

## DAIRY INDUSTRY APPLICATION GUIDE



# Munters Increases Quality and Productivity in Dairy Processing

### Spray Towers

Dehumidifying the air in spray towers optimizes spray tower capacity and reduces energy consumption, regardless of the product in process. Capacities of delicate products such as whey powder can also be greatly enhanced. By complementing a spray tower with a desiccant dehumidifier and/or heat exchanger, the operating parameters of the tower can be kept constant throughout the year.

### Fluid Beds

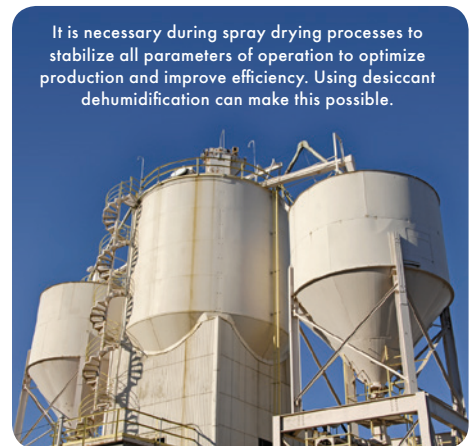
In addition to spray towers, dried products often need to be chilled after processing. For instance, products containing fat can turn rancid

if the product is not properly cooled. To cool and dehumidify the products efficiently and effectively, fluid beds can be used to prevent the product from absorbing humidity from the cooling air. Thus, dehumidified air creates healthier products and helps eliminate product loss.

### Pneumatic Conveying

In a pneumatic conveying system, contact between the air and the conveyed product is very important. If not properly controlled, a dried product can reabsorb humidity if the conveying air is humid. To prevent this, pneumatic conveying systems are equipped with dehumidifiers.

It is necessary during spray drying processes to stabilize all parameters of operation to optimize production and improve efficiency. Using desiccant dehumidification can make this possible.



## Filters

Processing creates soiled air full of harmful particles. These particles are usually filtered before they are released into the open air, but humidity can complicate this process. While at a standstill, segregated hygroscopic products in the filter can absorb humidity, causing the filter to become clogged. With a dehumidification system, the filters are kept dry during these periods of standstill.

## Cooled Rooms

### E.g. Cheese Storerooms

Because the air is dehumidified to some extent, condensation can often be found in chilled rooms. The resulting relative humidity depends on a range of factors. At lower temperatures, less dehumidification is required. The relative humidity in a cooled room often exceeds 70% RH, which increases the risk for mold. Desiccant

dehumidification that is equally efficient at all temperatures can resolve this issue. Numerous cooled rooms such as cheese storerooms have been equipped with desiccant dehumidifiers for this reason.

## Drying Before Packing

Cheese receiving soft coating must be completely dry before the coating can be applied. A desiccant dehumidifier can dry the cheese quickly without having to raise its temperature.

## Drying After Cleaning

Cleaning objects with water in an environment plagued with humidity can cause bacterial growth. This growth can be eliminated by using a desiccant dehumidifier. Air that has been dehumidified is much healthier and cleaner when blown into a room or on to equipment that has

## BENEFITS

- Reduces carbon footprint
- Saves on energy bills and reduces maintenance
- Ensure sanitation and less product waste
- Year-round climate control
- Worker comfort

been cleaned. This is especially efficient in objects that are difficult to heat or that are kept cold. Dehumidification is also being used to maintain a humidity level so that the cleaning intervals can be prolonged to reduce cost.

## Products

### Indirect Fired Gas Heaters

The VariMax® IFRG is an ultra-high-efficiency, industrial, indirect-fired gas heater used to heat process air streams without contaminating the air with the products of combustion. The IFRG is manufactured in accordance with USDA guidelines. Munters is an industry leader in supply of indirect fired systems for spray drying applications in the dairy industry as well as industrial processes with high temperature rises. The counterflow heat exchanger with hot side recirculation results in efficiencies of 90%+. Indirect fired gas systems can achieve higher process temperatures and are more energy efficient than traditional steam heating systems. Standard IFRG features include stainless steel heat exchanger, GE GAP 4.2.0 (formerly IRI/GE GAP) certified gas trains and complete heater controls. The IFRG can meet even the most stringent emission requirements, with NOx emissions less than 5ppm. Every system is custom designed for each application with 1000°F max temperature rises and exit temperatures up to 1200°F.

### Heat Exchangers

Munters also offers specialty industrial air to air heat exchangers for energy recovery within the dairy processing industry, which are manufactured in accordance with USDA guidelines.

These energy recovery systems contain plate or shell and tube heat exchangers to recover wasted energy from processes, heat other process air streams, and/or for use in packaged systems to provide heated makeup air. Not only will these systems reduce a facility's carbon footprint, but they can save significant costs on energy.

### Dehumidification for Better Performance All Year

For the food industry, Munters dehumidification systems contain a patented GTR desiccant wheel to ensure systems are capable of taking the outside air down to a lower dewpoint than any other standard system, without the need for pre-cooling. The GTR wheel is designed to have a higher outlet temperature to treat the application's process air that is typically heated to 300°F and higher. By using desiccant dehumidifiers in this application, a consistent humidity level is maintained for the product to be exposed to even as the outside air conditions change. This is especially beneficial for processing involving moisture sensitive or hygroscopic materials to provide less drying time, better consistent product quality and less product waste.



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