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Connect
THE MAGAZINE FOR AN ECO-EFFICIENT INDUSTRY

JUNE 2025

N° 26



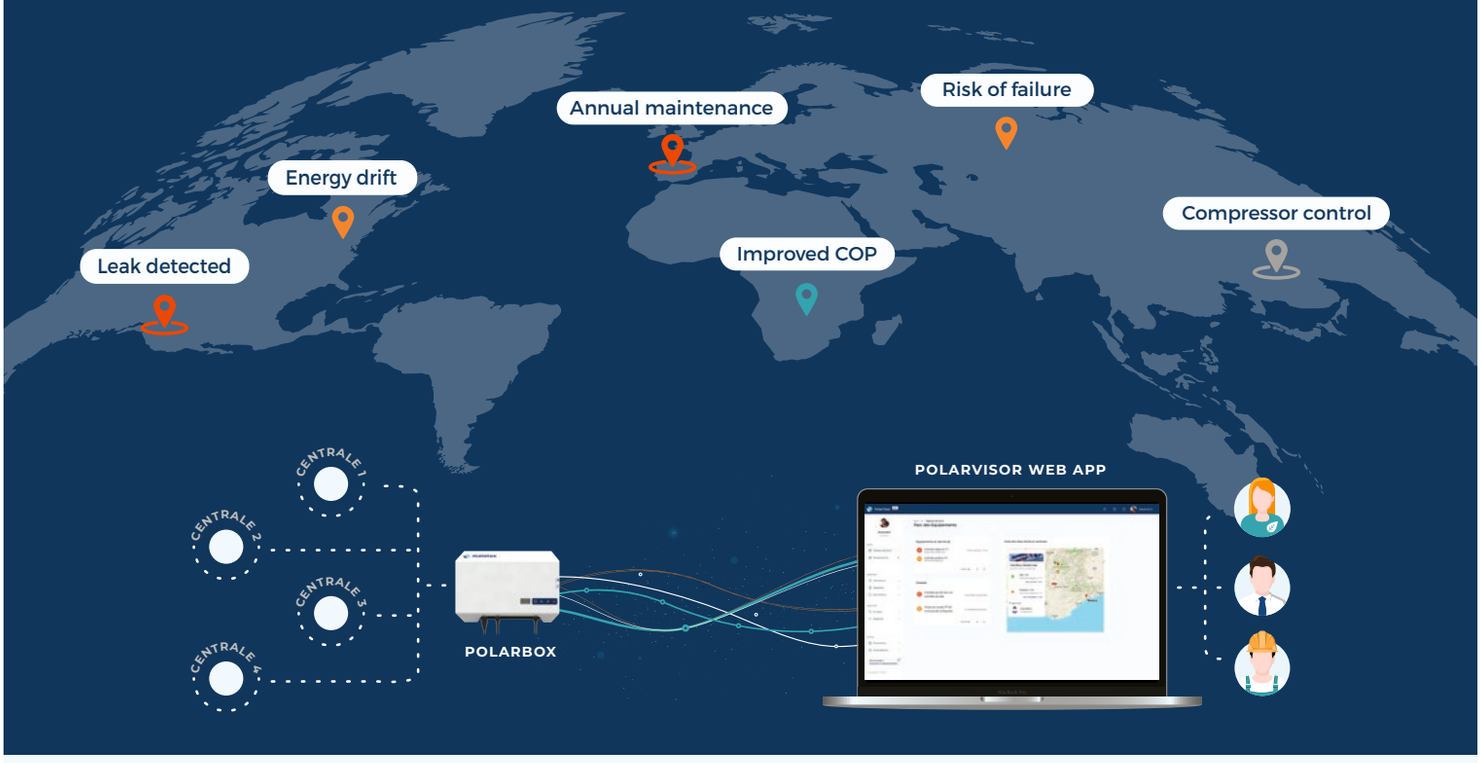
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Climalife Connect
is published by Climalife, Groupe Dehon.
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PEFC 10-31-1602 Certifié PEFC

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INNOVATION

“F-Gas III: Look no further, the solutions are here!”



Refrigeration and air-conditioning professionals are once again faced with a surge in illegal fluids, particularly on the European market. It goes without saying that the use of these products can jeopardise the safety of operators and installations. The composition of a refrigerant cannot be guaranteed unless it is checked, and it may contain flammable, toxic or contaminated substances that are not without risk to our environment.

In view of the reduction in quotas, to maintain existing installations with high GWP HFC fluids, regenerated products make it possible to reduce CO_2 emissions and guarantee the composition of the fluid and its performance in accordance with international standard AHRI 700.

For new installations, a range of solutions is available with a GWP of less than 150, covering the majority of requirements for refrigeration, air conditioning, insulation and many other applications.

Postponing deadlines is not the best option for combating global warming, the reality is there, and we are experiencing it more and more on a daily basis in the four corners of the world. The entire Climalife team is on hand to help you choose the most appropriate solution and support you in managing your projects.

In this issue, you'll find practical examples of the use of alternative products and their benefits in improving the efficiency of systems and helping end-users to decarbonise.

Happy reading! ■

Delphine Martin,
Global Marketing Manager

+ *Find us every day at climalife.com*

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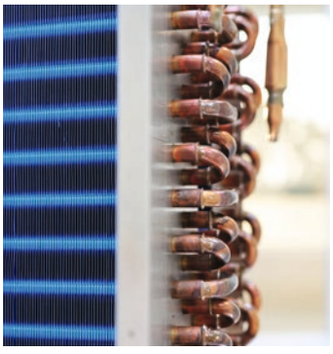
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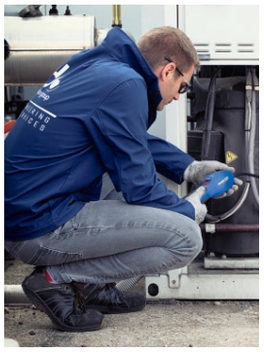
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F-Gas III: new exemptions in the EU

for the use of fluorinated gases with a GWP ≥ 150



— The Official Journal of the European Union has published European Commission Implementing Regulation (EU) 2025/33 of 13 January 2025 on derogations for certain self-contained refrigeration equipment regulated by F-Gas III.

Derogations until 30 June 2026

The conversion of certain stand-alone refrigeration equipment to refrigerants with a very low environmental impact takes time and must be carried out in such a way as to ensure that they operate safely.

As a result, a period of 18 months from 1st January 2025 to mid-2026 has been granted for the marketing of equipment running on fluorinated greenhouse gases with a GWP of 150 or more, such as: *"blast cabinets, artisanal gelato ice cream makers, ice makers, trolleys for preserving and regenerating foodstuffs, proving cabinets, slush machines and cold cream dispensers"*.

