

Sustainable cooling solutions:

Reducing the climate impact of refrigerants by up to 90% in commercial refrigeration

CATEGORY:

Commercial Refrigeration

THE CONTEXT:

As of 2020, high Global Warming Potential (GWP) refrigerants such as HFC R-404A will be banned under the EU F-Gas Regulation in new stationary refrigeration equipment. In addition, high GWP HFCs are increasingly under pressure as a result of the HFC phase-down. However, GWP is not the only criterion to take into account. Indirect emissions associated with energy use play a crucial role as they represent on average at least 70% of the total emissions of refrigeration and air-conditioning systems. It is therefore important to consider both, GWP and energy efficiency when making refrigerant choices. In addition, safety, installation and maintenance need to be part of the equation.

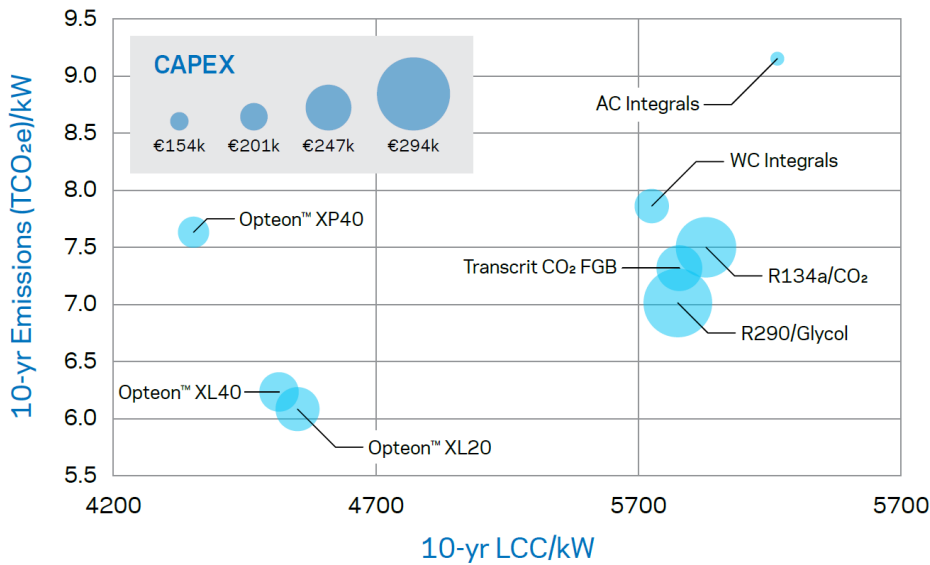
SUSTAINABLE COOLING SOLUTION:

- Trial at ASDA Merchandising Centre of Excellence (MCE), in Leeds, UK and application on the field in a typical 2000m² ASDA supermarket in Manchester
- Application of low Global Warming Potential (GWP) HFO blend technology (lower flammability, A2L classified)
- A purpose-built Hubbard pack with Emerson compressors, with <40kW cooling capacity and charged with approx. 50kg of the HFO blend R-454A (GWP of 239)



BENEFITS:

- Improved energy performance and GWP reduction of approx. 90% compared to currently used, traditional HFC refrigerants or non-flammable HFO blend options for retrofit such as R-448A/R-449A
- According to a theoretical calculation over a 10 year time horizon, total emissions can be up to 20% lower than using a transcritical CO₂ Booster system and up to 15% lower than using a propane/glycol system
- Helps meeting the challenges of the F-Gas phase-down and GWP limits and provides a safe and sustainable solution to small pack commercial refrigeration applications.



TAGS:

- Refrigerants
- Energy efficiency

GENERAL INFORMATION

NAME OF THE COMPANY: Chemours

CONTACT PERSON: Mark Hughes

HYPERLINK TO LEARN MORE ABOUT THE SUSTAINABLE COOLING SOLUTION:



Figure 1: ASDA supermarket in UK

Figure 2: Cost vs. Emissions for Various Technologies for a Standard Supermarket in Leicester, UK climate