

## R22 phase-out

ASERCOM members have discussed the R22 phase-out in the past and have reviewed their assessment to integrate developments in the industry and in the legal base:

The regulation EU2037/2000 prohibits the use of both Virgin and Recycled HCFCs since 31<sup>st</sup> of December 2014 (complete ban in EU). The complete phase-out of HCFCs leads to these scenarios:

- No intervention in the system: operation of the cooling plant until end of life
- Use of HCFCs in Maintenance or Service: Prohibited
- Retrofit: an active adaptation of the plant to the new R22 substitute considering the F-Gas Regulation and consequently restrictions on GWP (global warming potential) refrigerants., e.g. overhauling of the complete refrigeration system. Important: R22 cannot be recovered and it must be disposed as hazardous waste
- New installation by means of a refrigerant with a low impact to the environment, i.e.;, synthetic or natural 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 and material properties, pressure levels and pressure drop, controls
- Commercial: Remaining life time, operational cost, installation cost, down time and availability of refrigerants
- Safety and Environmental: Safety standards, national regulations, toxicity and/or flammability, GWP, ODP, TEWI
- Legislative: PED category, approvals, documentation and phase-down/availability of refrigerants according to F-Gas regulation

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 be the preferable solution, to avoid efficiency, performance, serviceability 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 liability with respect to any measures - acts or omissions - taken on the basis of these recommendations.

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