

Fluorinated greenhouse gases

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In accordance with Regulation (EU) No 517/2014, this report concerns the barriers posed by codes, standards and legislation to using climate-friendly technologies in the refrigeration, air conditioning, heat pumps and foam sectors.

Regulation (EU) No 517/2014 requires a reduction in the quantities of hydrofluorocarbons (HFCs) companies may place on the market in the EU.

Manufacturers of equipment and products using HFCs must therefore shift to the use of more climate-friendly alternatives. However, **non-technological barriers** may put this transition to more climate-friendly alternatives at risk and result in higher costs than necessary.

This report covers legislation and standards at a European and an international level, as these standards establish benchmarks, widely used by companies, for the safe use of equipment throughout Europe. Codes, standards and legislation may indirectly impact the use of alternatives to HFCs by specifying requirements for the design or manufacture of equipment and its components, the installation of equipment as well as its service, maintenance and dismantling that are not consistent with the use of a particular alternative technology.

Barriers posed by codes, standards and legislation: codes, standards or legislation at either a European or national level do not seem, for the most part, to pose a significant barrier to the use of ammonia or CO₂ as a refrigerant.

On the other hand, on the basis of input from Member States' authorities and consultations with stakeholders it can be concluded that standards (at international, European and national level) regarding the **use of flammable refrigerants** appear to be an important barrier to the uptake of climate-friendly alternatives to HFCs.

Although the recent revision of EN 378 introduces a new flammability category for HFCs and HFOs, the following barriers for flammable refrigerants, in particular for hydrocarbons, require particular attention:

- the European level standards unnecessarily restrict **charge sizes** beyond what is needed to guarantee a safe use of the equipment. In particular the charge size limits for human comfort cooling and below ground charge limits appear overly restrictive;
- product standards such as **EN 60335-2-40** (safety requirements for electrical heat pumps, air conditioners, and dehumidifiers) and **EN 60335-2-89** (safety requirements for commercial refrigerating appliances) are based on International Electrotechnical Commission (IEC) standards that are set at international level. Hence EU companies and policy makers can only partly influence the outcome;
- **updates** of standards are usually made at intervals of **5 years or longer**;
- the time lag between agreeing international amendments and having them reflected in the European product standards is often another 1-3 years;
- **SMEs** find it difficult to find the resources to participate in the lengthy and resource-intensive standard-setting processes;
- providing data and conducting the necessary risk assessments that would enable companies to market innovative solutions using climate friendly alternatives is a challenge;
- in some EU Member States there are national codes, standards and legislation that simply **ban** flammable refrigerants in certain applications.

Possible solutions: to facilitate the achievement of the EU HFC phase-down and emission reductions in the EU and third countries as required by the Paris Agreement, the report stressed the need for:

European standardisation organisations to facilitate the update of relevant standards at the European level;

companies and researchers to collect data and evidence enabling better risk minimization approaches for all flammable refrigerants and to make such information available to the relevant standard committees;

Member States that have restrictive national codes, standards or legislation to consider a review in the light of technical developments.

In addition, the Commission envisages:

- **a request to the European standardisation organisations in support of updating relevant standards** at the European level, ensuring a technology neutral and consistent approach. In particular, there is a need to maximise charge sizes without compromising safety as well as allowing a more general use of risk management approaches for all refrigerants. A mandate for this request is under preparation;
- **facilitating at an international level an exchange of information on standards**, their review and related processes.