FOOD STORAGE

HUMIDITY CONTROL BUYER'S GUIDE

WHY CONTROL HUMIDITY LEVELS FOR FOOD STORAGE?

Controlling the relative humidity (RH) within commercial food storage locations helps reduce food spoilage and safety risks, protect food quality and equipment, and maintain better control over operational expenses. Businesses in the food industry should prioritize humidity control to mitigate these problems and ensure the integrity of their food products.

Many food safety regulations require businesses to maintain specific humidity conditions in food storage areas. Failure to comply with these regulations can result in legal and regulatory issues, including fines and penalties.

ISSUES CAUSED BY UNCONTROLLED HUMIDITY LEVELS

Relative humidity levels that are too low or too high can cause the following issues in food storage applications:

- Shortened shelf life: Uncontrolled humidity can lead to accelerated moisture loss or excessive moisture accumulation in food products, causing them to spoil or deteriorate quickly. This results in a shorter shelf life and increased food waste.
- Food safety risks: In environments with unregulated humidity, harmful bacteria, molds, and pathogens can thrive, posing significant safety risks. Contaminated food can lead to food-borne illnesses and health hazards for consumers.
- Degraded food quality: Fluctuating humidity levels can cause changes in the texture, flavor, and appearance of food products. For example, vegetables may become wilted, bread may become stale, and meats may lose moisture and tenderness.
- Equipment damage: High humidity levels can cause corrosion, rust, and mold growth on food storage equipment, refrigeration systems, and infrastructure. This leads to increased maintenance and replacement costs for businesses.
- Inefficient energy usage: Uncontrolled humidity can force refrigeration systems to work harder to maintain proper temperature conditions. This results in higher energy consumption and increased operational costs.
- Inconsistent food quality: Fluctuating humidity levels can result in inconsistent food quality, negatively impacting the taste and appearance of menu items or food products, leading to customer dissatisfaction, negative reviews, and a decrease in repeat business, harming a food-related business's reputation and profitability.
- Increased operational expenses: Uncontrolled humidity can lead to higher operational costs due to food waste, energy inefficiency, and the need for more frequent equipment maintenance and repairs.
- Customer discontent: Inconsistent or poor-quality food products can lead to customer dissatisfaction, negative reviews, and a decrease in repeat business, which can harm a food-related business's reputation and profitability.

DRISTEEM SOLUTIONS

EVAPORATIVE HUMIDIFICATION & COOLING

High-pressure atomizing systems humidify and cool air very efficiently by drawing heat from the air to evaporate unheated water introduced by high-pressure nozzles. This process raises the relative humidity (RH) level and lowers the air temperature. This system is often used for:

- To extend the shelf life of fresh produce in specialized storage areas, such as fruit and vegetable storage rooms.
- Different cheeses require specific humidity conditions for proper development of flavors and textures.
- Mushroom cultivation facilities use humidification to create optimal conditions for mushroom growth.
- Wine cellars maintain specific humidity levels to protect wine corks and prevent wine oxidation.
- Bakeries use humidification systems to create a controlled environment for proofing dough. Proper humidity levels help with dough fermentation and protects the final quality of baked goods.

ADIATEC® HIGH-PRESSURE SYSTEM

STEAM HUMIDIFICATION

Steam humidification systems generate steam and introduce it into the air stream of a facility to increase humidity levels. These systems are often used in larger cold storage facilities where precise humidity control is required. Steam humidification systems can be energy-intensive but offer precise control over humidity. They are often used in:

- Refrigerators and walk-in coolers often incorporate humidity control systems to keep fruits, vegetables, and some dairy products fresh.
- Large-scale warehouses used for storing perishable goods like fruits, vegetables, and meats employ humidity control systems to prevent dehydration and freezer burn.