In practical terms, the marketing of equipment with a GWP ≥ 150 is authorised for:

- Blast cabinets with a full load capacity of 25 kg to 100 kg of foodstuffs;
- Artisanal gelato ice cream makers with a cooling capacity of more than 2 kW;
- Ice makers with a production capacity of between 200kg and 2,000kg per 24 hours;
- Food preservation and regeneration trolleys with a nominal input power of between 1.5 kW and 10.5 kW;
- Retarder prover cabinets with a power consumption of 1 kW to 2 kW;
- Slush machines and cold cream dispensers with a maximum refrigerated capacity of more than 3 litres.

In addition, three other derogations have previously been issued for specific applications such as:

- Blood transport boxes and blood plasma contact shock freezers - Implementing Regulation (EU) 2024/3122 from 1 January 2025 to 31 December 2026:
- Mechanical cryogenic freezers (- 150 °C) - Implementing Regulation (EU) 2024/3120 from 1 January 2025 to 31 December 2028:
- Environmental simulation, spray drying, freeze drying and centrifuges - Implementing Regulation (EU) 2024/2729 from 1 January 2025 to 31 December 2028:

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Detecting refrigerant leaks is a key factor in helping to decarbonise the HVACR industry

Today, more than 50% of the refrigerants marketed worldwide are used to compensate for losses due to leaks in thermodynamic installations.

In Europe, the F-Gas III regulation imposes strict controls on the tightness of systems to limit emissions and improve the monitoring of installations. This measure may be less stringent in non-EU countries. And yet, leak detection can drastically reduce refrigerant leaks, improve the performance of installations by reducing excess energy consumption and avoid operating losses.

Leaks also have an impact on safety, energy efficiency and the environment. Some refrigerants used in refrigeration systems are toxic, flammable or operate at very high pressure, and can present a risk to users in the event of a leak. Prolonged exposure can have chronic effects on health. It is therefore vital to detect leaks quickly in order to guarantee the safety of people working on these installations.

Refrigerant leaks also have a significant financial impact on maintenance and operating costs. They reduce the efficiency of systems, lead to higher energy consumption to maintain performance and can involve frequent recharging, which can be very costly.

Insufficient fluid in a system can also lead to partial or total stoppage of refrigeration production, resulting in malfunctions or, in the worst-case scenario, breakage.

That's why it's essential to regularly check that your installations are working properly and that they are gastight, using appropriate, high-performance solutions.



The aim is to reduce our environmental impact by limiting greenhouse gas emissions.

The higher the GWP of a refrigerant, the more it contributes to global warming.

When they are not accidental, the main cause of leaks is the poor condition of installations caused by vibration, worn components, ageing seals, or variations in temperature and pressure.

European regulations

To reduce environmental impact, F-Gas III, which came into force on 11 March 2024, has strengthened the requirements for checking the tightness of installations, particularly in terms of the frequency of checks.

According to the regulations, all equipment with a charge of 5 t CO_2 eq or more of HFCs and HFC/HFO blends or 1 kg of HFOs must undergo a leak test.

In addition, all equipment with a charge of HFCs or HFC/HFO blends equal to or greater than 500 t CO_2 eq., as well as equipment containing 100 kg or more of HFOs, must be fitted with a stationary detector (indirect measurement system in France).

Leak detection systems should be checked at least once every 12 months.

Alongside F-Gas III, European standard EN378 defines measures to guarantee personal safety. It specifies that machine rooms must be equipped with detectors to guarantee the safety of the occupants. For explosive or dangerous gases, one of the measures sets the detection threshold at less than 20% of the lower flammable limit, and ammonia detectors must activate ventilation, an alarm and disconnect the external power supply.

Type of gas	Equipment charge	Frequency of leakage checks	
		Without fixed leak detection system	With fixed leak detection system
HFCs & HFC / HFO blends	5 t. CO_2 eq. ⩽ charge < 50 t. CO_2 eq.[1]	12 months	24 months
	50 t. CO_2 eq. ⩽ charge < 500 t. CO_2 eq.	6 months	12 months
SF_6 & g^3	Charge ⩾ 500 t. CO_2 eq.	3 months [2]	6 months Indirect leak detection system [2]
HFO	1 kg ⩽ charge < 10 kg [1]	12 months	24 months
	10 kg ⩽ charge < 100 kg	6 months	12 months
	Charge ⩾ 100 kg	3 months [2]	6 months Indirect leak detection system [2]

[1] Except for:
- hermetically sealed equipment < 10 t. CO_2 eq. or < 3 kg installed in residential buildings.
- will apply from 12 March 2027 for refrigeration units in refrigerated light commercial vehicles, intermodal containers, refrigerated containers and refrigerated wagons, air conditioning and heat pumps in heavy commercial vehicles, vans, non-road mobile machinery used in agriculture, mining and construction, trains, metros, trams and aircraft.

[2] In France, there is an exemption in cases where it is impossible to install an indirect leak detection system and where an ambient controller, which would then be compulsory, would not be suitable (e.g. roof top) and except for mobile equipment (e.g. refrigerated trailer).





Leak detection solutions

Several types of equipment are available on the market today for leak detection or gas detection: portable, fixed and indirect measurement.

• **Portable detectors** are used to locate the leak zone and give an audible and/or visual alarm. They must be selected according to the type of refrigerant to be detected (HFC/HFO, A2L, hydrocarbons...) and comply with standard EN14624. Before each use, we recommend checking that the detector is working properly, with a calibrated leak of ≈5g/year at 20°C using the Mini-Check, for example.

• **Bubble detection** by spraying the product directly onto the suspected area can confirm and pinpoint the source of the leak.

• **Room controllers**, known as **fixed detectors**, are fitted with pre-calibrated sensors and can be connected to centralised control systems via Modbus links.

When a leak is detected, they can activate relays to control safety devices (alarm, ventilation, solenoid valve). The selection and positioning of sensors (also known as probes) is crucial, depending on the type of fluid, accessibility and air flows. They can be selected with an integrated or remote sensor that can be positioned in the areas to be monitored.

• **Detection by indirect measurement** uses IoT solutions. This is a leak detection system that triggers an alarm for leaks ≤ 50g/h or ≤10% of the volume of fluid contained in the installation, imposed in particular by French regulations for large-capacity equipment or charge sizes in excess of 500 t CO_2 eq. This technology enables installations to be monitored and alerts to any anomalies, thereby helping to reduce leaks and improve energy efficiency.

