

Brave?

NEW WORLD

2015 brings many changes that will affect refrigerants. Peter Dimmage, Technical Director at Climaflex considers whether it is the great unknown or have we been here before?

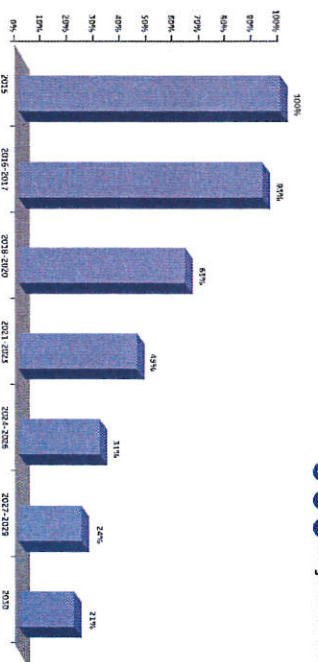


By coincidence the date that the use of one of the most popular refrigerants of the late 20th Century is banned, coincides with the entry into force of the new tighter F-Gas legislation aimed at reducing emissions of HFCs significantly over the next few years. For some this means that no sooner have they moved away from R22, they also have to start planning to move away from R404A.

The whole purpose of the revised F-Gas regulation is to reduce emissions of HFCs in a step wise phase-down process by 79% over the next 15 years. This will be backed up by a number of measures that will encourage fewer leaks, more leaks checks, quicker and more effective repairs coupled with better training. There will also be bans on certain refrigerants in some applications, both in new equipment and for service and maintenance for those with a GWP of 2500 or more. Whilst the bans on high GWP refrigerants do not apply for another five years, there is much to be done now to minimise the effect that the phase-down steps will have.

QUOTAS

For the first time in 2015, the amount of refrigerant that can be sold within the EU will have a ceiling placed upon it, which is expressed in CO₂ equivalent tonnes. That total is 182.9 million CO₂ equivalent tonnes. Each producer or importer has been allocated a quota based on the sales they reported in the period 2009-2012. There are 79 companies throughout Europe who between them share 89% of that quota, with 333 companies classed as new entrants who share the remaining 11%. Each is free to sell any combination of refrigerants they want up to the limit of their quota. In simplistic terms this means



they can sell more of lower GWP refrigerants than they can those with a higher GWP.

For example it would be possible to sell nearly three times as much refrigerant with a GWP of around 1400 such as R-134a, compared to R-404A with a GWP of 3922. Put another way, a quota holder would want to make the same margin on 1 Tonne of R404A as they would 3 Tonnes of 134a or 2 Tonnes of refrigerant such as the 407's or 410A with GWPs in the range of 1800-2100. The dynamics of the quota coupled with the phase down step is expected to prompt a shift towards lower GWP refrigerants. The first cut in the quota of 7% comes after just one year in 2015, whilst in two years' time, pre-charged equipment coming from outside of Europe must be accounted for within that quota and is estimated to be of the order of 10-11% of the total. Some of this will be compensated for by new cars not being allowed to use R-134a, but there is no respite because there is a cut of 37% of the total quota in 2018. This will all happen 2 years before the bans on the refrigerants with a GWP of 2500 or more. Those still with a large requirement of high GWP refrigerants will carry the greatest burden.

TIME TO SWITCH

There is no need to panic, but 2015 is the time to start the move to lower GWP refrigerants, as doing nothing until 2020 cannot be an option either. Already many have stopped using R-404A and are using R-407A and R-407F in its place with excellent results, in terms of capacity and

energy efficiency improvements compared to R404A. There is also an ever increasing range of compressors available from manufacturers who will give warranty on these refrigerants.

Also coming to market are HFOs such as R-1234ze for chiller applications, which were covered in the October issue of this magazine and can also be found online. R-1234zf is being used in some new car models and both these HFOs are being used in blends to produce lower GWP refrigerants some of which are now available on the market and will see use in 2015. R32 is likely to be available in some new small air conditioning systems, although it will be a few more years before it takes over from R-410A in larger systems. CO₂, Ammonia and Hydrocarbons also have a part to play in helping Europe meet the phase down steps required by F-Gas.

There are a few quick steps that can be taken, firstly stop using refrigerants with a GWP over 2500 in new equipment. Make an effort to minimise leaks still further. Start a move to lower GWP refrigerants. The move away from R22 first started over 20 years ago, some moved quickly, whilst others took their time and a few remain until the product can no longer be used. During that time the refrigerants available have changed. This same process looks set to repeat itself, but the dynamics of the phase-down process are different and herald a move to lower GWP refrigerants. The good news is that there is plenty of good advice and experience available to help with the transition from high to low GWP refrigerants.

Table 1
Phase down schedule

“There are 79 companies throughout Europe who between them share 89% of the quota”