

## R22 Phase-Out

ASERCOM members have discussed the R22 phase-out and have obtained the following assessment:

The regulation EU2037/2000 gradually prohibits the use of HCFCs. Virgin HCFCs are already banned and finally per 1.1.2015 also the use of recycled HCFC will be prohibited (complete ban in EU).

The complete phase-out of HCFCs leads to four scenarios:

- Business as usual: as long as it may last
- Drop-in: pure exchange of the refrigerant without major changes like the exchange of oil
- Retrofit: an active adaptation of the plant to the new R22 substitute, e.g. change of oil and overhauling of the complete refrigeration system
- New installation by means of a refrigerant with a low impact to the environment like Ammonia, CO<sub>2</sub> or Hydrocarbons

Whereas commercial plants may work with a drop-in refrigerant, the choice of scenario for the large variety of industrial plants will lead to mainly individual solutions depending on various considerations:

- Technical: Complexity of the plant, type of compressor, type of evaporation, capacity, oil management, sealing, pressure levels and pressure drop, controls
- Commercial: Remaining life time, operational cost, installation cost, down time
- Safety and Environmental: Safety standards, national regulations, toxicity, combustibility, GWP, ODP, TEWI
- Legislative: PED category, approvals, documentation, uncertain future of some new refrigerants

Above mentioned factors are not complete, but just some of the main requirements.

A thorough and often complex analysis of the properties of the new refrigerant, with respect to the requirements of the plant, will be necessary to avoid unexpected problems, when drop-in or retrofit is considered. In this case, the contact to the compressor manufacturer is strongly recommended too.

ASERCOM is convinced that a new installation will in most situations be the preferable solution, to avoid efficiency, performance and reliability issues.

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These recommendations are addressed to professionals, industrial, commercial and domestic refrigeration system manufacturers / installers. They have been drafted on the basis of what ASERCOM believes to be the state of scientific and technical knowledge at the time of drafting, however, ASERCOM and its member companies cannot accept any responsibility for and, in particular, cannot assume any reliability with respect to any measures - acts or omissions - taken on the basis of these recommendations.

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