

White Paper

How Dehumidification Solutions Improve Confectionery Production



Introduction

If you work in the confectionery production industry, you likely know how sensitive the products are and how detrimental excessive humidity can be. Thankfully, there's a range of dehumidification solutions available to help create ideal confectionery environments, improve production processes, and enhance product quality.

In this digital brochure, we'll break down some of the specific benefits of dehumidification solutions, what some of the different solutions are, and explain how you can find the right solution for you.



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Why Climate Control is Crucial in Confectionery Settings

High humidity levels can wreak havoc on confectionery production environments. Both raw materials and final products can easily lose quality due to excess humidity, leading to shorter shelf life or even spoiled products.

Why Humidity Affects the Confectionery Industry

Confectionery products and raw materials are high in sugar by nature. Because they're so high in sugar, most confectionery items are hygroscopic, meaning they easily absorb moisture from the air.

If confectionery products are exposed to environments with excess or uncontrolled humidity, they will absorb the moisture. When that moisture combines with sugar, it can cause confectionery products to stick together, become moldy, or break apart. The damaged product can also clog machines and pipes, leading to unexpected and costly production downtime.



Confectionery <i>Products</i> That Require Dehumidification	Confectionery <i>Processes</i> That Require Dehumidification
<ul style="list-style-type: none">• Sugar• Cocoa• Cookies & Biscuits• Chocolates• Hard Candy• Chewing Gum & Bubble Gum• Toffees & Sweets• Jellied Items• Popcorn• Sugar-Coated Drops & Tablets	<ul style="list-style-type: none">• Confectionery Product Manufacturing• Candy Coating Process• Confectionery Item Packaging• Transport & Unloading of Confectionery Products• Confectionery Product Storage• Pneumatic Conveying of Ingredients for Confectionery Products• Drying & Cooling Tunnel Operation



How to Control Humidity in Confectionery Production

While high humidity can have severe impacts on confectionery production, there are solutions available to control climate in production environments. Desiccant dehumidifiers can reduce the effects of moisture in the transport of raw materials, throughout the production process, and in the packaging and storing of confectionery products.

Desiccant dehumidifiers provide efficient, consistent humidity control in confectionery settings, regardless of ambient or outdoor conditions. They ensure consistent conditions for manufacturing all year round.



Desiccant Dehumidifiers

How They Work:	Benefits:
<ul style="list-style-type: none">• Use desiccant materials to create a low-vapor pressure area that attracts moisture from the air• Solid or liquid desiccants absorb moisture• Removes moisture from the air using a process driven by thermal energy that results in a temperature rise in the processed air	<ul style="list-style-type: none">• Capable of achieving ultra-low dew points• Provides precise, consistent humidity control in large spaces• Adaptable for various operational requirements• Available in various configurations<ul style="list-style-type: none">- Liquid Spray Tower- Solid Packed Tower- Rotating Horizontal Bed- Multiple Vertical Bed- Rotating Honeycombe®

Benefits of Finding the Right Dehumidification Solution

Finding the right dehumidification solution to meet your needs will improve production and reduce operational expenses in your confectionery plant.

Specifically, some of the benefits of confectionery climate solutions include:

→ **Optimized, consistent production processes**

Controlling humidity levels in such a sensitive environment ensures precise control over production conditions

→ **Better ingredient and final product quality**

Dehumidification helps maintain the quality of ingredients to improve the quality and shelf life of final products

→ **Helps improve equipment lifespan & reduce production downtime**

Reducing humidity levels in confectionery settings helps avoid equipment clogs and similar issues that could lead to costly production delays

→ **Easier transport and storage**

Dehumidification prevents ingredients and products from clumping or sticking together during transportation and in storage

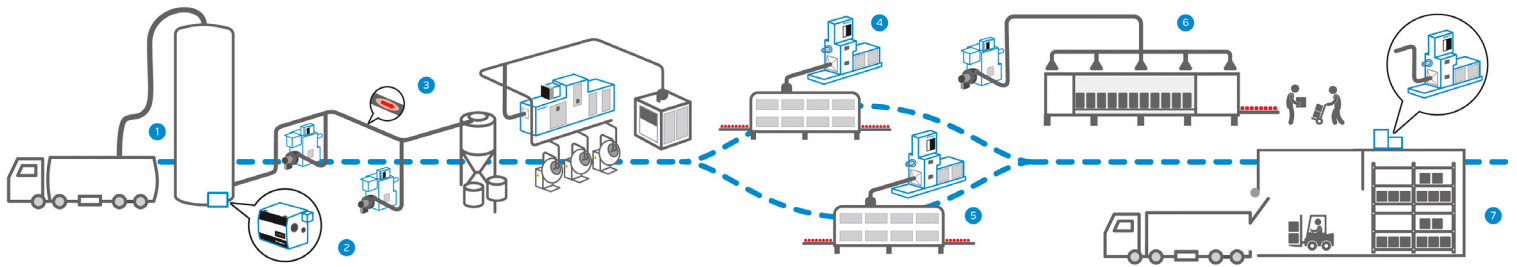
→ **Improved packaging conditions & longer shelf life**