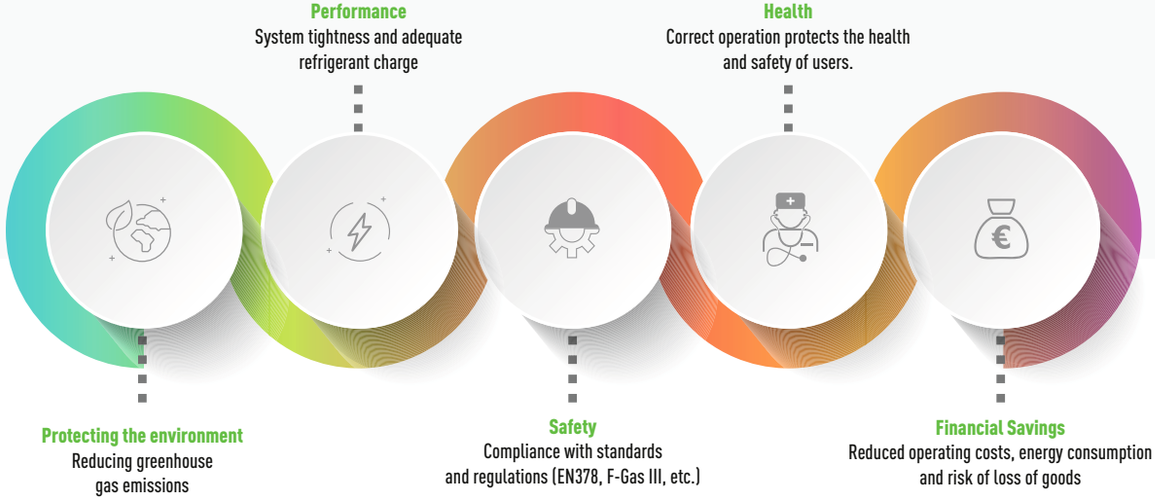
The detection of refrigerant leaks must be a priority for the HVACR sector, whatever the installation charge. Technological advances offer effective, preventive solutions for reducing losses, improving plant performance and protecting the environment and human safety.

Climalife offers all the solutions available on the market and can help you set up your leak detection method. ■

Discover all our solutions at climalife.com

FOR MORE INFORMATION
■ climalife.com/why-implement-a-leak-detection-system

Benefits of leak detection



The Intermarché Express in Fréjus choses Solstice® L40X, the ideal solution for controlling costs and optimising energy efficiency

Under the expert guidance of Frigevar, R-455A condensing units were installed to remodel the medium temperature refrigeration system in this local store.





The takeover of Casino shops by Intermarché has made headlines in recent years, particularly in France. Against this background, the Casino supermarket in Port Fréjus, located near the beach in an increasingly residential area, has become an Intermarché Express.

In May 2024, Denis Phan-Van bought the 1,200 m² store and had plans to develop it over the coming months to become the go-to place in this catchment area, for fresh produce, where convenience stores are few and far between. *"My aim is to generate 60% of my turnover from fresh produce by increasing the number of sales lines in a way that can be adjusted according to the season"*, says the manager of this new Intermarché.

He introduced the "FabMag" concept from the Les Mousquetaires brand, while retaining a butcher's shop. With a prominent Place des Saveurs, giving pride of place to fresh produce at the supermarket entrance, the introduction of this concept required a complete overhaul of the shop layout and, as a result, the refrigeration systems, particularly those using R-404A, which were outdated, leaking and soon to become obsolete under the F-Gas III regulations.

Last autumn, the manager of the Intermarché, who already owned a unit in Saint Raphaël, consulted his long-standing partner Frigevar about the refrigeration systems available on the market that would meet his needs and stay within his budget.

"For hypermarkets, the trend is towards CO_2, but for stores of this size, refrigeration represents a significant financial outlay and this option is no longer within our budget," explains Denis Phan-Van.

Installer Frigevar recommends R-455A

Informed and supported by Yohann Tabaszewski, Key Account Manager at Climalife, Sébastien Aviat, Managing Partner of Frigevar, prefers low-pressure A2L refrigerants, that all refrigeration technicians are familiar with and can work with safely. With a GWP of less than 150, R-455A is a long-term solution that complies with regulatory requirements, is efficient, environmentally friendly and easy to install.

What's more, the financial investment for R-455A installations remains lower, making it possible to meet specifications while optimising the energy efficiency of refrigeration installations (see eco-efficiency simulation).

After a theoretical study of the authorised charge carried out by Pierre-Emmanuel Danet, Technical Support Manager at Climalife, Sébastien Aviat presented this alternative to Denis Phan-Van and assured him of the safety aspect of this mildly flammable refrigerant. *"I had never heard of this gas before, it was a first for me, but I took the plunge thanks to the sound advice of everyone involved in the project,"* explains the new owner of the Intermarché Express.

After consulting various component suppliers, Sébastien Aviat opted for custom-made units manufactured by Le Froid Pecomark in Spain and chose to work with Arneg, the international leader in the design and manufacture of refrigerated cabinets, approved for A2L refrigerants. At the end of December, the project was signed off and the parties involved began planning the renovation of the supermarket, bearing in mind that the store would have to remain open throughout the works. This was a major challenge for Frigevar's technicians.

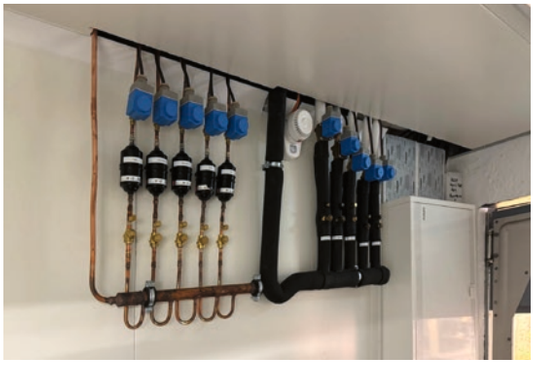


Sébastien Aviat Aviat, Director of Frigevar and on his right **Denis Phan-Van**, owner of the Intermarché Express store.

Optimised energy efficiency for medium temperature refrigeration

The main installation, located outside the building, consists of two Silent Twin condensing units, enclosed and soundproofed, each equipped with two semi-hermetic Bitzer compressors, one of which can vary power from 10 to 100%, for a cooling capacity of 33 kW at -10°C. This configuration provides redundancy for safety reasons and to meet the future needs of the store. Each unit is charged with 40 kg of R-455A.

The first unit mainly supplies the five 100 m² cold rooms dedicated to the butcher's department for storing carcasses, finished products, the meat cutting room, the display of aged meats, and tallow and waste, as well as some open units and part of the vertical units. In the event of leaks, the cold rooms are equipped with an audible alarm controlling a double solenoid valve system for each Friga Bohn evaporator.



The other vertical units, Aveyron-style units and traditional display cabinets are managed by the second condensing unit.



It was easy to get up and running, even though this was the first time Frigevar technicians had worked with R-455A. The choice of Solstice® L40X means that the future can be approached with confidence, reducing total cost of ownership by more than 20% and environmental impact by almost 15%. It is the perfect solution for small and medium-sized retail outlets.

