



Application Guide: Air Treatment  
Cold and Chill stores  
Condensation Prevention

#### Quick Facts

Munters Products create benefits of...

- No condensation
- No growth conditions for mould or fungus
- Improved hygiene conditions
- Reduced need for defrosting
- Increased temperature stability
- Continual operation of the cooling plant

## Dehumidification solutions for small cold and chill stores

In smaller cold stores, used by laboratories, catering facilities and restaurants, the naturally high relative atmospheric humidity is often the cause of problems.

These chill and cold stores are high traffic areas with frequent door opening: subsequently warmer air constantly penetrates into the room, causing the relative atmospheric humidity to rise. In laboratories, evaporation from Petri dishes and test tubes also occurs, which is often unwelcome due to the risk of condensation

forming in the tubes as well as the need to provide the incubated cultures with air. Where a cold or chill room is used for the storage of vegetables and meat for example, more moisture is brought into the room and the relative atmospheric humidity increases. Refrigeration of warm products in the room also further increases condensation.

The evaporators, which govern the temperature of the cold store, cannot normally control the relative atmospheric

humidity, which often increases to 90-100% RH.

The high relative atmospheric humidity causes:

- Condensation/dripping onto products
- Growth of mould and fungus
- Undesirable bacterial growth
- Risk of spoiling, in particular unpackaged products
- Reduced shelf-life
- Labels rendered illegible



### Solutions

When cold surfaces are surrounded by moist air, water vapour will condense on the surface. A typical example is a cold beer glass in the summertime. The problems are resolved by dehumidifying the air so that condensation and subsequent mould and fungus growth do not occur. The need for defrosting is reduced in low temperature cold stores as forming of frost on the evaporators is reduced. Thereby, unwelcome temperature variations caused by defrosting are avoided.

Munters IceDry® dehumidifiers and condensation control units can be installed either outside or within the actual store as it excels in functioning independently of the ambient air temperature- in contrast with cooling dehumidifiers which work at reduced capacity from approximately + 15°C. This also makes dehumidification in freezer departments a possibility.

Munters have created a complete concept for small cold and chill stores. The solution requires no adjustment to be made to the construction of the building and the dehumidifier itself can be located within or outside the room: similarly, adjustment and readings of the current relative atmospheric humidity in the store can take place in the same place as temperature readings.

### Laboratories

At the University of Copenhagen Munters use dehumidification techniques for 6 cold stores for storage and cultivation of algae cultures in nutrient-rich water for research and educational purposes. Previously, problems were experienced with mould and fungus growth on walls, curtains and test tubes and the labels became illegible. 6 dehumidifiers were fitted outside the cold stores, blowing the dehumidified air into the rooms. The relative atmospheric humidity is now kept constant and the above mentioned problems are avoided.

### Catering centres

At Novo Nordisk's training facility at Hvidøre in Klampenborg, a cold store is used for storage of homemade products and for maturing meat. The desire here is to purchase whole animals for maturing in order to ensure optimal quality, however the hung animals began to spoil prematurely due to excessively high relative atmospheric humidity.

Munters installed a smaller dehumidifier in the actual cold store, which now ensures that the relative atmospheric humidity remains and that the meat matures under correct hygienic conditions.

Condensation control in larger coldstores is a common application for Munters. Ice and frost is caused when moist air enters the cold store. When it comes into contact with cold surfaces such as floors, walls and evaporator coils the water vapour in the air condenses to form water then freezes to form ice. If the cold store has a loading dock it may remain as condensate but will result in wet floors and surfaces.

The effective solution is to tackle the problem at its source, which is exactly what the Munters systems do.

Munters applications are not just limited to frost and condensation control. Humidity control of document archives and metal object storage also prevents corrosion and deterioration.



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