Reducing moisture levels during packaging and final storage significantly improves the shelf life and quality of products



Solutions for Every Production Process

When considering dehumidification for confectionery environments, it's important to note that climate control is crucial throughout every stage of the production process. To fully benefit from a dehumidification solution, each production process needs to be considered and addressed.



1. Transport, Unloading & Silo Storage

Too much lost time and scrapped ingredients due to mold and product clumping in your silos?

Dehumidification systems can maintain low humidity levels all year round to maintain ingredient quality and consistency, and stop ingredient clumping and sticking in the silo and piping.

2. Pneumatic Transport

Does clogging slow down your pneumatic transport system and limit flow, causing product quality issues from moisture and mold in ingredients?

Desiccant dehumidification systems can maintain optimum humidity levels and prevent material degradation, process downtime, and waste. You'll experience improved productivity and quality, as well as reduced operating costs.

3. Coating

Coating processes need precise conditions for optimal results, including low moisture levels.

Dehumidification systems offer year-round precision and easy adjustments for consistent high-quality confectionery, reduced drying times, and less waste. Humidity control during drying also prevents uneven drying and quality issues.

4. Drying

Is drying tunnel performance inconsistent, resulting in quality issues like soft finish, water spots, and uneven quality?

Desiccant dehumidification systems will blanket your drying tunnel with dry air, improving humidity levels for consistent

results and improved product quality. Lowering the drying air temperature is also possible, which improves product quality, reduces energy usage, and lowers post-cooling temperatures.

5. Cooling

To optimize your cooling tunnel's efficiency and product quality, it's important to adjust the cooling coil leaving air temperatures. However, this can be limited by condensation or frost on the coils.

A dehumidification system can maintain low dew points to prevent these issues, providing flexibility with products and menus.

6. Packaging

Maintaining optimal environmental conditions during packaging is critical for fresh, high-quality products with longer shelf life.

Dehumidification units provide consistent low temperatures and humidity levels, ensuring top product quality, appearance, and packaging efficiency regardless of ambient air conditions.

7. Storage

To prevent reduced product quality and packaging, it's crucial to keep humidity levels low when storing products with minimal cooling.

A dehumidification system can consistently deliver low moisture conditions at any ambient condition, reducing energy consumption while maintaining precise control.

8. Freezing

Dehumidification systems eliminate frost build-up, ensuring product quality, worker safety, and efficient operation of refrigeration equipment in freezing storage.



How Dehumidification Enhances Sustainability

Sustainability is a complex concept, but two key elements that many companies are currently focusing on are improving operational efficiency and reducing their carbon footprint.

Desiccant dehumidifiers can improve energy efficiency and help companies meet or exceed their sustainability goals.



How do desiccant dehumidifiers impact sustainability?

Desiccant dehumidifiers are large consumers of high-grade heat, with steam or natural gas being the most common sources of reactivation heat. Steam is made using renewable sources and can use leftover heat, meaning less energy goes to waste. Natural gas burns cleaner than other fuels, which causes less air pollution.




How to Find the Right Desiccant Dehumidifier for You

Desiccant dehumidifiers can deliver consistent and precise environmental control to meet varying specifications required throughout all areas of your plant. However, each facility may demand different specifications due to location, climate, equipment, and ingredients.

To make an informed decision on which dehumidifier would best work for your facility, you should outline your needs and identify any process air treatment issues.

From there, you can narrow down which desiccant dehumidifier and configuration would work best for you.



	Modular Desiccant Dehumidifiers	<ul style="list-style-type: none">• Minimal energy consumption• Low-profile, highly configurable modular design• Suitable for indoor and outdoor use• Easy to maintain• Gas, steam, or electric reactivation
	Stand-Alone Desiccant Dehumidifiers	<ul style="list-style-type: none">• Low-profile design takes up minimal space• Suitable for indoor and outdoor use• Multiple blower orientations available• Modulating electric, gas, or steam reactivation• Continuous non-cyclic duty for constant dry air
	Complete Air Handling Units	<ul style="list-style-type: none">• Highly configurable pre/post-air treatment modules• Advanced selection software• No-through metal design prevents sweating• Full contact rotor seal• Easy to clean

How Munters is Different

Munters is a world leader in energy-efficient climate control and has been defining the future of air treatment since 1955. Today, around 4,000 employees carry out manufacturing and sales in more than 30 countries.