"Since the significant reduction in quotas, the market has been in turmoil, even though A2L refrigerants have been available for some time and are widely used in many applications," concludes Sébastien Aviat, CEO of Frigevar.

Please note: some old refrigeration equipment was retained to reduce costs, such as the low temperature cold room for the bakery as well as three cold rooms in the storeroom used for storing fresh produce, fruit and vegetables and the delivery airlock. The same goes for the air conditioning: the two Daikin R-410A VRVs were retained, with only the extraction vents moved above the new units installed in the sales area. ■



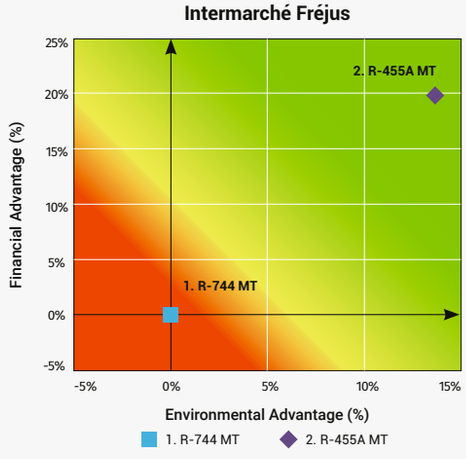
PROJECT STAKEHOLDERS

- **FRIGEVAR:** Expert in customised energy solutions for commercial refrigeration, air conditioning and photovoltaics
- **Location:** La Seyne-sur-Mer, France
- **Year founded:** 2008
- 47 employees
- Turnover: €7.5 million
- **Website:** frigevar.fr

- **Intermarché Express**
- **Location:** Fréjus, France
- More than 20 employees
- Turnover: €12 million



From left to right: **Sébastien Aviat**, **Yohann Tabaszewski** (Key Account Manager at Climalife), **Nicolas Soudre** (Le Froid Pecomark), **Norbert Kathapermall** and members of the Frigevar team who took part in the installation.



Eco-efficiency simulation for the main R-455A system compared to a CO_2 system

✓ **The eco-efficiency simulation is carried out for :**

- a 15 year system lifetime
- an estimated leakage rate of 20% for a R-744 installation
- an estimated leakage rate of 10% for a R-455A installation

FOR MORE INFORMATION

■ climalife.com/product/r-455a-solstice-l40x/

Environmental impact (CO_2 emissions)			
	Direct effect	Indirect effect	Total
R-744 (MT) Transcritical	0.4 t CO_2 eq.	333 t CO_2 eq.	333.4 t CO_2 eq.
R-455A (MT)	20 t CO_2 eq.	268 t CO_2 eq.	288 CO_2 eq.

Financial impact					
	CAPEX	Electricity consumption	Maintenance	Fluids	Total cost of ownership
R-744 (MT) Transcritical	€214,286	€416,201	€91,050	€6,600	€728,137
R-455A (MT)	€150,000	€334,944	€90,000	€9,450	€584,394

Kronenbourg Obernai, France's largest brewery, converts its plant to Friogel® Neo

A major operation to replace over 500t of MEG carried out by Matal and the Climalife services team.





One in four beers consumed in France is produced in Obernai, at the Kronenbourg Brewery, which employs over 600 people. Founded in 1664, Brasseries Kronenbourg became part of the Carlsberg group in 2008. The group has put in place a policy to reduce its carbon footprint, cutting its CO_2 emissions by 21% in three years by working on packaging, transport, water management and creating a responsible barley supply chain. Their catalogue includes over 30 brands and a growing number of alcohol-free products.

Refrigeration is a key factor in the production process. During the brewing process, after boiling, the mixture known as 'wort' is cooled to between 70 and 100°C. Fermentation then takes place, with yeast kept at a controlled temperature to control the process (taste, bitterness, alcohol content). At the end of fermentation, the cold is also used to sediment the yeast at the bottom of the tanks and facilitate the filtration process. Finally, the beer is transferred to a storage tank and kept at 2°C until bottling.

Safety first

As part of a Group policy to improve the safety of facilities and people, Carlsberg decided to convert all its breweries worldwide to non-toxic solutions by the end of 2024.

The objective was therefore to replace the MEG of the existing installation in one go during the seven days of annual maintenance shutdown, with four additional days, and not to exceed a residual MEG rate of 1%. This was a huge decision for the Obernai plant, for a number of reasons, including the size of the network, consisting of a single circuit, and the hundred or so people mobilised for the operation over 11 days. At the same time, despite the production stoppage, Trane chillers were hired to maintain the yeast at a controlled temperature.

The technical study was then entrusted to the Matal agency based in Strasbourg, a historic region for beer production, with agency manager Emmanuel Keck, who is very familiar with brewery environments.

The analysis of around 600 hours of engineering work focused on the choice of coolant, the compatibility of valves and pumps with a new solution, and an estimate of the adaptations required for optimal operation.

Friogel® Neo: the perfect solution

The plant dates back to the 1960s, and several extensions have been added over the years. It has over 14 km of steel piping. It was important to choose a compatible solution carefully, so as not to cause detachment of corrosion particles and to prevent clogging of filters and exchangers. Several formulations were compared: salt-based, ethanol-based, bio-sourced 1,3-propanediol (Greenway® Neo N), and MPG-based with Friogel® Neo.

The latter was chosen because Friogel® Neo guaranteed miscibility, safety and better thermal conductivity at a lower concentration, thus compensating for the difference in viscosity between MEG and MPG and not consuming more energy for pumping.

Brasseries Kronenbourg chooses Climalife for turnkey service

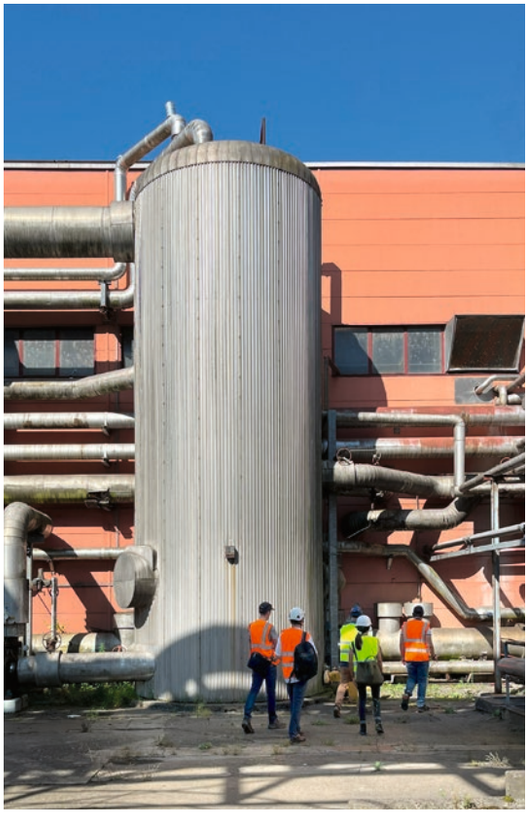
Thanks to its two manufacturing plants and its logistics organisation, Climalife was able to supply the necessary quantities, as well as the human and material resources to recover and process the used product and refill it within the given timeframe.

