

# THE AICIR 30 YEARS

1989-2019

ISSN 2058-4407

JOURNAL



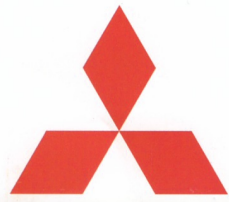
YEARS

10TH NATIONAL ACR & HEAT PUMP AWARDS

2021

Essential Information for the Air Conditioning and Refrigeration Industry

# VRF? GO HEAVY



**MITSUBISHI  
HEAVY INDUSTRIES**  
AIR CONDITIONING  
& WATER HEATING

Go HEAVY today with...



acrjournal.uk

MAYEKAWA

The Mayekawa ammonia chiller at Rea Valley Foods

# HTF with staying power

A study by Greencold and Climalife demonstrated that Friogel Neo heat transfer fluid supplied by Climalife has not deteriorated over the eight years it has been in the system at Rea Valley Foods.

## Background

Rea Valley Foods has been based in Shropshire since 1925 and specialises in the production of cooked meats for supply to the major UK retailers via delicatessen and prepack.

Rea Valley Foods has worked with Midlands-based refrigeration and air conditioning specialist Greencold for many years. Greencold is a company that oversees the design, installation and maintenance of commercial and industrial refrigeration systems and their core business is within the food-manufacturing sector.

The cooling system at Rea Valley Foods is an air-cooled, low charge ammonia glycol chiller manufactured by Mayekawa (Mycom) at its European base in Belgium. For large chill installations where the operating temperatures throughout the building are similar, Greencold prefers to specify secondary glycol-based cooling systems with a low charge ammonia primary refrigerant.

The main benefits offered are described as the relatively low risk to factory occupants of an ammonia leak, the ease of adding extra cooling to the system (additional coolers to new rooms), and the low pressure of the glycol side which minimises the risk of leaks and the low complexity of the system in general makes it easy to maintain.

## System at a glance

<b>Type of chiller:</b>	Air-cooled low charge ammonia glycol chiller
<b>Chiller manufacturer:</b>	Mayekawa (Mycom)
<b>Total cooling capacity:</b>	210 kW
<b>Glycol inlet temperature:</b>	-8°C
<b>Glycol outlet temperature:</b>	-12°C
<b>Refrigerant:</b>	R717 (120kg charge)
<b>Compressor:</b>	8-cylinder reciprocating with inverter speed control
<b>Condenser:</b>	Air-cooled; fans inverter speed controlled
<b>Evaporator:</b>	Flooded shell and tube with Danfoss ICAD expansion valves
<b>PHE:</b>	Alfa Laval gasketed with titanium plates
<b>Hot side process:</b>	25% NaCl -4°C inlet -8 °C outlet
<b>Glycol process pumps:</b>	Grundfos
<b>Brine pumps:</b>	PCM
<b>Sodium glycol tanks:</b>	Stainless steel T304 5mm thick 7200mm L x 1500mm W



Peter Dinnage of Climalife UK

In conjunction with Climalife, Greencold has performed regular sampling and analysis of the fluid in the system at Rea Valley Foods throughout the period since first installation. This has been to ensure that no contamination or deterioration can occur in any way, and that it continues to serve its intended purpose as a heat transfer fluid.

Greencold Director Simon Andrew said: "The glycol has been trouble-free since its first initial charge eight years ago. We have samples regularly checked by Climalife as part of our PPM visits to the plant and they have always come back with a clean bill of health."

Now, eight years on from its first installation, a sample of the Friogel Neo was sent to Climalife UK's Technical Service department for analysis straight from the system. The results were very positive and the glycol appeared to be identical to a new sample.

Peter Dinnage, Technical Director at Climalife, reported: "Based on the sample provided, the product appears to be in good condition and shows no change to previous samples in 2017 or 2018. It will provide freezing protection to -19°C which is consistent with a 40% MonoPropylene glycol dilution."

Climalife says its high-grade heat transfer fluids are a cost-effective refrigeration solution as a smaller amount of refrigerant is required to transfer a large amount of heat to outside the application very efficiently. Simon Andrew said: "The samples always look tremendously good



Sample A is a new product sample; Sample B the fluid after eight years in the system

**FRIOGEL NEO**

- Monopropylene Glycol
- Concentrate and ready to use HTF
- Long life organic inhibitors
- Protection against metal corrosion
- Excellent hard water stability
- Working temp range -28°C to +150°C
- Freezing point -32°C
- For low temp refrigeration systems and food industry

every time! No visible contamination or dilution. We are very pleased with the results. We take great care at the time of installation to ensure the system is clean to give longevity of the system."

Analysing the quality of heat transfer fluids that have been in a system over a period of time is recommended to maintain optimal performance. It is a service Climalife has provided for more than 20 years and is utilised by contractors to check on the efficiency and longevity of the products in their applications.

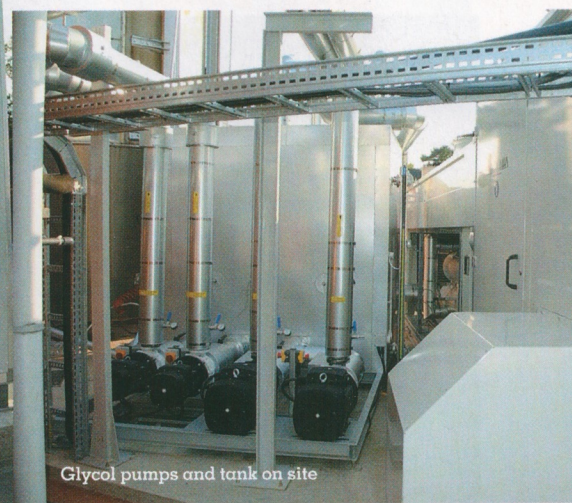
**The heat transfer fluid**

Greencold installed 6,000 litres of Friogel Neo heat transfer fluid supplied by Climalife into a system that cools Calcium Chloride Brine solutions, for immersion cooling food products in tanks, on its site in June 2011. Friogel Neo is a Monopropylene Glycol (MPG) with organic corrosion inhibitors, specially formulated by Climalife for long-lasting protection, and is commonly used on food production sites across Europe.

When choosing a heat transfer fluid, Simon Andrew of Greencold said that the company looks for "a proven track record of reliability, cost and availability" and values the "broad knowledge and experience" of Climalife, which has strengthened their "long-established working relationship".



Chiller, pumps and tank



Glycol pumps and tank on site