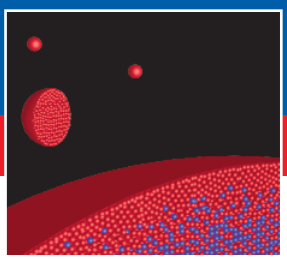
NANO PARTICLE TECHNOLOGY AND PARTICLE DESIGN

Nano Containment



Particle Design

Easy Scale Up

Freeze Drying

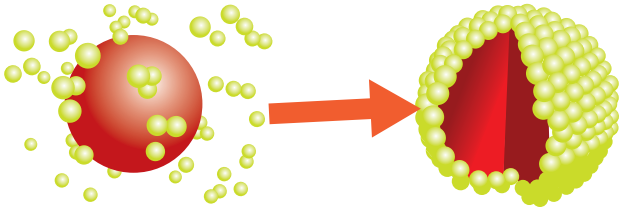
The chemistry and physics of nanotechnology offers the opportunity to generate a range of new particles, the properties and characteristics of which can be selectively controlled by engineering to deliver performance quite different from that of micron sized particles.

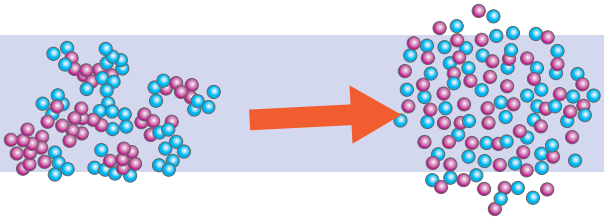
Using nanotechnology, materials can effectively be made to be stronger and harder, lighter, more durable, more reactive, better electrical conductors and much, much more.

With a long heritage of leadership in powder sciences and technology Hosokawa Micron lead the way in nano particle production technology combining expertise in more traditional powder processing technologies with particle design and the supply of equipment for the creation and manufacture of high value particles with new powder characteristics.

Dry Process Particle Design Technologies

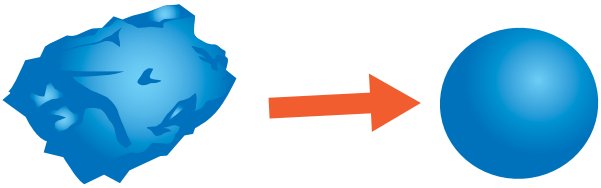
Composing – Nano-scaled particles are permanently fused onto the surface of micron-scaled particles without binders, combining material properties of different particles into one particle to enhance chemical reaction, flowability, heat resistance and solubility.

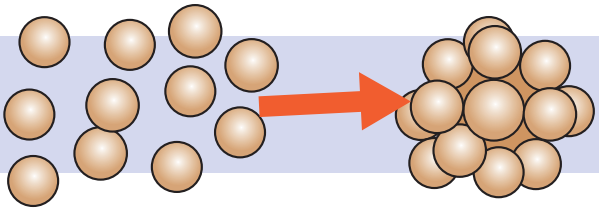




Dispersion – Enabling distributive and dispersive mixing in one apparatus to improve colour, tone, reactivity, calcinations ability and mechanical intensity.

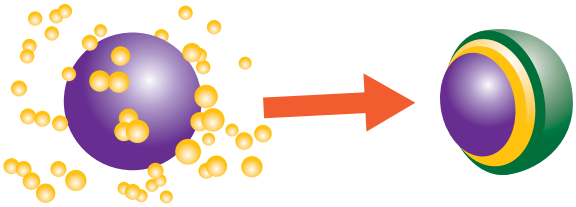
Sphericalization – Improves flowability and packing density.





Agglomeration – Creates easier handling properties such as improved flowability and reduced dust.

Coating – Particles can be coated by a solid or liquid coating agent. Purpose of the coating process can be the hydrophobisation, functionisation and control of solubility of core particle.



Particle Production

Hosokawa Micron has designed a unique nanotechnology equipment portfolio to develop particle modification technologies which will improve powder characteristics and/or create new powder characteristics without changing any chemical properties.

These technologies not only produce added value materials but can also lead to process improvements by reducing process steps and energy costs.

AMS – Mini

Mechanofusion is the technology used for the creation of new functional materials by applying mechanical energy to generate a mechanical-chemical reaction between two or more materials, produce composite particles and to control shape of particles.

Active substance particles are dispersed and fixed in a thin layer onto the carrier particle.

- Eliminates the need for pre-mixing particles during particle performance improvement processes
- Water cooled jacket to control product temperature
- Compact design
- Effective for functionalising pharmaceutical medicines, to control dissolution rate, oxidation prevention, mask bitter taste

Nanoclular

A nano composite production system, that uses mechanical energy and low temperature plasma or magnetic energy to modify particles surface and to initiate chemical reaction, composing, sintering, doping and synthesis to create new functional materials.

- Creates a firm, dense mechano chemical bond
- Dry process, batch or continuous operation
- Water cooled jacket offers additional temperature control
- Hard-facing and ceramic lined components option
- Ideal for producing nanocomposites and nanostructure materials

Nano Containment

With the advancement of nanotechnology Hosokawa Micron has developed a range of equipment and integrated systems for the containment of ultra fine powders. Delivering containment levels below 1µg/m^3.

Testing

For companies wishing to enter the market Hosokawa Micron is able to provide lab scale machines for internal evaluation and testing.

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