Containment, new refrigerants and training

By Peter Dinnage, IDS Climalife commercial manager

The UK's supermarket groups are not unused to being in the news, whether as the result of Government enquiries, speculation about ownership or comment on the effect of pricing policy on growers and farmers.

Recently supermarkets have been in the news for another reason, and are perhaps bringing the issues with which our industry has been grappling for the last decade to a wider audience.

Public spotlight

Earlier this year, green lobby group, the Environmental Investigation Agency, published its third annual 'Chilling Facts' survey, which ranks UK supermarkets according to the climate change impact of their refrigeration and cooling systems. While acknowledging that UK supermarkets have made significant progress since the survey began in 2008, many in our sector question the survey's focus on so called 'natural' refrigerants and the implication that they are the only real alternative.

Containment

An issue for all users of refrigeration and air conditioning equipment is containment. Remove the leaks from any traditional HFC system and its carbon footprint will be reduced, efficiency will improve and energy costs will be reduced.

Whether using hydrocarbons, ammonia, CO_2, HFCs or HFOs, containment is key, and should be at the top of any list of actions to reduce the impact of refrigeration and air conditioning equipment on the environment.

While many supermarkets in particular are carrying out trials with CO_2 or adopting it as the refrigerant of choice for new stores, anecdotal evidence suggests high rates of leakage in some cases. This is a really fundamental issue.

While not acknowledged in the 'Chilling Facts' survey, the refrigeration and air conditioning sector has made effective containment a central part of its efforts to reduce environmental impact at both a European and UK level. To name just two initiatives, there is the Institute of Refrigeration's REAL ZERO campaign, and the new training required from 4th July by F Gas.

New refrigerants

There are many new refrigerants in the pipeline or in the early stages of being introduced to the market, all with low or very low global warming potential (GWP), and many of which could be used in existing equipment as well as in new installations.

'Natural' refrigerants are also being adopted more widely with some users in the industrial sector successfully installing and operating ammonia and secondary systems with glycol or similar fluids. The 'natural' refrigerant finding the most favour in the commercial sector to date has been CO_2, but the most energy efficient option would be a HFO/CO_2 cascade system.

What is clear is that better training and qualified engineers are required to handle any of these fluids, and industry is investing in these new skills accordingly. City & Guilds, for example, are introducing an NVQ Level 3 course designed to address the skills shortage in relation to refrigeration systems using natural refrigerants, including hydrocarbons. Equally clear is the fact that the necessary expertise in this new area will take time and substantial investment to develop.

There is also the issue of technology and safety of natural refrigerants, highlighted at last year's Atmosphere Natural Refrigerants conference in Brussels as the biggest barrier to wide scale adoption, and reaching a somewhat wider audience as a result of an explosion at a supermarket at the end of 2010.

Of the new refrigerants on the market at the moment Honeywell's Genetron® Performax™LT has potential energy savings of up to 10% over R404A and a much lower GWP. It could be a viable alternative to R404A both in new equipment and conversions.

Although it will be at least another two years until the 4th Generation HFO refrigerants are more widely available, these very low GWP refrigerants have similar performance characteristics to HFCs. There is more development work to be done, and production capacity needs to be geared up, but this is definitely an area to watch.

Training

Training has been, and will continue to be, an area of major focus for the refrigeration and air conditioning sector. Certainly no one can point the finger at the industry and claim that not enough is being done on this front.

After 4th July F Gas legislation will have a major effect on those companies and engineers not qualified to the new training standards. The positive news here is that over 12,000 individual certificates have now been issued, and demand for the new qualifications is so high that many training providers are holding additional courses.

Keeping track of developments in the sector has never been so complicated with new refrigerants, increased training requirements and the plethora of European and UK legislation.

While there will be reports and surveys that grab the headlines, to get realistic advice on industry developments with refrigerants, containment and training, you could do a lot worse than talking with your refrigerant supplier, contractor or any of the respected UK refrigeration and air conditioning trade associations and industry bodies.