The long and winding road

A view across the refrigerant landscape by Peter Dinnage, IDS Climalife commercial manager.

Long gone are the days when just three refrigerants covered most applications, prices were low and very few people worried when a system leaked as refrigerants were not only cheap, but readily available.

Fast forward to today. CFCs are long gone, HCFCs have had their day, HFCs are rocketing in price and the so called 4th Generation refrigerants will start appearing in new model type cars as they roll off production lines later this year. With a plethora of refrigerants and legislation to circumnavigate, it can only be a matter of time before it becomes a specialist Mastermind subject!

And then there is the issue of containment. It appears we now have some supermarkets leaking CO_2 faster than HFC producers can supply the rest of the industry with HFCs. If only those at the sharp end 30 to 40 years ago had taken containment more seriously and eliminated leaks, things might be very different today.

2011 and beyond

2011 will present more than a few challenges as our industry beavers away to provide cooling to an unsuspecting world. The issues are many and varied and include HFC availability, prices, training, F Gas legislation, REACH (the European Community Regulation on chemicals and their safe use), CLP (Classification, Labelling and Packaging), CO_2 and new refrigerants…

On a brighter note the banning of virgin R22 and other HCFCs passed relatively uneventfully in the UK for the moment at least. Users developed appropriate solutions ranging from new equipment, conversion to other refrigerants and use of reclaimed R22.

R422D (ISCEON MO29) has become the clear market leader as a replacement for R22 in conversions, although R417A (ISCEON MO59) is also popular in many applications. Reclaimed product is also fairly readily available for equipment still running on R22, in part due to the number of successful conversion and replacement projects. However, it is still unclear if there will be any reclaimed product available beyond 2013 due to REACH legislation.

Specifiers and designers don't expect systems to leak and they are certainly not designed to, but for various well-documented reasons they do. The stand taken by industry, particularly the Institute of Refrigeration's REAL ZERO campaign, and the new training required from 4th July by F Gas, can only help improve containment.

After 4th July F Gas legislation is going to have a major impact on those companies whose engineers are not qualified to the new training standards. Currently only 25% of companies comply with less than four months to go. One wonders if those yet to achieve full certification realise their interim certificate, name and contact details are on a readily accessible database. It won't take much to track them down.

Those without the required training and certification who are operating within the scope of the F Gas Regulation after 4 July will be working illegally and will be liable to prosecution.

Refrigerant availability and supply

Improved containment improves efficiency and reduces energy costs, reducing the carbon footprint of a refrigeration system.

Another reason to prioritise leak reduction is a commercial one. Producers are warning of refrigerant shortages this summer and the cost of HFCs continues to escalate rapidly. Unlike last year when mainly 134a was in short supply, any blend that contains R125 – so all the common ones – may prove difficult to get hold of later this year.

New Refrigerants

One to watch is a new refrigerant from Honeywell, Genetron® PerformaxTM LT. With potential energy savings of up to 10% over R404A and a much lower Global Warming potential (GWP), it could be a very viable alternative to R404A both in new equipment and conversions.

The 4th Generation HFO refrigerants are still a year or two away until sufficient production capacity can be put in place. However, with very low GWP and similar performance characteristics to HFCs, they could be retrofitted into some equipment when they become available.

F-Gas legislation is also due to be reviewed this year. Although a number of proposals have been tabled it is not clear as yet which, if any, will be adopted. REACH and CLP regulations have also moved on with all single substances such as R134a requiring a new type of label and hazard and safety phrases. And don't forget that all cylinders, even if they are transported boxed, must be labelled in accordance with this legislation.

Whilst the industrial sector has quietly and successfully installed Ammonia and secondary systems with glycol or similar fluids, some in the commercial sector have chosen the CO2 route where new challenges are presenting themselves. Once again better training and qualified engineers are required to handle these fluids. Such expertise takes time, needs investment, and doesn't come cheap.

Good refrigerant advice and experience have never been so important, so make sure you choose wisely who you listen to. Talk to those refrigerant suppliers with the knowledge, expertise and track record to help you make the right decisions.