Munters

The right climate for dry storage

Preserve your stored goods with dehumidification

Maintain original quality with climate control

Climate is a nuisance for valuable materials, particularly a humid climate. Materials of all sorts are damaged when exposed to high relative humidity. This can result in material deterioration, mold, corrosion, and other problems. Temperature, on the other hand, has no impact on the quality of materials (except for some liquids).

To control the relative humidity in dry storage facilities, it is common to use heating. But as temperature has no impact on the quality of materials, and as the relative humidity in a heated storage space typically will fluctuate between 20% and 70%, depending on the outdoor conditions, this method is both ineffective and costly.

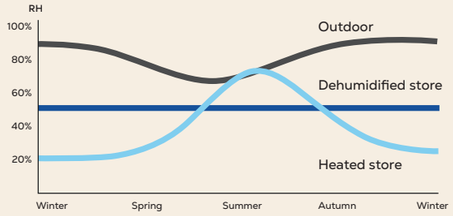
The cost of heating a storage space is typically at least twice as high as the cost of dehumidification. And the materials in a heated storage will not be efficiently protected. A dehumidified storage space offers a constant relative humidity throughout the year, independent of outdoor conditions. Thanks to this constant climate, the storage materials will maintain their high quality over time, and you will save energy costs. Only dehumidification secures a constant and protective environment.

4,800 m³ concrete building.
Outdoor conditions:
Average temp. 8°C,
Rel. humidity: 79%,
Required: 55% RH

Dehumidification
11,000 kWh/year

Heating
78,000 kWh/year

Relative humidity in different types of storage spaces



In a heated store the RH% will fluctuate over the year, exposing goods to humidity levels critical to quality and shelf life. Only dehumidification secures a constant and protective environment.

General dry storage around the world, protected by Munters

Keeping the relative humidity stable in your dry storage is a win-win for you and for future generations. With a desiccant dehumidification solution from Munters, costs will be reduced when compared to heating, the humidity-related maintenance of your facilities will be reduced, and your storage will have an environment-friendly, energy-efficient climate-control solution.

Museums, galleries, libraries

Archives in museums, libraries, galleries, etc., need a controlled, constant storage climate to provide optimal protection for the irreplaceable artifacts and documents at store. To prevent moisture damage and adhere to guidelines, keeping a reliable, stable, and low relative humidity level all year around is essential.

Archives

Public and private archives are often responsible for the safe storage of items such as research papers, public documents, books, films, clothing and even seeds. As with museums and libraries, archive storages require consistent environmental control to ensure that the integrity of these documents/assets remain stable over time, and meet both legal storage requirements and accessibility expectations for future generations. Keeping a low and stable relative humidity level all year around is essential.

Silos

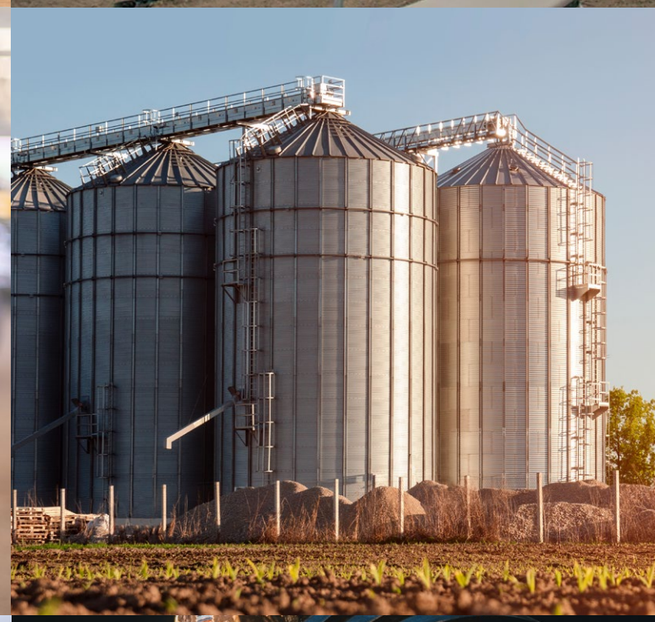
Storing chemicals and raw materials such as sugar, cocoa and salt in silos often causes problems. Condensation occurs on the inner silo walls due to outdoor temperature fluctuations, creating a basis for bacterial growth. Moisture-absorbing materials cause items to clump together, which leads to handling issues and cleaning requirements. Keeping the relative humidity in the silo at a safe and low level avoid these issues.

