

Supermarkets tackle their carbon footprint



The retail industry is well advanced in its moves to embrace the latest developments in refrigerants with the ultimate goal of reducing their stores overall carbon footprint. Trials of the latest refrigerants are encouraging offering improved efficiencies and lower potential emissions says Ken Logan, managing director of A-Gas (UK) Ltd.

It could be said there are three main hurdles to overcome in both existing and new supermarket refrigeration systems. Firstly the need to be out of HCFC's or refrigerants with any Ozone Depletion Potential (ODP), this though is the oldest installed kit currently in use in the UK. Secondly new systems and or replacement refrigerants need to be more energy efficient than those they replace. Thirdly stores need to significantly lower their overall operational carbon footprint. A tall order indeed and one which requires different approaches depending on whether stores are new build, complete re-fits or looking to make the best use of their existing equipment balanced with overall financial investment constraints.

Supermarkets are prepared to invest

More than 60% of the energy use in the UK's major supermarket chains is used to refrigerate and freeze food. As a result the leading chains are directing their focus on overall carbon footprint reduction. There is a significant shift in the market as new solutions are being embraced that temper business requirements, best practice and environmental considerations.

During the last three years supermarket retailers have made substantial and significant investments to upgrade their refrigeration units with many adopting a phased approach to more sustainable solutions.

A choice of refrigerants

Issues facing the industry include whether to refurbish existing equipment, a small proportion of which still relies on the use of R22 and a greater proportion which is working on R404A and R407A. Replacing all of these in existing systems with only one refrigerant is possible with the latest refrigerant Genetron® Performax™ LT (R407F) which offers a low GWP (Global Warming Potential) and is suitable for retrofits and new equipment. For new builds or complete equipment changeover CO2 in direct or indirect systems or similarly the use of Hydrocarbons are both growing in popularity.

The industry is working hard to achieve a balance of lower GWP refrigerants with the need for greater energy efficiencies, to bring about the required overall carbon footprint reduction.

Ammonia has seen a bit of resurgence in use, but CO2 is so far leading the race with the large retailers. Some of the large food manufacturers are already adopting CO2 based solutions. With its unique characteristics, CO2 is already being heralded as one of the 'greenest refrigerants'.

Genetron® Performax™ LT is very appealing for existing equipment due to its low GWP and superior performance. Also known as R407F, Genetron® Performax™ LT is a derivative of the R407 family – R32/R125/R134a. It is a top performing low and medium temperature HFC refrigerant with a zero ODP which ranks it as an ideal choice in replacing R22 /R404A/R407A in existing installations.

It has higher capacity than R404A+ R407A and the lowest GWP of all commonly used blends, at 1825 it is half that of R404A. It also has an A1 safety classification and is non-toxic and non-flammable.

Benefits include:

- Potential R22 replacement in medium and low temperature applications
- Zero ODP
- Comparable capacity to R22
- Lower GWP than R407A and better low temperature capacity
- Potential R404A replacement where GWP reduction is the driver
- Half the GWP of R404A
- Comparable capacity to R404A at low temp
- Better energy efficiency than R404A

A-Gas has already added Genetron® Performax™ LT to its portfolio alongside its own in house CO2 filling station to offer customers the widest possible choice. We are closer to one solution for existing equipment than we have been in many years, and recent trials indicate that Performax offers a good combination of capacity, efficiency and GWP.

Genetron® Performax™ LT has been successfully trialled in a number of stores as it is a close match to R22 and suitable for low temperature applications. It is also a superior alternative to R404A in both low and medium temperature supermarket refrigeration.

On an environmental level converting existing supermarket systems to Genetron® Performax™ LT will result in energy reduction and the lower GWP will also combine to lower the overall carbon footprint from the refrigeration system of the store.

A-Gas has vast expertise in the reclamation and reuse of refrigerants and will take back the previous incumbent refrigerant as part of the overall commercial package when changing over to Performax.

The Institute of Refrigeration, British Refrigeration Society and The Carbon Trust have produced a Refrigeration Road Map that highlights how various technologies can be used by the retail sector to reduce their carbon footprints. The retail industry is making great strides towards the use of eco-friendly refrigerants and it is generally accepted that balancing commercial interests with environmental concerns is good for business and the environment.