After a preliminary inspection of the site and preparation of a prevention plan, the project was divided into several phases. A zone-by-zone organisation was defined to manage the automatic valves and the 500 purge points, a hundred of which were created specifically for the operation. The brewery made some of its staff available for the site, in order to retain control of the service, develop their team's know-how and enable them to enhance their skills.

The Climalife and Brasseries Kronenbourg teams drained over 450 tonnes of the MEG network, which was transferred to temporary storage facilities rented for the occasion, for reprocessing at the Climalife plants.



Installation	
6 Screw compressors	MYCOM - 10850 kW/h
Ammonia fluid charge	8 t
MPG heat transfer load	520 t Friogel® Neo -13°C
Heat exchangers	Schmitt and APV
Pumps	KSB with variable speed drives
New storage tank	+/- 250 t
Atmospheric pumped network, with part of the returns in gravity, continuous distribution 600 to 1400 m³ /h depending on demand.	
Heat recovery from the brewing process.	



Mr Christmann, Brasseries Kronenbourg Project Manager, ***"particularly appreciated the Climalife team's involvement on site and the coordination between commercial and technical contacts".***

The rinsing operation was then carried out by Brasseries Kronenbourg's technical services, along with tank cleaning and pipe repairs where necessary. For filling, 20 tankers were made available to deliver the 750 t of Friogel® Neo in bulk and store it before introducing it into the network.

The mission was successfully accomplished for this unusual transition in a short space of time. Climalife's GPC analysis quantified the residual percentage of MEG in the system at 0.2%. *"And, no pumps, no piping, no plates in the exchangers were replaced. There were no changes to the recipe, and fermentation and production times are identical. It's almost a drop-in,"* concludes Emmanuel Keck. Alain Christmann, Brasseries Kronenbourg Project Manager, also notes a slight reduction in energy consumption thanks to the improvements made. ■

Implementation of the service	
Human resources	4 Climalife technicians on site
Duration	11 days
Technical resources	4 transfer pumps 150 m of discharge hoses 100 m hose for draining drips All sizes of fittings



PROJECT STAKEHOLDERS

- **MATAL - SYCLEF Group:** Specialist in industrial refrigeration, heating and sustainable energy solutions.
- **Location:** Strasbourg branch, France
- **Year founded:** 1938
- 250 employees
- CA: €70 million by 2024
- **Website:** matal.fr

- **Brasseries Kronenbourg**
- **Location:** Obernai, France
- 1,000 employees in France
- CA: €930 million by 2022
- **Website:** Kronenbourg.com



FOR MORE INFORMATION

■ climalife.com/product/friogel-neo-ready-to-use



R-455A innovation in refrigeration:
Tecnifrío promotes sustainability in Seville

Solstice® L40X, an effective and sustainable solution to guarantee the quality and preservation of prepared foods.

Herba Ricemills is part of the Ebro Foods group, one of the leading manufacturers of customer-branded ready meals distributed mainly in Spain to meet the needs of today's consumers. This fast-food model continues to grow, so Herba Ricemills decided to expand its product offering. As part of its expansion plan, the company needed to increase its refrigerated storage capacity to store all its foodstuffs in optimum conditions before distribution. This challenge required a reliable, safe and efficient cooling system to handle large volumes of temperature-controlled (low and medium temperature) products.



Herba Ricemills sought advice from its trusted installer, Tecnifrío, with clearly defined objectives in terms of energy efficiency, sustainability and technology for the construction of four new cold rooms: two for deep freezing, one for medium-temperature and one cold room capable of operating low and medium temperature modes, depending on production and logistics flows. The project had to comply with new regulatory and environmental requirements and enable the optimisation of investment costs (CapEx) and operating costs (OpEx).

R-455A, the chosen solution

Tecnifrío, a company specialising in industrial refrigeration, in collaboration with PECOMARK, an equipment manufacturer and distributor, opted for a system using R-455A (Solstice® L40X), an A2L refrigerant with a very low GWP (146), which was ideal for this application and met all the specification criteria.

"We presented several options, including CO_2. The customer ultimately opted for R-455A because of the balance between initial investment, tax reduction and future viability,"* explains Roque Jiménez (project manager at Tecnifrío).

**IGEFI tax on fluorinated fluids in Spain.*

From left to right: Rafael Aznar (Technical Department, Tecnifrio), **Javier Carmona** (Pecomark), **Julián Montero** (Technical Department, Tecnifrio), **Pascual López** (Climalife), **Roque Jiménez** (Sales Department, Tecnifrio), **Jorge Infantes** (Pecomark).



Simple and efficient implementation

The Silent Pack developed by Pecomark was chosen, these enclosed and silent condensing units incorporate Bitzer compressors designed for A2L fluids. These units are equipped with a liquid receiver with safety valve, an electrical control panel with regulator for controlling EC-type air fans, an accumulator, an oil separator and HP/BP pressure switches.

Advanced safety measures were also installed in the four cold rooms, with non-return valves, remote management and leak detection systems that meet the requirements of EN378 and the RSIF**. *"Installing R-455A was easier than we thought, and the result is very satisfactory,"* says Rafael Aznar from Tecnifrío's technical department.

The solution chosen will improve the plant's operational efficiency, with a significant reduction in energy consumption costs and no tax on high GWP gases. ■

***RSIF: Spanish Safety Regulations for Refrigeration Installations.*



Description of the installation:

- **Total cooling capacity:** 166 kW.
- **Room configuration:**
  - 2 cold rooms for frozen products: 13.7 x 5.3 x 8 m each.
  - 1 cold room for storing refrigerated food: 8.6 x 5.3 x 8 m.
  - 1 double-temperature cold room: 8.6 x 5.3 x 8 m.
  - 1 refrigerated loading bay.
  - 1 refrigerated corridor.
- **"Silent Pack" outdoor units with Bitzer compressors.**
- **Eliwell A2L leak detectors.**
- **Refrigerant: R-455A, total charge 260 kg.**
- **Operating conditions:**
  - Evaporation temperature for frozen food: -26 °C.
  - Evaporation temperature for refrigerated goods: -6 °C.
  - Evaporation temperature for corridor and loading bay: +0 °C.
  - Condensing temperature: +45 °C.



PROJECT STAKEHOLDERS

• Herba Ricemills S.LU: food production.

• Location: Seville, Spain

• Year founded: 1968

Tecnifrío: refrigeration specialist.

