



## SHARED FRESH DISTRIBUTION CENTER IN THE NETHERLANDS

Replacing propylene glycol with CRANE Temper-20

An unbroken cold chain is a cornerstone of food logistics, particularly for fresh products. The Netherlands is one of Europe's largest producers of fresh fruit and vegetables, which places high demands on energy efficient and environmentally safe storage solutions.

### THE CHALLENGE

One of the main supermarket chains in the Netherlands, together with a logistics company, built a fresh pack centre covering more than 40,000 m<sup>2</sup>. For a large scale facility of this kind, the refrigeration system needed to maintain a stable air temperature between 0°C and 2°C while operating continuously.

Given the high daily handling volumes handled at the distribution centre, this represented a significant challenge. Selecting a suitable heat transfer fluid and refrigeration concept therefore became a key part of the project, with the additional requirement that the solution needed to be both efficient and sustainable.

### THE SOLUTION

Voets & Donkers took on the project and implemented an indirect refrigeration system using ammonia (NH<sub>3</sub>) as the primary refrigerant and CRANE Temper as the heat transfer fluid.

The system also included EC fans regulated by variable speed to support efficient operation.

### THE RESULT

By replacing propylene glycol with CRANE Temper-20, the facility reduces energy consumption, pipe dimensions, and long-term operational risk while meeting strict food-safety and

sustainability requirements.

Due to roof construction constraints and limited spacing between structural beams, the air coolers dimension needed to be fixed and integrated between the beams, which was not possible using MPG, as the air cooler size exceeded this limit. With CRANE Temper's excellent thermal properties the required cooling capacity was achieved and the air coolers size fitted in the construction, enabling optimized design despite restricted installation.

During the evaluation phase, CRANE Temper was selected over a traditional propylene glycol solution based on the following considerations:

- 15-20 % Lower energy consumption
- 5 % lower piping dimensions and insulation material
- Up to 2x higher heat transfer coefficient
- Suitability as a long term-solution

### INSTALLATION FACTS

**Cooling capacity:** 2.8 MW

**Storage:** Packed and unpacked fresh products

**Total surface:** 40,000 m<sup>2</sup>

**Temperature:** Between 0-2°C

**Cooling system:** CRANE Temper-20/NH<sub>3</sub> system

**Defrost system:** Indirect with using condensing heat

**Primary refrigerant:** NH<sub>3</sub> 2x95 kg

**Heat transfer fluid:** CRANE Temper-20, 100,000 L

**Liquid temperature in/out:** -7/-3°C

**Pipe structure:** Approx. 9 km stainless steel

**BREEAM Qualification:** Very good

## CRANE TEMPER - THE IDEAL CHOICE OF A HTF

CRANE Temper is an environmentally friendly heat transfer fluid designed for demanding refrigeration applications.

The ready-mixed, non-toxic organic salt solution is formulated with an effective corrosion inhibitor package and is readily biodegradable\*. With strong thermal performance, CRANE Temper is well suited for both industrial and food refrigeration.

CRANE Temper can be used in medium- and low-temperature refrigeration systems and operates efficiently in pressurized systems from  $-60^{\circ}\text{C}$  up to  $180^{\circ}\text{C}$ . The product is available in seven versions, covering temperature ranges from  $-10^{\circ}\text{C}$  to  $-60^{\circ}\text{C}$ .

*\* Readily biodegradable – OECD 301A, 100% in 28 days*

## ADVANTAGES WITH CRANE TEMPER

- Low viscosity
- High thermal conductivity
- Reduced energy cost
- Readily biodegradable
- Adapted for the food industry
- Advanced inhibitor technology
- Personalized technical support
- A permanent solution

## GENERAL PROPERTIES

**Appearance:** Colourless to pale yellowish

**Boiling point:** Approximately  $109^{\circ}\text{C}$

**pH:** 8.5-9.5



**WORLD CLASS PRODUCTS  
MADE IN SWEDEN**

## ABOUT KRAHN SPECIALTY FLUIDS

KRAHN Specialty Fluids develops and delivers specialty chemical fluids for fire protection and refrigeration applications, supporting industrial and commercial operations where efficiency, reliability and long-term performance are essential. Our solutions are designed to optimize energy efficiency, reduce operational risk and deliver stable performance over time, while also lowering environmental impact.

KRAHN Specialty Fluids is headquartered in Gothenburg, Sweden, and is part of the KRAHN Chemie Group. We supports customers globally through in-house production and technical expertise.

Our refrigeration product CRANE Temper is readily biodegradable.