Application Guide: Air Treatment
Food
Bulk Material Handling

Quick Facts

Munters Products can...

- Ensure high quality product
- Maintain good hygiene
- Cut cleaning
- Reduce maintenance
- Prevent products sticking
- Meet HACCP requirements
- Prevent mould growth
- Ensure smooth flow

Solutions for drying silo, conveying and mixing

When handling dry bulk products humidity often causes problems.

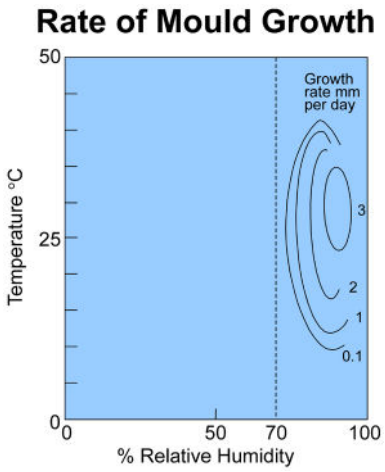
Storing dry bulk materials in silos or transporting powders in pneumatic conveying systems can create problems. Reduced product quality, lost production, blocked pipes, damage plant and a need for intensive regular maintenance are common requirements. Lower productivity and higher production costs are the result.

Operators of silos or conveying systems are often aware of the effects of excessive moisture. Relative Humidity (RH) levels are difficult to counteract as they change throughout the day and season.

Pneumatic conveying is also affected by the increased air pressure, which increases the likeihood of condensation. The moisture regain due to condensation causes many ingredients and powder that would otherwise convey smoothly to stick together. As a result, these products build up in conveying lines.

To minimise the effects of product build-up, mechanical devices such as vibration pads, hammers etc., are often fitted to bulk handling equipment prior to delivery. However, this approach does not solve the basic problem - the powders still lump together.

Munters



Protection year round

Munters provides the preventive solution by controlling the relative humidity and the dewpoint of the air. (The dewpoint is the temperature at which moisture starts to condense out of the air onto the walls or products.) Munters desiccant dehumidifiers effectively control humidity, both in double and single-wall silos. They have been widely used to prevent condensation and other moisture-related problems. By preventing lumps forming in the first place, there is no need for "mechanical solutions"

A RH of 65% or higher will often cause mould growth. Dehumidifiers keep the air inside silos at a safe humidity, thus preventing sanitation and handling difficulties arising during storage.
Many smaller manufacturers and end users use Munters systems to secure the right humidity conditions for transported and stored powders..

Silo storage

Hygroscopic materials such as sugar, cocoa, starch, salt, chemicals, flavourings, etc., are frequently stored in silos or holding bins. A high moisture content or condensation on the walls due to fluctuating outdoor temperature and humidity causes bacterial growth and solidifies the powder and chemicals on the silo walls. Moisture from the air inside the silo is absorbed by the ingredients. This also causes the material to lump together and results in handling difficulties.

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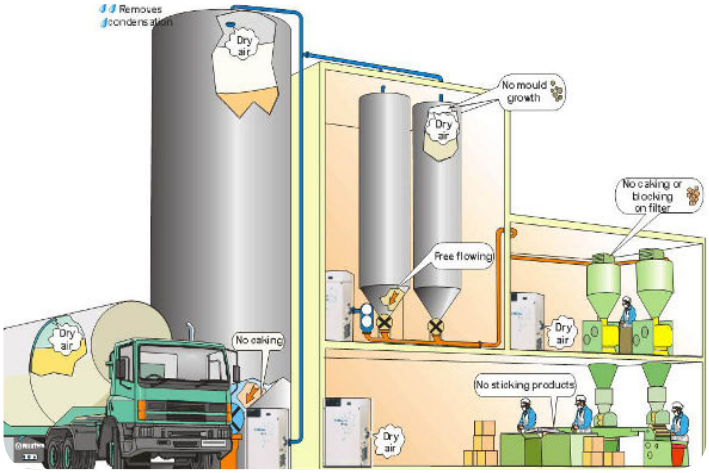
These issues result from:
*Humid air entering through vents when the silo is emptied or when the temperature changes.
*Moisture given off by ingredients
*Unconditioned air entering the silo from trucks unloading pressurisation fans or fluidised discharge.

Eventually, these sanitation and material handling difficulties cause costly production stops.

Conveying and unloading

When hygroscopic ingredients and powders absorb moisture, they became sticky and build up inside conveying lines. the resulting flow problems slow the process, create sanitation concerns and eventually cause costly downtime.
Pre-drying the air ensures that products are transported dry. The result is quick and continuous problem-free conveying with no unscheduled production stops. Many high volume manufacturing companies receive their hygroscopic ingredients by truck. Pre-drying the air used in their pneumatic conveying lines ensures that products are transported dry into silos. The same dehumidified air used for conveying can be delivered into the silo or hopper, and will not cause the ingredients inside to solidify. Munters equipment gives many years trouble free operation. We have supplied more than 150,000 systems, the majority are still in service. Our worldwide service organisation also ensures our equipment always operates with optimum efficiency.



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