• Location: Seville, Spain

• Year founded: 1980

Pecomark: equipment manufacturer and distributor.

• Location: Seville, Spain

• Year founded: 1961



FOR MORE INFORMATION

■ climalife.com/product/r-455a-solstice-l40x

Modernising chillers: a plastics manufacturer chooses the Greenway® Neo N to eliminate fossil-based products

Aware of the urgent need to replace its obsolete refrigeration installations, the manufacturer was looking for a solution that would improve operational efficiency while meeting its sustainable development objectives.

In a sector where performance and efficiency are critical, it is essential to upgrade outdated equipment to ensure high quality production.

A major UK-based manufacturer specialising in the production of plastic bottles and tubes turned to Pitkin & Ruddock, refrigeration experts with over 70 years' experience in the installation and maintenance of systems and temperature control.

Ross Richardson, Technical Sales and Projects Engineer and Danny Gell, Branch Director, both of Pitkin & Ruddock, recommended new chillers with a more environmentally friendly heat transfer fluid to help the plastics manufacturer meet its sustainability targets.

The project was launched to upgrade the refrigeration systems responsible for supplying a continuous flow of chilled water, essential for cooling the production moulds and solidifying plastic tubes and bottles. The system was designed with separate heat transfer fluid and water circuits.

In this context, the liquid coolers are located at the point where the plastic moulding takes place, with water loops integrated into the cooling process. The efficient operation and integration of these systems were essential to the success of the project.

Many challenges to overcome on this project

The first was to replace the outdated chillers and coordinate their phased removal, while installing the new ones with minimum disruption to the continuous flow of chilled water.

The second was to find space for the new chillers, which had to be strategically placed close to the production lines to reduce the distance to the chilled water network for greater operational efficiency.

The third and equally important challenge was to minimise downtime during the transition to ensure the plastic moulding process, vital to production, remained uninterrupted.

Pitkin & Ruddock then developed a phased approach to removing the old chillers and installing the new ones to ensure continuity of operations.

The final challenge was to choose the right heat transfer fluid. Rob Attawia, Regional Sales Manager at Climalife, and Neil Roberts, Technical Sales Director, recommend Greenway® Neo N, a safe and sustainable heat transfer fluid that met the end customer's expectations. After studying the technical properties, Pitkin & Ruddock decided to innovate and select this solution formulated and produced by Climalife.

Greenway® Neo N based on 1,3-propanediol is bio-sourced. This renewable raw material offers a natural, reliable and efficient alternative to monopropylene glycol (MPG) from the petrochemical industry. Its production reduces CO_2 emissions by 84% compared with MPG and consumes 70% less non-renewable energy. The Greenway® Neo N safety data sheet has no pictograms, a significant advantage to consider when selecting a product for the safety of operators and equipment.

2000 litres of Greenway® Neo N was loaded into the system

Pitkin & Ruddock trusted the expert advise of the Climalife team for their first installation and the processes went very smoothly.

To replace the old units, dry coolers from Kelvion were selected to meet both operational requirements and the customer's sustainability goals. Three Daikin liquid chillers were also installed and charged with 57 kg of R-32.



Since their introduction, the new chillers have offered a number of quantifiable benefits, improving operational efficiency and profitability for the plastics manufacturer. With better temperature control enabling more precise adjustments, product quality is improved. The advanced technology of the new chillers also means greater energy efficiency, with reduced energy consumption and an expected return on investment of three years. What's more, these new chillers require less maintenance, freeing up valuable time and resources, and their longer lifespan also helps to reduce costs and promote more sustainable practices.

Building on this success, the manufacturer has decided to implement similar upgrades at another production site, further confirming the choice of Greenway® Neo N. ■



"We are pleased to report that the upgraded chillers in the end user's facility have significantly improved energy efficiency and operational performance. Greenway® Neo N has proven to be the best choice for this project," said Ross Richardson.





From left to right: Ross Richardson, Technical Sales Engineer and Project Engineer and **Danny Gell,** Branch Director both from Pitkin & Ruddock.

Installation design:

- ✓ **Chillers (liquid coolers):**
  - 3x Daikin EWAT430B-XLB200
- ✓ **Refrigerant:**
  - R-32 – 57 kg charge
- ✓ **Cooling capacity:**
  - 430 kW with Greenway® Neo N at 7°C
- ✓ **Dry Cooler model:**
  - Kelvion LV-LA208T5X-091R885
  - Power: 950 kW



PROJECT STAKEHOLDERS

- **Pitkin & Ruddock:** Supplier of complete installation, service and planned maintenance solutions for refrigeration and air conditioning.
- **Location:** Lowestoft, England
- **Year founded:** 1959
- **Website:** pitkin-ruddock.co.uk



FOR MORE INFORMATION

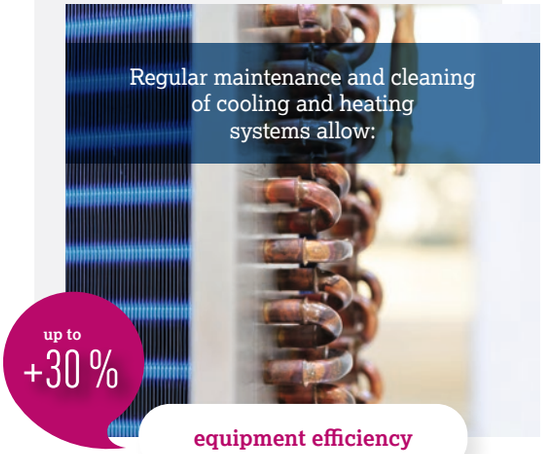
climalife.com/product/greenway-neo-n-ready-to-use

Frionett® Power Ultra, the universal cleaner for professional use

Designed for evaporators, condensers and fans, Frionett® Power Ultra is a powerful degreasing detergent for professional cleaning of refrigeration and air conditioning systems.

Equipment maintenance is essential for a number of reasons:

- **Easy to use:** eliminating dust, grease and other dirt from equipment.
- **Improved performance:** optimisation of heat exchange, reduction in maintenance costs, increased service life of the installation.
- **Energy efficiency:** clogged systems consume more energy.







Frionett® Power Ultra is available in concentrated form for dilution (5 litre can) or ready-to-use (750 ml spray bottle).

The benefits of Frionett® Power Ultra:

- **Fast-cleaning:** acts in 5 minutes.
- **Easy to rinse with clean water:** alkaline product.
- **Ultra-cleaning:** powerful cleaning and grease-removal.
- **Versatile:** can be used on all surfaces.

TO FIND OUT MORE
climalife.com/product/frionett-power-ultra

Inerting: discover Pyrostop blends based on C_4F_7N

Climalife offers **a long-term alternative** to SF_6, the Pyrostop range of C4FN blends (trimix composed of CO_2, O_2 and C_4F_7N).