From the beginning, we've been committed to building close, long-term relationships with our customers so we can foster a deep understanding of their business and future needs. Our close collaborations with customers help increase the precision and efficiency of our innovative work.

We have an extensive range of products and services available to help customers achieve confectionery production goals. We deliver cost-effective custom solutions at the highest quality level.

→ Custom, High-Quality Solutions

At Munters, we're committed to finding the right high-quality solution that will work for you. Our dehumidification solutions are manufactured under strict control regulations in our ISO 9001: 2015 and 14001 certified facilities.

All Munters systems can be custom designed according to your requirements. We even provide complimentary site reviews to fully understand your specific needs.

→ What to Expect from a Site Review

During a site review, a sales engineer and support team should walk through all of the areas in your plant that require humidity control. The walk-through helps them gather all the information they need to make an informed decision on which solution would work best for you.

When the team settles on a solution for you, the proposal should include:

- Information on the equipment you'll need
- Renderings of the equipment and how it'll fit your space
- Utility data
- An energy analysis that can become a plan to improve process productivity, quality, and consistency

→ Cutting-Edge Technology

Munters dehumidifiers feature patented Honeycombe® rotor technology to ensure consistent and optimal conditions.

With our technology, two air streams pass simultaneously through two sectors of the desiccant rotor. One air stream is dehumidified to the required humidity level. The other airstream dries the rotor so it can absorb moisture again and this accumulated moisture is then exhausted away externally.

→ Enhanced Sustainability

At Munters, our dehumidification solutions for confectionery processing are designed with sustainability in mind.

To help candy makers further reduce operating costs and limit or eliminate fossil fuels in their production facilities, Munters has designed a solution that enables our desiccant dehumidifiers to operate using low-temperature reactivation heat at typically 71-82°C (160-180°F) instead of high-grade reactivation heat of 120-150°C (250-300°F) as the primary source of heat for the dehumidification system.

By using low-grade heat for reactivation, we are able to reduce the need for high-grade heat sources and provide you with a more cost-effective, fossil-free solution. Our new heat source option can be implemented in the design for new projects or added at existing plants in a retrofit of existing Munters dehumidification systems.

→ Optimized Energy Efficiency

Our state-of-the-art dehumidifiers are the most energy-efficient products on the market. With patented purge technology, we can boost performance while reducing energy consumption during reactivation and process air post-cooling. This can result in significant savings of up to 50% in energy consumption.

Our cutting-edge technology allows us to offer dehumidifiers that are so efficient, you can use a smaller unit and still get the same performance. This means you'll save money on capital expenses (CAPEX) while enjoying the same level of performance. Additionally, our low-grade waste heat technology uses cost-effective and eco-friendly energy sources, allowing you to reduce your operating expenses (OPEX) even further.



Our Service Portfolio

At Munters, we're committed to offering a complete portfolio of service offerings to support you throughout the entire lifecycle of your Munters equipment.



→ Commissioning Support

Our trained service technicians make sure your equipment is operating as designed so your investment gets the best possible start. We offer everything from basic unit start-up to extensive turnkey installations.

→ Maintenance

Keep your equipment running like new with on-site visits by factory-trained technicians and regular rotor performance checks.

→ Retrofit & Upgrade

Boost energy efficiency and capacity with our retrofit solutions for equipment already in operation.

Upgrade controls, replace your rotor, or upgrade your fan to maximize performance, and save money and energy. Munters also custom fabricates zeolite blocks for the replacement of all zeolite and carbon rotor systems.

→ Munters Service Agreements

Ensure that your Munters equipment always performs according to specifications. Munters Service Agreements, tailored to your needs, offer industry-leading lifecycle care for your equipment – and peace of mind for yourself.

→ Munters Genuine Parts

We use only Munters Genuine Parts, which are designed, tested, and verified to ensure that each part meets or exceeds specifications. Convenient service kits are made to make maintenance simple.





Get in Touch

As a global leader in energy-efficient air treatment and climate solutions, Munters is here to help you overcome your most demanding production challenges. Our teams are ready to ensure your mission-critical processes are running smoothly and providing better indoor air quality with consistent and exact moisture control.

With Munters as your service partner, you'll achieve the longest possible lifetime for your air treatment equipment. No matter what phase of the life cycle your Munters equipment is in, our service solutions and products will provide optimal operation and performance for as long as you need, and beyond.

If you're ready to find the perfect climate solution for your facility, [get in touch with one of our experts.](#)