

No Slip-ups at KLM

Prevent Frost from forming with Munters IceDry®

The Problem

KLM Catering Services (KCS) Schipol is the biggest in-flight caterer in the Netherlands, with over 250 flights a day, producing 35,000 daily meals. KLM not only caters for its own scheduled flights, but also supplies meals to other airline operators such as Northwest Airlines, Cyprus and Kenyan Airways

90% of the in-flight meals are brought in frozen, and placed in cold storage. The meals can be stored for a range of time, typically from 3 days up to 6 weeks, depending on whether they are for infrequent special dietary requests. The quick freezing process means rapid throughput and high product quality.

Preparing in-flight meals raises its own difficulties with ambient temperatures often between 20-30°C (68-86°F) in summer. The food preparation areas are required to be maintained at 14-15°C (58-59°F), before the products enter the adjacent cold storage freezers at -20°C (-4°F).

When freezing at these temperatures a lot of humidity is introduced due to the wide difference in temperature and pressure between the ambient air and that in the cold storage freezer. Moist air



Case Study: KLM Catering Services



BENEFITS:

- Safe Working Environment
- Ice free floors
- Faster loading
- Clear visibility to read labeling
- Increased refrigeration efficiency
- Reduced energy consumption



streams into the -20°C store every time the doors are opened, due to the frequent deliveries throughout the day. The result is frosting and icing up of the floors inside and outside the storage area, icing of refrigeration components, such as the evaporator, and also frosting of product making it difficult for the food technicians to read the product labels.

The greatest concern of Edo Cuiper, KLM Catering Services Technical Engineer was the freezing snow and ice on the floor and ceiling. "The floor was very slippery and unacceptably dangerous, we had to do something" he said.

As well as the risk of accidents Edo said, "We had ice and snow on the evaporator, it was difficult to clean, and difficult to keep at a constant -20°C , we had frequent defrosts, typically six times a day lasting for one hour."

The Solution

The simple and effective answer was to remove the moisture from the air and this is exactly what Munters IceDry® systems do so well. KLM Catering

Services installed three IceDry® systems in their cold stores, as Munters system is specifically designed for low temperature operation. Munters desiccant dehumidifiers work by drawing air from the cold store through a rotor containing silica gel.

By removing moisture from the air, Munters systems control the dew point temperature required to prevent moisture in the air from condensing out and freezing onto cold surfaces. Once the moisture in the air is removed, the now ultra-dry air is piped back into the cold store area. By removing the moisture, the IceDry® system also assists in increasing the amount of time between defrost, reducing energy utilization and refrigeration plant maintenance.

"The difference before and after the installation of IceDry® is like night and day" says Edo Cuiper, "The coldstore rooms are clean and the floors are no longer slippery."

The safety improvements also got the thumbs up from the "ARBO" welfare-at-work organization.

Improving the safe operation of the environment had previously been attempted by adding grip strips into the floor to make it less slippery. This proved unsuccessful as after only two weeks, the ice built up again. Now with IceDry® this is completely clear. Moving the food pallets is also much safer, and loading is faster, the catering team can read all the labels correctly, without having to wipe the frost off.

The improvements have not only been seen in safety, KLM Catering Services now only defrost once a day for half an hour, although it is not really necessary. Defrosting is done as a precautionary measure for cooling equipment safety. Previously KCS observed ice build up on the coldstore fan during the night, which occasionally was so severe that it meant that the fan could not blow anymore. Now this has been completely solved with Munters IceDry®

KCS also found through constant electronic temperature tracking, that they have been able to maintain much tighter temperature control. The reduced defrost with IceDry® enabled KCS to reduce the temperature of the refrigerant evaporator coolant from -27°C (-17°F) to -22°C (-7°F). KLM Catering Services see the Munters IceDry® as a primary element of their HACCP initiative for a safe and effective working environment; in short, it has been a great success.