- Specifically designed for high-voltage equipment on electricity networks: circuit-breakers, insulated lines and substations, current transformers, etc.
- Significant reduction in greenhouse gas emissions (GWP of 500 compared with 24300 for SF_6).
- Pyrostop blends are available in B50 bottles.

99% **Reduced impact on global warming compared with SF_6**





Climalife can help you with your specific projects and operations. Our engineering team can design and manufacture machines for recovery and evacuation. Our technicians provide regulatory maintenance for your installations (leak testing, storage requalification) and on-site recovery. Our SF_6 regeneration service recovers used fluid and recycles it according to analysis results.

Using reclaimed refrigerants:
an essential way to comply with F-Gas legislation

F-Gas regulations aim to reduce fluorinated gas emissions to protect the environment. It requires a reduction in the quantities of refrigerants placed on the market in t. CO_2 Eq. So how can we ensure the long-term maintenance of installations operating with high or medium GWP refrigerants?

Reclamation is the answer to this challenge: reducing emissions while ensuring the long-term viability of existing systems by recovering waste.

What is the difference between recycling and reclamation?

Recycling: reuse of a refrigerant recovered following a basic cleaning operation.

Reclamation: reprocessing of a refrigerant to achieve performance equivalent to that of a virgin substance, taking into account its intended use.

Please note:
Recycling does not reveal the quality or composition of the refrigerant. The operator assumes full legal responsibility for the product introduced into the installation and the traceability of the refrigerant.

The benefits of reclamation:

- **Guaranteed composition and performance of the reclaimed refrigerant** (certificate of conformity).
- **Labelling in compliance with regulations**.
- **Reclaimed fluids:** not subject to F-Gas quotas.
- **Safety:** analysis and processing in accordance with quality and safety standards.
- **Cost reduction:** extended life of existing installations.

How can reclamation be simplified?

1. Select appropriate recovery cylinders.
2. Do not mix different refrigerants in one cylinder.
3. Return the cylinder and tracking documents to an approved treatment centre.

What are the benefits of custom reclamation?

The product you entrust to us is reclaimed, packaged and if required, stored at our sites on your behalf.

Cycle for the reclamation / destruction of recovered refrigerant



*Gas Chromatography analysis.

The Climalife advantage: a pioneer in the recovery and reclamation of fluorinated greenhouse gases, the circular economy concept is at the very heart of our brand. Climalife is stepping up its commitment to an eco-efficient industry by helping its customers choose solutions that have an ever-lower impact on our ecosystem.

Events

Climalife looks forward to seeing you at some of the key industry events.
Mark your calendars!



30 June 2025
Design offices, the new generation of tools for commercial refrigeration
Webinar from 9:30 am to 10:30 am

Climalife experts, in partnership with Honeywell, will present a comprehensive toolkit for optimising the energy efficiency of installations by comparing different technological architectures that combine safety, reduced power consumption and regulatory compliance.

Replay available at climalife.com

installer SHOW 24-26 June 25 NEC Birmingham

From 24 to 26 June
Installer Show
NEC, Birmingham - UK

The UK's unmissable event! 30,000 installers, specifiers and decision-makers from the heat, water, air and energy sectors gather to discover the latest innovations.

Our technical experts will be on **stand 5G46** sharing low environmental impact solutions to help decarbonise industries, such as very low GWP refrigerants, bio-sourced heat transfer fluids, SAMON leak detectors, and more

Information and registration:
www.installershow.com

MAGYAR ÉPÜLETGÉPÉSZEK SZÖVETSÉGE

17 September 2025
MEGSZ – 13th Renewable energy trade day
Lurdy House - Budapest, Hungary

The Climalife team will be at this event, organised by the Hungarian Association of Building Engineers, to discuss your needs at our stand and find the right solutions for your decarbonisation projects.

Join us for our technical conference on ***"Life cycle analysis of Greenway® Neo N"***.

Information and registration:
https://megujulo.megsz.hu

SIFA

29 September, 1 and 2 October
Interprofessional trade fair for refrigeration and its applications
Portes de Versailles - Paris, France

Climalife and its partners Honeywell, ExxonMobil and Matelex will welcome you at SIFA **Hall 5.2 Stand D22** to discuss the latest market trends.

The conference programme is available at climalife.com

Information and registration:
www.expo-sifa.com/fr

INSIDE News





Climalife begins operations at its Péage de Roussillon site

Destined to become Europe's centre of excellence for the circular economy, our new production site on the Osiris platform in Isère in the Auvergne-Rhône-Alpes region of France laid its foundation stone in January. The first installations are now in place.

Pierre Antonetti, who holds a doctorate in chemistry, joined the Dehon Group 25 years ago. After starting his career as quality, safety and environment manager at the Bry-sur-Marne site, he quickly took over responsibility for the laboratories and then became manager of the Saint Priest plant, followed by the Pierrelatte one. On the strength of his extensive experience in industrial environments classified as SEVESO, Pierre agreed to take on a new challenge and lead this new innovative project, which is vital if we are to meet the challenges of climate change and sustainability. The first stage, carried out by the Dehon Group's engineering team, was to renovate the buildings within a given timeframe and adapt them to the needs of the future, while implementing the first processes.

Today, the unit designed to recover fluorinated greenhouse gases contained in pharmaceutical aerosol cartridges is fully operational, as is the filling station for C4-FN-based mixtures, alternatives to SF_6 for transformers, switches and electrical circuit breakers. Most recently, the refrigerant regeneration business, previously based at Bry-sur-Marne, has been transferred to Péage de Roussillon, where it has been modernised and adapted to handle the new A2L fluids.

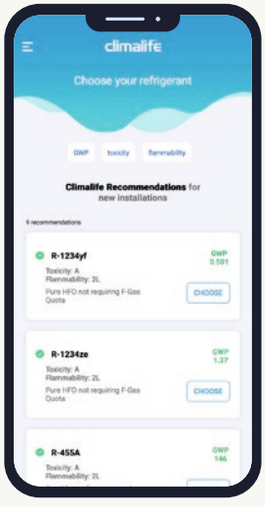
Our aim is to bring together all our treatment technologies, increase waste recovery and accelerate our transition to a circular economy.

A2L Fluids: a2l.climalife.com how to approach using them?

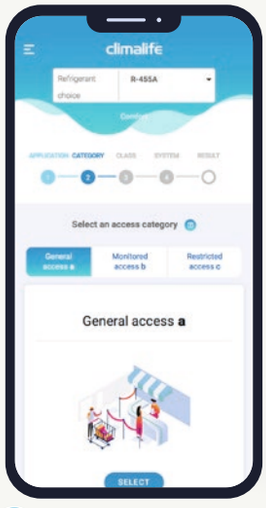
In view of the reduction in EU quotas linked to F-Gas III, it is important to move very quickly to ultra-low GWP refrigerants to meet market needs. Many of these long-term solutions are mildly flammable and classified as A2L. These easy-to-apply refrigerants optimise the energy efficiency of systems and can be used safely in compliance with EN 378.

