

# Opt

for better

Axima Refrigeration France is deploying Chemours A2L Opteon™ XL20 (R-454C) refrigerant in several dozen stores of a French leader in frozen foods.



Opteon™



Axima Refrigeration is at the forefront of developing low-GWP refrigeration applications. And as a major player on the French and international markets, their customers include leading companies such as this store chain specializing in the manufacturing and marketing of frozen products, a leader in France and present throughout the world with several hundred stores. Several times awarded as one of the best companies in specialty and frozen foods.



## A solution deployed on a large scale

For the renewal of their cold room refrigeration installations, they called on Axima Refrigeration, who offered various options. The customer elected choice focused on a solution based on a refrigerant with low environmental impact and at the same time allowing them to reduce their energy consumption.

Axima's implementation of Opteon™ XL20 (R-454C) solution in all stores and logistic platforms entrusted to them by the customer started taking place in 2021 and is continuing in 2022 under two main configurations, each of which consists of the following elements:



### Store Setup

- A cold room measuring around 30 m<sup>2</sup> for an approximate volume of 90 m<sup>3</sup> classified as accessible by staff only.
- A Bitzer Ecolite LHL5E outdoor condensing unit.
- A Güntner GACC evaporator.
- The cooling capacity is 5 kW at -23°C set point and +35°C outside temperature.
- The COP of the compressor under these operating conditions is 1.32.
- A CR11 power regulation module allows partial cylinders deactivation according to demand, for improved system energy efficiency.

### Depot Setup

- A cold room approximately 60 m<sup>2</sup> for an approximate volume of 170 m<sup>3</sup> classified as accessible by staff only.
- A Bitzer Ecolite LH124E outdoor condensing unit.
- A Güntner GACC evaporator.
- The cooling capacity is 8 kW at -23°C set point and +35°C outside temperature.
- The COP of the compressor under these operating conditions is 1.31.

Bitzer Ecolite units integrating a module which monitors and manages the main operating parameters of the compressor. Opteon™ XL20 (R-454C) 148 GWP Refrigerant (per AR4) is a non-toxic, low flammable unit 1 (PED) HFO blend.





## A relevant choice of refrigerant

One of the objectives pursued by the customer was to meet the requirements of the F-gas regulations by choosing a refrigerant with a very low GWP to replace various high-GWP HFC refrigerants presently in use. Opteon™ XL20 (R-454C) manufactured by Chemours with its GWP of 148 (according to AR4) has proven to be a very good alternative in this regard.

In addition to its very low carbon footprint compared to other refrigerants, it offers several advantages such as ease of installation and maintenance, robustness of the system under high summer temperatures, and energy efficiency which translates into lower operating costs by reducing the electrical consumption of refrigeration systems.

For this project, the supply of the refrigerant as well as the associated logistics was taken care of by the Gazechim Froid company.

## Regulatory compliance and safety

In order to comply with the rules relating to the use of A2L refrigerants, Axima Refrigeration France has:

- Performed the refrigerant maximum charge calculation according to EN 378, also supported by the charge size calculator developed by Chemours (<https://chem.rs/EN378chargesizecalc>). In applications of this kind, where accessibility is limited to less than one person/10m<sup>2</sup> in the cold room, no charge size restrictions apply and therefore no additional measures are required.
- Carried out a risk analysis and the DESP file.
- Installed leak detection with visual and audible alarms. Axima has decided to implement additional means of prevention in order to increase the safety level of each installation.
- Posted the rules limiting the number of people allowed in the cold room at one time on cold room doors.

For Crystal Mayeur, Innovation Project Manager, Axima Refrigeration France:  
“Our rigorous approach has enabled us to roll out these types of installations on a massive scale while respecting all the technical and regulatory constraints linked to ‘A2L’ classification of Opteon™ XL20 (R-454C) solution. The choice of this low-GWP fluid is a good alternative for relevant refrigeration applications, and makes it possible to meet F-Gas deadlines. For the implementation of this fluid, Opteon™ XL20 (R-454C), the feasibility and design study must be carried out on a case-by-case basis, by taking into account the constraints of the site, the specificities of the fluid and the operating conditions of the installation.”

Louis Bisciogol, Business Development Manager at Chemours France, points out: “The energy efficiency of refrigeration solutions is an increasingly important issue in a context where food retail players must both face a cost for constantly increasing energy and reducing their emissions. Opteon™ XL20 (R-454C) solution, chosen by this chain for large-scale deployment, will allow to meet these two requirements.”



**For more information on Opteon™ Low GWP Refrigerants  
please visit our website [opteon.com](https://www.opteon.com)**



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