Solutions for powder handling, transport and distribution
Complete automated solutions

For more than 60 years, Cellier Activity of ABB France has gained expertise in the design and installation of complete and automated solutions for the handling, transport and dosing of powder and bulk materials, especially:

- adipic acid,  
- maleic acid,  
- aerosil,  
- starch,  
- calcium carbonate,  
- cellulose,  
- titanium dioxide,  
- aluminium hydroxide,  
- kaolin,  
- melamine,  
- paraformaldehyde,  
- pentaerythritol,  
- mineral pigments,  
- sand,  
- aluminium silicate,  
- silica,  
- baryium sulfate,  
- talc,  
- marble,  
- etc.

Applications
- Specialty chemicals  
- Paint and coatings  
- Resins  
- Paper chemical delivery  
- Compounds

Services
Our service offer includes the consulting, engineering, installation and commissioning services of powder handling systems adapted to your needs, from the receipt of raw materials (bulk, big-bags, bags) to the processing stages.

Compliance
Our installations comply with international standards for health, safety - especially ATEX - and environmental protection rules. They are equipped for example with dedusting filters (emission control), safety valves (explosion, pressure/vacuum control), and level probes.

Automation and control system
Handling, transport and dosing operations can be fully automatised and managed from operator terminals or local control boxes. They are interfaced with software tools specially developed by ABB for the supervision of formulation units. These tools manage the recipes, accurately execute production orders to ensure a constant quality and the traceability of operations, control inventory and consumptions. They give flexibility to powder handling and dosing operations (commonly associated with time loss) and enable a just-in-time production and quick recipe changes.

Main benefits of ABB powder handling, transport and distribution solutions are:

Adapted and reliable solutions
- Implementation of the best available techniques.  
- Standard and tailor-made equipment.

Process integration
- Optimisation of layout and material flows.  
- Control of introduction speeds in dispersers.

Productivity enhancement
- Adapated automation for optimised cycle times.  
- Flexibility and operations in hidden time.

Formulation integrity and production quality
- Dosing accuracy and repeatability.  
- Traceability solutions.

Compliance with health, safety and environmental regulations
- Ergonomy, operator safety and comfort  
- Minimisation of emissions (dust-free workshops).
Integration of reliable and safe technologies

01 Bag emptying hoppers on reactors with vacuum handling system

02 Diverters on top of silos

03 Silo bottom with vibrating discharger, rotary valve and pneumatic transport

04 Hopper fed through conveying screws and weighed by load cells

05 Loading stations for daily containers with their own extraction screws

Receiving and emptying stations
- Truck or wagon emptying station
- Bag emptying hopper with dust control,
- Big-bag emptying station with hoisting, extraction, dosing, sieving devices, etc.
- Automatic bag dump station,
- Identification and batch number registration.

Storage silos, tanks and hoppers
Of standard or special execution, according to the specifications of the materials to be stored:
- silos in coated steel/stainless steel, aluminium, reinforced polyester, concrete silos (large capacity), tailor-made storage for hard-to-extract materials,
- earthing,
- insulation for condensation-free storage,
- self-cleaning dedusting filters,
- continuous level measurement.

Transport and distribution systems
In accordance with the constraints imposed by the product fragility, material wear, mixing process, energy savings, required flowrates, etc., the most reliable techniques are selected:
- pneumatic conveying (gas or air): suction or forced, dilute or dense phase,
- airslide transport,
- all mechanical conveying techniques.

Extraction systems and accessories
For hard-to-extract materials:
- extraction screws with variable speed,
- gate and rotary valves,
- diverters,
- fluidised beds and air injectors,
- vibrating bin dischargers,
- air compressors, blowers and air dryers,
- big radius pipes.

Weighing and dosing systems
According to formulation accuracy requirements:
- batch dosing (weighing/loss-in-weight) in intermediate hopper or directly in mixer mounted on loadcells,
- continuous dosing (volumetric/gravitary).

Bulk daily containers
Used for the intermediate steps of recipe component preparation, they facilitate the handing and storage operations. They are designed to meet specific needs: available in various sizes and shapes, transportable, equipped with covers and loading and/or emptying devices, easily cleanable.