***Go to a2l.climalife.com** and in just a few clicks*
***calculate the maximum authorised charge** in accordance with EN 378.*

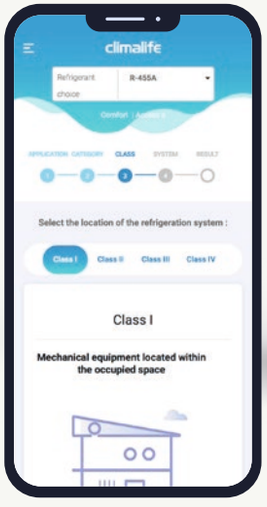
Steps to follow to define the charge:



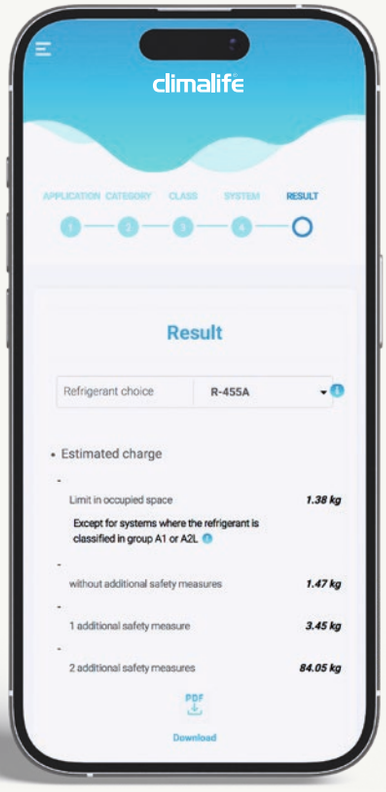
1 Refrigerant selection
The maximum load is determined on the basis of the refrigerant's LFL



2 Access category
Access a, b & c



3 Location of cooling system
Class I, II, III & IV



4 Result

The charge can be increased by taking 1 or 2 additional safety measures

- ✓ Leak detection
- ✓ Ventilation
- ✓ Safety shut-off valves
- ✓ Alarms

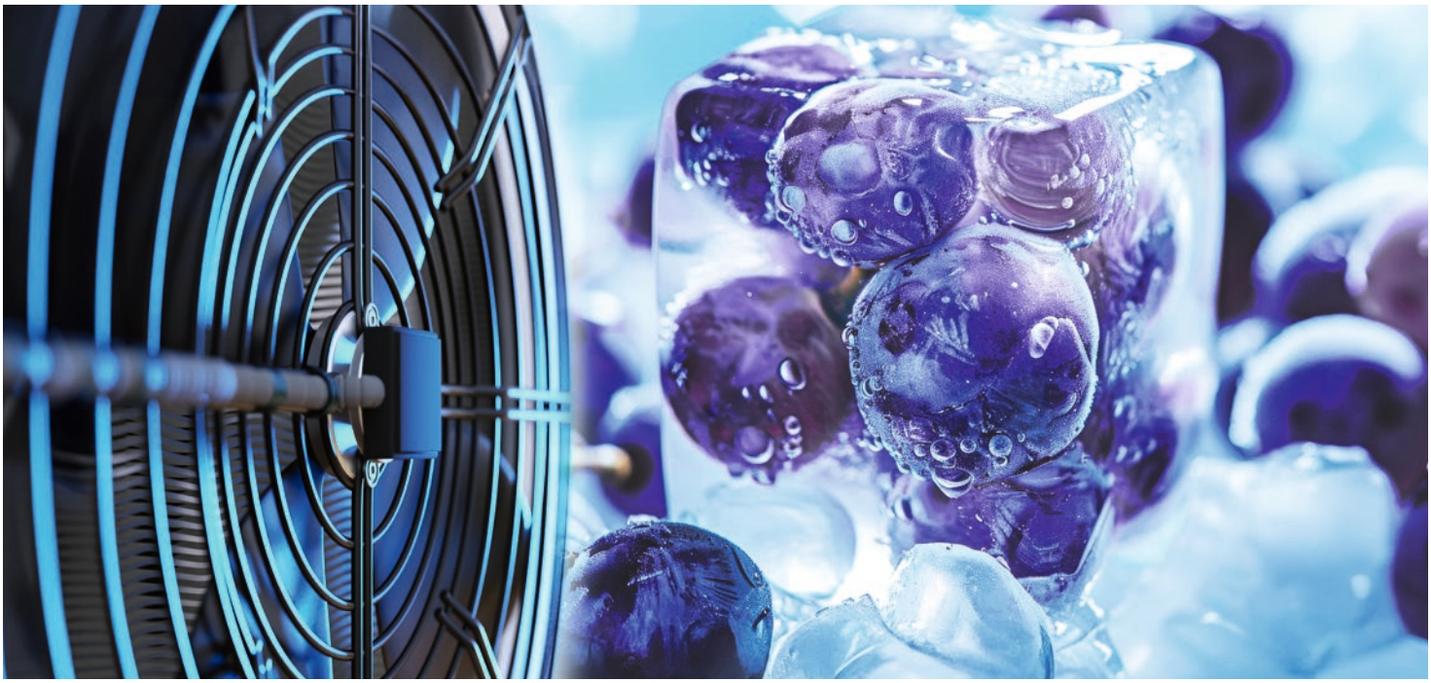
✓ Follow

climalife® on LinkedIn®

And keep up to date with market developments,
latest innovations and upcoming events...

6000+

GWP <150: the countdown is on!



R-1234yf
(Solstice® yf)
GWP = 0.5

Commercial refrigeration
(Display cabinets, cold rooms)

Heat pumps

Air conditioning
(Car, train, bus)

R-1234ze
(Solstice® ze)
GWP = 1.37

Industrial refrigeration
(Food processing)

Air conditioning
(Chillers)

Data centres

District heating and cooling

R-1233zd
(Solstice® zd)
GWP = 3.88

Air conditioning
(Low pressure chillers)

Industrial heat pumps

Energy (ORC)

District heating and cooling

R-455A
(Solstice® L40X)
GWP = 146

Commercial refrigeration
(Display cabinets, cold rooms, professional kitchens, blast chambers, etc.)

Industrial refrigeration
(Warehouses, food processing)

R-454C
(Solstice® 454C)
GWP = 146

Residential heat pumps
(Air / Air - Air / Water Geothermal)

Domestic hot water

F-Gas III approved eco-efficient refrigerants

- **Lowest investment/operating costs.**
- Lowest emissions.
- Reduced power consumption.
- Highest level of security.
- Easy to use and maintain.



GWP values according to F-Gas III

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