RTS® HUMIDIFIER – RESISTIVE ELECTRIC
GTS® HUMIDIFIER – GAS-FIRED

DEHUMIDIFICATION

Dehumidification plays a crucial role in food storage by removing excess moisture from the air. While humidification is used to add moisture to the air in some cases, dehumidification is employed to reduce humidity levels. Here are some key purposes of dehumidification in food storage:

- Prevent moisture-related spoilage
- Control condensation
- Preserve food texture
- Prevent clumping
- Maintain ingredient quality
- Prevent equipment corrosion
- Minimize odor and flavor changes

RL SERIES DEHUMIDIFIER

WHY CHOOSE DRISTEEM HUMIDITY CONTROL SYSTEMS?

COMMITTED TO QUALITY

DriSteem has been designing and building world-class humidification business for more than 50 years and is committed to making the best products in the HVAC industry.

DriSteem humidification systems are made to fit each unique application, whether it is ensuring the success of critical industrial processes, preserving fragile and valuable museum artifacts, or protecting the health and well-being of building occupants. DriSteem's mission is to support healthy environments – studies show that when room relative humidity (RH) drops below 40 percent, incidents of respiratory illness increase but by adding proper humidification, student and employee absenteeism can be significantly reduced.

DriSteem U.S. operations are ISO 9001:2015 certified and committed to providing high-quality products, efficient services, on time delivery, and innovative solutions.

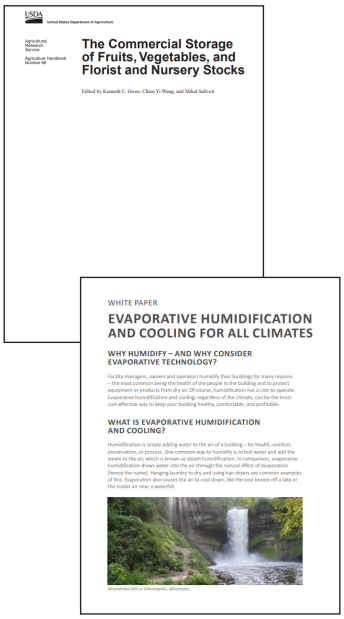
ISO 9001:2015

SUPPORT & RELIABILITY

DriSteem sales representatives are the industry experts in humidification systems, and are trained to recommend and specify the best solution for any application. They are willing to go the extra mile to make sure everything runs smoothly at start-up and for the life of the equipment.

DriSteem stands behind their products with a world-class Technical Support team available to troubleshoot any issues that may arise. They can also provide start-up assistance and offer field service visits.

RESEARCH



Support your business case with data – DriSteem follows the latest research findings and is continually adding to our collection of case studies and white papers.

- **The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks** contains guidelines from the USDA with summaries of current storage requirements of fresh fruits, vegetables, cut flowers, and other horticultural crops.
  - Charts on pages 56-57 provide a list of fruits and vegetables that should be stored at certain conditions. For example, the following are among the list of produce that should be stored at 0-2 °C; 90-98% RH: Alfalfa sprouts, asparagus, broccoli, carrot, celery, corn, garlic, kale, lettuce, mushroom, rhubarb, spinach ,turnip.
  - Go to www.ars.usda.gov/arsuserfiles/oc/np/commercialstorage/commercialstorage.pdf
- **White Paper: Evaporative Humidification and Cooling For All Climates**
  - Evaporative humidification and cooling, regardless of the climate, can be the most cost-effective way to keep your food storage facility profitable.
  - Download here: white-paper_evaporative-humidification-and-cooling-for-all-climates.pdf

DRI-STEEM Corporation
a subsidiary of Research Products Corporation
DriSteem U.S. operations are
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Continuous product improvement is a policy of DriSteem; therefore, product features and specifications are subject to change without notice.

Expect quality from the industry leader
Since 1965, DriSteem has been leading the industry with creative and reliable humidification solutions. Our focus on ease of ownership is evident in the construction of DriSteem products. DriSteem leads the industry with a Two-year Limited Warranty and optional extended warranty.

For more information:
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For the most recent product information visit our website:
www.dristeem.com