

Case Study:
Unilever

Increased Efficiency In Freezer Production with Munters IceDry System

Background:

In food freezer processes icing often is the cause of interruptions in production. Food products often release moisture that when coupled with the moisture in the air and cleaning process can make equipment and freezers ice up rapidly. The consequence is frequent stoppages to defrost and clean. Productivity drops as a result.

Productivity improvement and safeguarding quality are constant concerns for freezer operators. Avoiding stoppages due to defrosts and unnecessary cleaning due to ice results in significant productivity gains.

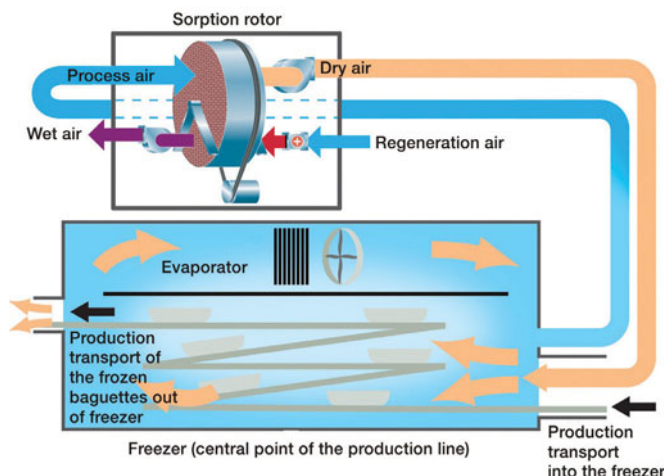
Langnese-Iglo:

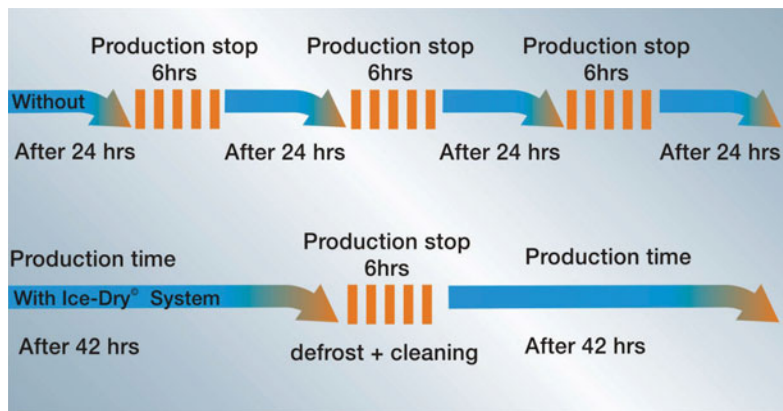
At the Technology Centre of Langnese-Iglo, part of the Unilever Group, there is a strong focus on improving and adapting existing production methods to meet new conditions. Langnese-Iglo experienced regular disruptions in one of their process freezers that was handling bread and frozen Bistro baguettes. The primary cause was attributed to uncontrolled ice build up. The baguettes are packed after being frozen to avoid toppings sticking together or sticking to the packaging material. However, the toppings consisted of various fresh ingredients that released a lot of moisture into the freezer. Additionally, the difference in pressure between the air in the freezer and surrounding air causes moist outside air to be drawn into the freezer.



Munters IceDry facts:

- Increase production capacity
- Fewer stoppages due to defrost and cleaning
- Consistent product quality and freezer temperature
- Reduced washdown and cleaning labor
- Lower investment to increase freezer capacity
- Fast payback
- Energy savings through quicker cooling after washdown





The combined effect of moisture evaporating off the product after it entered the freezer and moisture infiltrating through conveyor openings caused significant condensation and icing up of the evaporators. This in turn reduced the cooling effect of the freezer and the conveyor belt had to run slower to ensure that all the products were frozen sufficiently.

After four shifts production stopped in order to defrost and clean the freezer. “Each defrost procedure meant up to six hours production interruption and employing two staffs who have to defrost the freezer with a lot of warm water,” explained the Head of the Technology Centre.

To address their productivity issues, Langnese-Iglo evaluated installing a new freezer. This was considered too high of an investment. The production line at this facility was already around-the-clock operation so extra shifts were not an available option to increase production. The most cost effective option was to reduce stoppages and extending production “up time.” Their goal was to extract moisture from the air before it entered into the freezer and condensed on the evaporator and iced up.

By using Munters IceDry system the

freezing up of the evaporator was clearly reduced. Previously the freezer had to be defrosted and cleaned after 3-4 shifts, but now has been extended to 6-7 shifts. Not only did this represent an almost doubling in running time, but the running speed remained constant for a longer period as well.

Langnese-Iglo in Reken produces over 100,000 tons of products yearly for Unilever in Europe. Bread, cake and pastry snacks (Bistro baguette), mixed vegetables, stir-fry vegetables, ready-to-serve meals and their popular spinach originate from the freezers at this production location. The technology center is integrated into a network that links all Unilever’s European production locations so they can readily exchange practical knowledge from site to site. Therefore, an efficient solution for one location can become a recommendation for other locations.

At Langnese-Iglo they also produce high quality frozen ready meals. This process requires the frozen ingredients to be mixed exactly to the recipe being handled by the freezer. This is accomplished with electronic scales that always empty their bowls or bins when the correct weight of frozen product is reached. Often there are multiple bins and the computer selects to unload the

specific bins that will fill the package to the correct weight.

Since this production step is carried out under freezing temperatures the scales often malfunction due to ice build up. “Every time during cleaning, moisture entered the air in the room, which after only a short time formed frost and ice. Then the fine mechanism of the bowls jammed and production had to stop,” explains the Head of the Technology Centre. “In addition, the floor was icing up badly and the accident risk for staff increased. Besides regular production stoppages, the safety risk was not acceptable for us.”

A Munters IceDry system was installed above the production room to dry the room immediately after cleaning so when it was cooled to freezing temperatures no frost and ice formed since the air has a dew point lower than the evaporator temperature.

In the production plant disruptions due to new frost formation have been significantly reduced with the help of dry air. Furthermore, the safety risk for employee slips has dropped considerably due to dry floors in the facility. Finally, the IceDry system ensures that the highly precise scales at Langnese-Iglo now work in an ice-free environment providing a trouble free operation.



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