



Case Study: Air Treatment

Chester Wholesale Meat, improvement of cold storage and holding area Durban, South Africa

Benefits

By installing Munters MX2700 Desiccant dehumidifiers, Chester Wholesale Meat now has:

- Reduced energy consumption
- No frost and ice build up at Cold Store entrances
- No or very few defrost cycles
- Dry floor in the Holding Area
- Prevention of ice build up on coils
- Guaranteed meat product temperature and quality prior to transportation
- Improved staff and equipment safety (no slippery floors, no mist)
- Reduced refrigeration load upto eleven times

Meat Wholesaler cuts ice and cost with IceDry™ MX2700 dehumidifiers

Chester Wholesale Meat, based in Congella, Durban in KwaZulu-Natal, South Africa, was founded some 25 years ago, and has grown to provide packaged and processed meat and poultry products to markets across the nation. Chester is a significant importer of meats with wholesale outlets and a retail chain of 15 butcheries. It has also recently expanded into commercial cold-storage. While Durban's moist

and warm climate is an attraction for tourists, it provided a challenge for Chester Wholesale Meat, raising production costs as well as affecting the working environment of the plant. The problem was caused by moist tropical air moving inwards from the truck loading area and condensing in the holding dispatch section, which is kept at 10°C. In addition to blinding mist, large amounts of condensation on the

meat product, walls and floor caused a slippery build-up of water and provided a potential hazard for the workforce. This became so problematic that the area earned the nickname 'the fish tank'.

Beyond the holding area, moist air made its way to the cold store, which, at -25 °C, caused it to cool and flow downwards to the store floor. The result was considerable formation of frost on the freezer coils as well as the freezer entrance, walls, floors and on product. Not only was this energy-inefficient, requiring multiple defrost cycles per day and high refrigeration plant load, but the formation of frost was destructive to product packaging and to the Chester product itself. For the client to be more efficient and successful, a moisture-free holding area and frost-free cold stores were needed.

Controlled climate – key to success

In order to alleviate the problem, Chester Wholesale Meat contacted Munters, with whom they had a four-year working partnership, in order to initiate a third project phase.

In each phase, Munters chose to apply their IceDry™ application using their highly efficient Munters MX2700 Desiccant dehumidifiers. In total, four dehumidifiers were utilised – one each in Phase One and Two. For Phase Three, Munters again recommended the installation of MX2700 Desiccant dehumidifiers - one to be used in the Holding Area and one in the Cold Store.

Energy reduction = sustainable solution for bigger savings and better product

Payback was immediate. By means of the dehumidification process, Munters award winning IceDry™ application enabled Chester Wholesale Meat to reduce the refrigeration plant load eleven times more effectively by using the MX2700 units, rather than allowing the plant itself to dehumidify the air. This resulted in significant savings and an environmentally-friendly reduction in power usage.

How did Munters save the client money?

Because of the insulation barrier formed by the build-up of ice in the past, refrigeration had had to run longer in order to obtain heat transfer through the ice. Defrosting was necessary on a more regular basis – which utilised more expensive energy.

Ice also caused Hysters to slip, resulting in expensive repair to fridge panels, shelving and racking systems and damage to the Hysters themselves. The dangers of water or ice slippage and injury provided a significant occupational safety concern.



The clean and dry 10°C holding area, previously nicknamed “The Fish Tank” because of the condensation and mist

In addition, temperature fluctuations affected the longevity of the product. Frozen moisture in and on the product caused damage to product packaging, thus affecting product presentation

What does Munters do?

Munters IceDry™ application using our desiccant drying technology absorbs moisture from the air on a molecular level, using high-performance Silica Gel in our patented Rotor Technology(www.munters.com/rotor). Because moisture is removed using the sorption process, the energy consumption is fractional. Typically the energy used for a Munters MX system to remove moisture is 11 times cheaper than for the ammonia plant to remove the same moisture at -25 degrees C. With today’s energy cost and availability, it is a necessity to introduce the sustainable alternative.

Range of dehumidification products

The MX2700 (2700m³ of air per hour) unit used at Chester Wholesale Meat removes as much as 25kg of water per hour in this cold environment, with an extremely small energy footprint. The MX2700 is the smallest of the MX range of units, ranging from 2700 to 9000m³ per hour. The MX are the largest stand-alone dehumidifiers in the Munters range, while the MDU, Modular Dehumidification Units, process as much as 80000 m³ per hour.

What the client says...

Operations Manager Steven Shrewsbury says

that while he had had great expectations before the Munters system was installed, the impact of the system has actually exceeded his expectations.

He says the cleanliness of the plant now, with the absence of water and ice, is great for hygiene and provides a good working environment. Corrosion and maintenance costs have come down, which has had a positive effect on the attitude to housekeeping. The maintenance costs on Hysters in the plant are reduced, while the shelf life of product and packaging in the freezers has increased.

Nicky Criticos, the owner of the Chester Wholesale Meat, was recently talking to a colleague in the industry, who was experiencing similar problems with ice and he recommended that the colleague speak to Munters, who would solve the problem for him.

Your business is our business!

We’ve been working with logistics and cold-storage businesses worldwide for many years. That’s why we have the right answers to your growing problems. There are over 1000 Munters IceDry™ applications installed globally applying this innovative solution, a winner of the European FoodTec Award to ensure an efficient, reliable, and easy-to-operate climate for your growing business.

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