



THE END IS NIGH! FOR R-22

Nostradamus, and other doom-mongers didn't predict its demise but they wouldn't have gone far wrong because the end of R22 and other HCFC blends is written in the EU statute books and will come to pass on 31st December 2014.

In just under 12 months, it will be illegal to top up any refrigeration, air conditioning or heat pump equipment with HCFCs such as R-22. Despite the use of virgin HCFCs being banned four years ago, many have kept their R-22 equipment running by using reclaimed or recycled R-22.

The race is now on to ensure the necessary cooling is in place and working for 2015. Whilst it will not be illegal to have equipment running on R-22, the only reason to do nothing in 2014 would be if it would not affect your business if it wasn't working and you could survive without air conditioning or refrigeration for possibly 2-3 months. For all other uses where a leak would create loss of production or unbearable working conditions during summer months action is needed now, before it is too late. In some sectors we already hear of near full order books for installing new equipment. Those leaving it late run the risk that the best engineers will already be assigned to install equipment for others.

A Good Case for New Equipment

With equipment at least 10-20 years old and in many cases older, there is a very good case to be made for new equipment where design, technology and energy efficiencies have improved significantly. The choice of new equipment is very much down to the application and manufacturers will have chosen the refrigerant to be used with their equipment that is both energy efficient and safe. As R22 was used in such a diverse range of applications, new equipment replacing it has been spread across a number of different refrigerants, without one refrigerant prevailing as the best across all applications as manufacturers try to achieve the best possible performance for their chosen temperatures.

Most air conditioning equipment is specified and approved for R-410A or R-407C, although large chillers use R-134a. Each of these refrigerants have a GWP below 2100. The use of Hydrocarbons are limited by charge size and application, whilst

Peter Dinnage, Technical Director Climalife at IDS Refrigeration explains why the bell tolls for R-22

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CO₂ is not able to deliver the energy efficiency of R-410A and has other issues where the ambient temperatures of Southern Europe are encountered. The Japanese air conditioning manufacturers are starting to use the low GWP refrigerant R-32 in small air conditioning systems in Japan and a European launch of small air to air heat pumps is imminent, where the refrigerant charge is small and hermetic compressors are used.

Many supermarkets have used Carbon Dioxide in new stores, whilst companies who would have used R-404A in new equipment to replace old R-22 equipment for refrigeration applications are now turning to R-407F (Performax LT) as it has a much lower Global Warming Potential (GWP), is more energy efficient, thereby having a lower carbon footprint and critically, is approved by the leading compressor manufacturers as is R-407A.

It would be very unwise to invest in new equipment operating with a refrigerant with a GWP over 2500, such as R-404A, only to find its use is banned or availability limited in the next 5-6 years, creating a need to convert to a lower GWP refrigerant.

Industrial Use of Ammonia

For new equipment in the industrial sector Ammonia and Glycol systems have been replacing R-22 for a number of years and are popular as long as local regulations allow the use of Ammonia.

Other refrigerants with lower GWP are under development and testing has already begun, but these refrigerants will not be on the market in time for new equipment this year. For any new refrigerant the compressor manufacturers will need to fully test to ensure longevity for their equipment and to be able to provide warranties that go with them. Such testing cannot be hurried. No two refrigerants are the same, even though their properties may be similar.

Additionally engineers who have only ever worked with A1 ASHRAE classified refrigerants will need to be trained to safely handle A2, A2L and A3 classified refrigerants, before they can start to install equipment with them or service equipment with such refrigerants if they are to become mainstream over the next 5-10 years.

For all but very small systems, if a budget and capital expenditure isn't already in place for 2014 it may be very difficult to see a way forward other than refrigerant conversion in the short-term.

Now is the time to act and replace R22 before it comes to an end!

The topic of converting R-22 equipment to a different refrigerant will be covered in the next edition of ACR Today.

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Peter will be writing a monthly article for ACR Today covering a range of topics related to refrigerants.

Peter has been working in the industry for over 25 years in a number of roles all to do with refrigerants. He has seen, at first hand, the move away from CFCs, then HCFCs, gathering knowledge and experience about refrigerants as they evolve towards new, lower GWP refrigerants now entering the market. Now Technical Director for Climalife in the UK, he works closely with manufacturers and Climalife colleagues in other parts of Europe sharing knowledge they each gather.

Peter Dinnage