

Efficient Powder Handling Operations

Pneumatic Transport



Pneumatic conveying systems are used in many industries such as chemical, pharmaceutical, mining, agricultural, mineral and food. The variety of different bulk material characteristics makes design and optimization of pneumatic conveying systems extremely challenging.

Some problems include:

- **Non-optimal operation**
- **Poor transport rate**
- **Pipeline blockage**
- **High erosive wear of pipelines**
- **Product degradation**
- **Dust generation**
- **Inability of emptying bulk tanks**

Using your material, we perform a set of pneumatic conveying tests in our lab and pilot scale equipment. The results of the tests are used to formulate a design & simulation software, which can be used to design a completely new system or optimize an existing system.

Silo Design



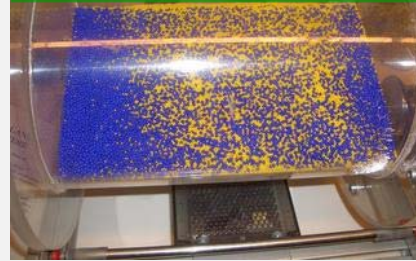
The objective of a silo design is to obtain a reliable and controllable flow of particulate solids. To achieve this, we take into account the mechanical and flow properties of a powder to be handled. Using our simulation software, we recommend the most suitable silo configuration (incl. overall geometry, hopper shape, angle, and internal surface, outlet size and shape).

Common problems we solve:

- **Poor discharge**
- **Incomplete emptying**
- **Segregation**

We provide a range of solutions to tackle the above mentioned issues. These include for example the application of inserts, aeration in silos, multi-chamber silos for homogenization, and anti-segregation systems.

Powder Mixing



Mixing of powders represents one of the key operations especially in the food and pharmaceutical industry. Due to differences in the properties of the powder ingredients (particle size, density and shape), obtaining a uniform product is not a trivial task. Challenges may also arise when mixing sticky and cohesive powders.

We can help you to handle:

- **Segregation**
- **Caking/agglomeration**
- **Poor mixing efficiency**
- **High energy consumption**

Using our lab scale mixing units, we can perform simple tests to evaluate the efficiency of a mixing process. Based on the properties of the powder ingredients, we recommend the most suitable mixing mechanism and mixer design.

Characterization



Characterization of powder properties is of crucial importance in many powder handling operations. Understanding of how single particle properties together with the bulk properties affect the powder's behavior is a key premise for successful operation of powder handling equipment.

We can determine:

- **Particle size**
- **Particle size distribution**
- **Particle and bulk densities**
- **Specific surface area**
- **Flow properties**
- **Fluidization properties**
- **Segregation tendencies**
- **Caking tendencies**

Characterization is an important tool in process monitoring. We can help you to develop an on-line sampling unit.