

IOR statement on choice of refrigerant

6th December 2021

The IOR Guidance Note 37 on Refrigerant Selection provides an overview of the critical points that should be considered in selecting refrigerant. This is of particular interest to equipment owners, operators and advisors making purchasing decisions that will influence the selection of refrigerant and equipment being installed now and in use well into the future. Members are encouraged to share this with their customers and equipment users.

To support Net Zero targets the IOR recommends that equipment designers, purchasers, owners and operators select a refrigerant with the lowest GWP possible.

It is often possible to use a refrigerant with a GWP of 10 or less (i.e., carbon dioxide, ammonia, hydrocarbon or HFO), but this may not always be practical. The IOR recommends that systems and equipment should only be installed using refrigerants with a GWP over 300 where a low GWP option with equal or better efficiency is not available. This recommendation is in line with the “low GWP” classification included in the UNEP RTOC reports and sector specific trade associations which also quote the figure of GWP 300 as a maximum. GWP values above 300 are classed as “medium” or “high” in the RTOC classification.

This means that systems using “medium” or “high” GWP refrigerants should not be purchased or installed unless there is no lower GWP alternative for the application. For a full list of refrigerants and GWP values see the 2018 UNEP RTOC report or Annex E of BS EN 378-1:2016+A1:2020.

Where equipment using a refrigerant with a GWP greater than 300 is currently in use, a plan should be in place to replace the system at end of life with a lower GWP refrigerant where possible.

With the on-going phase down and quota restrictions on HFC refrigerants having the greatest impact on the availability of higher GWP refrigerants as well as certain use bans under national regulations, there are very good commercial and environmental reasons for moving to low GWP refrigerants.

The IOR Guidance Note 37 “Refrigerant Selection” gives a more complete explanation of all the criteria that should be adopted in selecting the most appropriate refrigerant for the application.

References

- UNEP Kigali Amendment (<https://ozone.unep.org/kigali-amendment-implementation-begins>)
- UNEP RTOC https://ozone.unep.org/sites/default/files/2019-04/RTOC-assessment-report-2018_0.pdf
- IPCC 4th Assessment Report AR4 <https://www.ipcc.ch/assessment-report/ar4/>
- BS EN 378-1:2016+A1:2020 <https://shop.bsigroup.com/products/refrigerating-systems-and-heat-pumps-safety-and-environmental-requirements-basic-requirements-definitions-classification-and-selection-criteria-1>
- EU F-gas revision (<https://f-gas-regulation-review-2022.eu/>)
- Cold Chain Federation <https://www.coldchainfederation.org.uk/future-of-transport> / Target 1: No transport refrigeration units (TRUs) to be sold into the UK market containing refrigerants with a GWP of more than 300 by 2025. Target 2: No transport refrigeration units (TRUs) operating on UK roads should use refrigerants with a GWP of more than 300 by 2035 (in line with the Kigali amendment of the Montreal protocol).

Issued by the Technical Committee of the Institute of Refrigeration
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