Cars and other vehicles

Vehicles of various types as well as defense equipment, are frequently fitted with high-quality electronic equipment or high quality, sensitive material. Privately owned vehicles such as prestige and classic cars are usually stored in unheated garages. Interiors like leather seats may be destroyed by mold, and corrosion on metal surfaces will occur. Keeping a 55% RH indoor climate will protect vehicles against these problems, eliminating musty odors, and guaranteeing that they are always ready for action.

Storage tents, shelters

For simple, inexpensive storage, the giant tent structure created from non-water-permeable material is a great option. Using dehumidification to protect the stored items, no insulation will be needed; just an airtight build is required. Whether storing metal, military equipment, electronic components, timber, furniture, vehicles, food, or pharmaceuticals, dehumidification ensures the optimal climate, maintaining the highest product quality at the lowest energy level possible.



Protecting valuable goods with the right climate

All materials have “comfort zones” where their properties are kept unaffected, guaranteeing maintained high quality and longer shelf life. When exposed to too high relative humidity the material will absorb the water in the ambient air, or suffer under condensation related problems.

Mold, mildew, insects (70% RH)

When the humidity level is higher than 70% RH, mold, fungus, and mildew flourish and multiply. Materials like food, seeds, grain, fabrics, textiles, wood, and paper, are affected.

Softening of packaging (55% RH)

At approximately 55% RH, cardboard packaging absorbs moisture and starts to soften, causing boxes to collapse.

Corrosion (50% RH)

When storing metal products such as galvanized steel, ball bearings, vehicles, or ammunition, corrosion is a problem. Corrosion on metal parts can occur when cold surfaces sweat. Corrosion is rampant when RH is above 60%, but it is virtually impossible when RH is less than 50%.

Bacterial growth (40% RH)

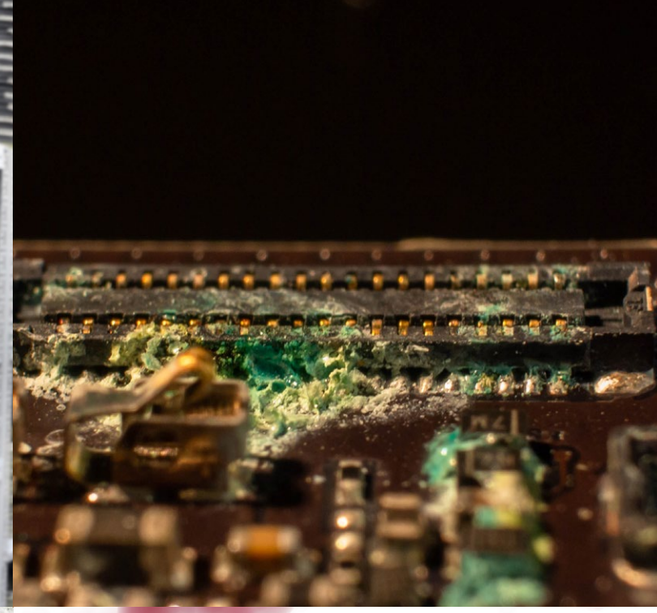
Strict hygienic standards are necessary when storing food or raw materials. Manufacturers usually require humidity levels lower than 40% RH to avoid bacterial growth.

