentle action on materials with no product degradation as a result of mechanical or thermal stress, thus preserving the product characteristics essential for new product development

The study, carried out at the RAPSODEE Centre of the School of Mines in Albi, on the coating of starch particles with fumed silica (Aerosil) both hydrophilic and hydrophobic showed that the bulk density of the starch was increased significantly thus improving packing properties of the starch. The Cyclomix did not damage the starch particles and the coating of fumed silica was seen to be individual particles set in the starch surface.

The Cyclomix is available in a range of capacities from 1litre to 500litres, offering scale up potential for full production. The mixer is self-emptying through an aperture at the bottom of the mixing vessel for convenient discharge.

