

# Humidity control for meat and poultry processing

Desiccant dehumidification is used to prevent condensation, improve productivity, and enhance Food Safety



# Meat and poultry processing

## The challenge:

Meat processing facilities strive to maintain an extremely clean processing environment. To accomplish this, thousands of gallons of water are sprayed on a daily basis. Temperatures are maintained at approximately 45°F or less to prevent microbial growth. Although much of the water is drained away, a considerable amount evaporates and becomes water vapor. This water vapor often condenses on surfaces such as ceilings, structural steel and piping. Per USDA FSIS directives this condensation is not allowed to drip onto the product and is not allowed to form either in production or non-production areas. The most common solution for the condensation issues was to spend considerable time and effort “controlling” it with plastic sheeting and personnel dedicated to wiping away condensation as it formed. Even with these efforts, plants can be overwhelmed by uncontrolled humidity, possibly facing USDA actions if not corrected.

## The solution:

Munters systems offer a dependable, cost-effective solution by providing consistent moisture removal capacity, even at high ambient humidities and sanitation cycles.

With Munters equipment, the moisture in the air is removed by using a desiccant. The absorption process is not limited by the freezing point of water because moisture is removed as a vapor. As a result, the Munters desiccant system can remove as much moisture as necessary to maintain the low dew point levels required to prevent the formation of condensation.



Munters ICA 2500





# Benefits

## USDA compliance

Increased pressure is being placed on meat processors to control overhead condensation. Desiccant dehumidification (DH) systems will eliminate condensation-related Non-Compliance Records (NRs). Even a temporary shutdown has significant financial implications.

## Reduced manual labor

Most meat processing facilities often employ “wiper crews” to remove condensation. These workers are trained to spot condensation droplets as they form and wipe them away using a long handled mop. Additionally, considerable labor hours and material costs are expended daily to tear down and re-hang heavy plastic sheeting during the sanitation period. This sheeting is used to divert condensation away from the product line to avoid adulteration. These costs can be significantly reduced or eliminated when desiccant DH is used to control condensation.

## Reduced pull down time / increased production

Typically, a meat plant conducts sanitation during a third shift. Large volumes of water are used during this shift to clean processing equipment and production lines. Common practice requires the plant to discontinue sanitation three to four hours prior to shift start in order to dry out the process area to a level that is ready for production. This often requires a large crew of employees acting as a “wipe down” crew in order to dry every wet surface. Using desiccant DH during sanitation reduces or eliminates the need for this wipe down period. The result is that you will be able to reduce the labor required for sanitation and be back on line quicker increasing your available production time.



### **Reduced microbial counts**

A reduction in microbial counts as a result of desiccant DH is not uncommon. Reduced humidity levels in the space and the reduction in condensation itself provide less breeding opportunities for microbial formation.

### **Reduced defrost cycles**

By delivering air at lower dew point temperatures, desiccant DH systems enable the existing mechanical cooling based equipment to defrost less frequently (if required at all). In many instances the defrost frequency is reduced from four times to once per day. This saves energy while reducing the amount of re-entrained water vapor that is inherent to defrosting of cooling based systems.

### **Improved temperature control**

Since desiccant dehumidifiers specifically target moisture (latent) loads, systems that incorporate desiccant units allow the operator to decouple the latent and sensible loads in the facility. Sensible loads are addressed by the system's cooling equipment while the desiccant section tackles the latent component of the total load. Therefore, the cooling system can focus its full capacity on removing sensible heat which can lower space temperatures and give tighter temperature control. This separation of duties promotes optimum performance for the desiccant DH system and the mechanical refrigeration system.

### **Food Safety**

By adding desiccant DH to your facility, Food Safety can be improved significantly through the reduction of condensation, lowered space humidity levels and the associated lowered microbial counts, and better packaging conditions to avoid packaging issues.





# Our dehumidification technology

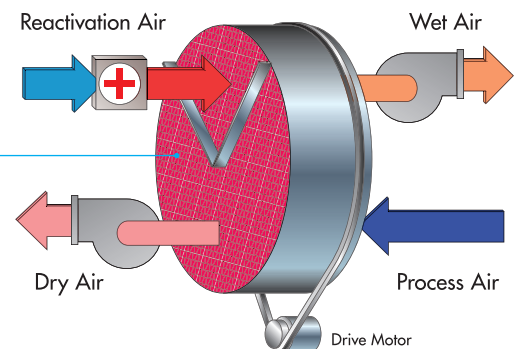
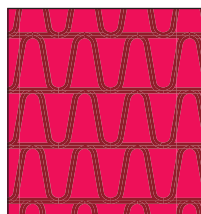
Munters equipment removes moisture from air by using a desiccant, a material which easily attracts and holds water vapor.

In Munters units, the desiccant is impregnated into a corrugated ceramic composite material which is formed into a wheel. Air passes easily through the flutes, contacting the desiccant. The incoming process air stream, the larger one, gives off its moisture to the desiccant. The process air is dry as it leaves the wheel. The humidity-laden wheel rotates to the reactivation sector where the moisture is removed by a second air stream.

Munters has spent decades refining this process and the desiccant rotor to give our customers the most energy efficient and reliable desiccant dehumidifier available today. Our patented PowerPurge® technology can reduce the reactivation energy and post cooling requirements by 20-40%.

## Munters Honeycombe® Wheel Technology

*Patented HoneyCombe® wheel design provides a vast surface area for desiccant*





# The Munters Global Services guarantee

We are dedicated to providing the most reliable, efficient and innovative products, but we know that service is just as important. That is why we offer a Global Services guarantee, which ensures you benefit from our expertise wherever you are in the world.

Our range of services includes:

- A global network of Munters Service Technicians
- Comprehensive commissioning service
- Training and competence development
- Preventative maintenance and spare parts
- Performance checks and optimization
- And much more...

Find your nearest Munters office at [www.munters.com](http://www.munters.com)

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