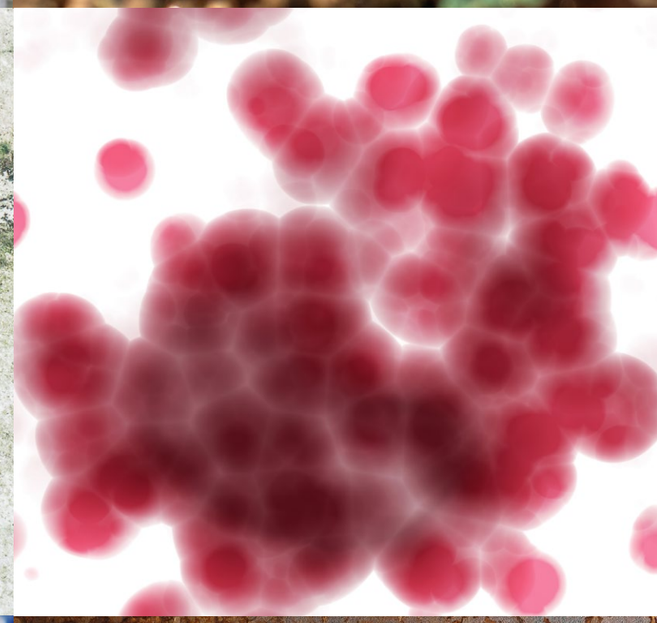
Contact corrosion on electronics (40% RH)

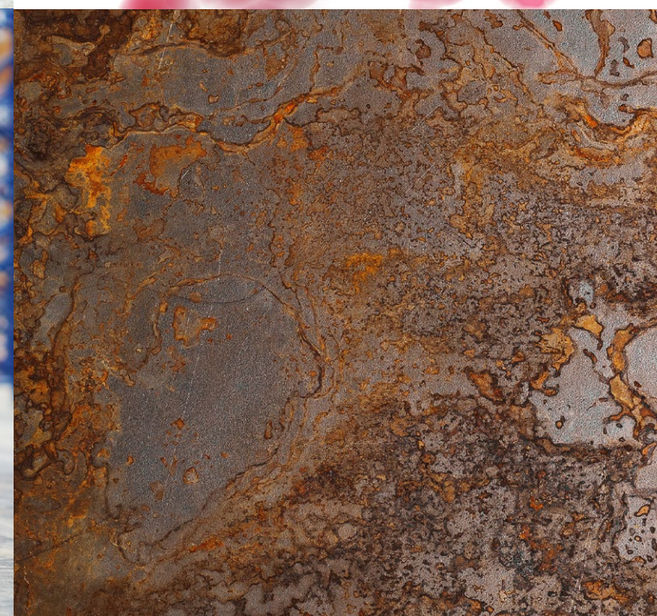
Small amounts of corrosion can cause serious problems, for electronic components that are extremely sensitive to microscopic-level corrosion. Keeping humidity levels below 40% RH prevents electronic failures and extends component life.

Film degradation (20% RH)

Storing nitrate films requires a maximum temperature of 5°C and 20-30% RH to avoid decomposition.







Climate solutions for the future

And for your mission-critical processes

Founded in Sweden in 1955, Munters today has 20 manufacturing facilities across the globe and sales offices in more than 30 countries. With approximately 4,000 employees worldwide, we have net sales approaching $1 billion USD.

Munters is a global leader in climate solutions for mission-critical processes. We offer innovative, efficient, sustainable solutions for controlling humidity and temperature, recovering energy, treating emissions, and using evaporative cooling for comfort, manufacturing, and environmental protection.

Sustainability is an important aspect of our business strategy and value creation. Our solutions help customers use resources efficiently, reducing their climate and environmental impact, ultimately contributing to a better climate and reduced carbon emissions.

