

Kraft chocolate storage with new energy efficient MCD

With almost 2000 employees, Kraft Foods Nordic is the leading Nordic supplier of chocolate, snacks, food and coffee with brands like, Marabou, Daim, Japp, Twist, Kraft and Philadelphia. At their chocolate factory north of Stockholm in Sweden, confectionery products are being produced, stored and distributed to European customers, with the automated store handling 160,000 pallets each year.

In 1984 a Munters desiccant dehumidifier was installed at Kraft's 50,000m³ automated chill store to

- * prevent condensation issues
- * avoid hygiene issues like mould, chocolate bloom
- * protect packaging against softening and
- * keep the product quality high

The climate in the store is controlled and verified daily, keeping conditions strictly at +5°C/55%RH. Under these conditions the products keep their original quality and freshness, with no product waste due to humidity experienced at all.

The most common issue when handling chocolate is "chocolate bloom", experienced by consumers as a whitish cast. This problem occurs either when sugar crystallizes on the surface because of high humidity after condensation or when the cold product is moved into warm surroundings and cocoa fat crystallizes in pure form on the surface.

Before distributing the goods from Kraft to customers, the products are moved to another store at 15°C/60% for one weeks conditioning before loading into trucks, thus preventing condensation occurring when cold products are placed into warmer trucks.



New Munters Configurable Dehumidifier

Quality Storage



Benefits

- Prevent condensation
- Avoid mould growth
- Stop chocolate bloom
- Protect packaging
- Ensure high quality
- Energy efficient storage
- Year-round protection



Munters

The Humidity Expert



Energy consumption is a key issue for Kraft, where great efforts are being made to reduce energy consumption, by 35% over 3 years. Munters 24 year old dehumidifier still worked, however after years of wear and tear the drying wheel capacity was reduced and in comparison to today's dehumidifiers the energy consumption was high.

Munters MCD replacement dehumidifier, provided energy efficiency considerably better than competitors, and was the obvious solution, with its very low energy consumption and special rotor design for optimized energy utilization.

For further energy savings an external heat exchanger was part of the solution from Munters. Competitors best solutions showed a power consumption of 1,8 kWh per kilo water removed, against the Munters MCD-units 1,43 kWh (at 84kW effect) and even as low as 1,31 kWh during periods with lower humidity loads (60kW).

The new Munters MCD 155 secures a controlled and constant climate in the store, with energy savings of minimum 32% compared to the old dehumidifier. The new MCD155 has a nominal airflow at 15,300m³/h with a max. regeneration effect of 102kW. To optimize the energy efficiency the regeneration effect has been reduced to 90kW which grants sufficient

dehumidifying capacity under most circumstances – and in periods with extreme humidity loads, the remaining 12kW can be used as a buffer. Functioning at 84kW the dehumidification capacity is 44.2kg/h at 5°C/55%RH. Thanks to MCD's incorporated modulated heater, the effect is automatically adjusted – depending on actual needs.

Jonny Hagenbjörk, responsible for construction and energy at the Kraft factory, says "To our great satisfaction Munters took care of all the details, from the difficult cut-up and removal of the old unit to completing all ductwork and power installation. That made life a lot easier for us to communicate with only

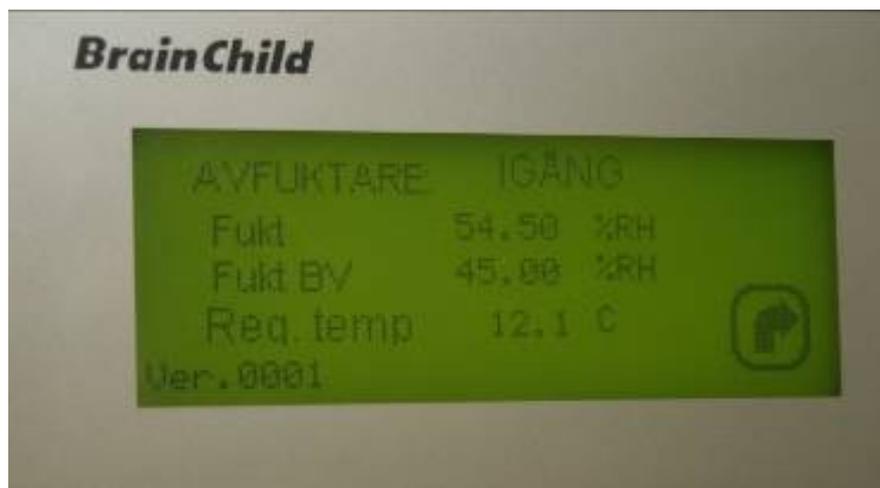
one supplier. We now look forward to taking advantage of the benefits of the MCD and feel confident that our products will be perfectly preserved, helping us meet hygienic demands, such as the HACCP regulations".

Storage of products in a chill store requires strict control of not only temperature but also relative humidity, as it is essential to avoid condensation, which effects the quality of products and potentially creates hygiene issues like mould.

The consequence of condensation can lead to expensive scrapping of products and collapsed packaging, by reducing the relative humidity with a Munters dehumidification system, the relative humidity can be constant, irregardless of outdoor deviations.

The principle of Munters desiccant dehumidifiers is very simple, moisture is absorbed onto a slowly-revolving desiccant wheel as air passes through it. The air leaving the other side of the wheel is dry. Another air-stream drives off the moisture which has collected on the drying side of the dehumidifier and discharged elsewhere.

With Munters' new generation of MCD desiccant dehumidifiers an extremely energy efficient solution offers optimum protection of stored products.



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