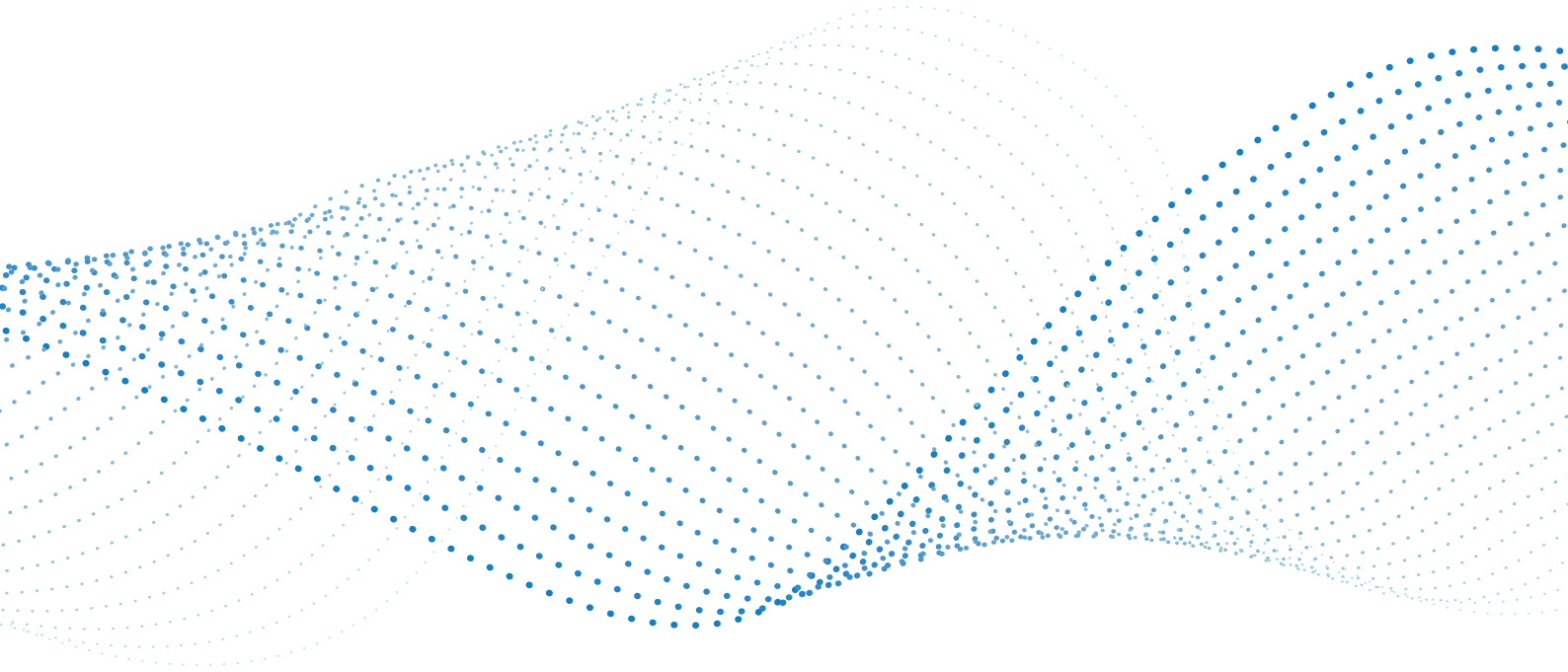
Dehumidification – the best solution for your stored goods

Materials are damaged when exposed to high relative humidity. A dehumidificationsystem will effectively remove moisture from the air, allowing you to control humidity consistently and precisely in your dry storage.

Munters dehumidification solutions remove moisture from the air using a desiccant wheel, which easily attracts and hold water vapor. Air is blown though the rotor (drying wheel) structure and the humidity in the air is absorbed by the hygroscopic desiccant silica gel. The air leaves the rotor as dry air.

The basic idea of the Munters desiccant rotor is very simple:

We offer a large range of industrial dehumidification systems with different designs for a wide variety of applications.



Munters is a global leader in energy-efficient air treatment and climate solutions. Using innovative technologies, Munters creates the perfect climate for customers in a wide range of industries.

Munters 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.

For more information, please visit www.munters.com

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