IT IS TIME TO PREPARE FOR THE HFC-FREE FUTURE

The biggest news of last December is the agreement of European Commission, the Council and the Parliament on F-Gas Regulation compromise text. Now, when all the debates around new regulation are finished and only few formal steps are left to adopt the regulation, it is right time for everyone involved in refrigeration industry to be aware on the changes the Regulation will bring.

The F-gas Regulation, which shall be applicable from the beginning of 2015, will be the key legislative document to reduce emissions of fluorinated greenhouse gases (F-gases) in Europe. Most effectively the reduction can be achieved by gradually decreasing placing on the market of F-gases. Commission therefore proposes a phase down scenario that will gradually reduce the amount of refrigerants to be placed on the market by 79%, compared to annual average of baseline years 2009-2012.

In order to facilitate the phase down, a number of measures will be taken. Below we discuss some of these measures. We highly encourage everyone to get acquainted with the text of the informal agreement for proposal document to get the complete picture of anticipated changes [1].

Placing on market prohibitions

After long discussions, the parties agreed to prohibit some products and equipment from placing on market (POM). Table 1 summarizes the POM prohibitions for refrigeration equipment. As one can see, first prohibition shall be already enforced from the next year. This one is very easy to achieve as the majority of the domestic refrigerators and freezers, sold in the EU, already use hydrocarbons (mostly isobutane) as refrigerant.

Table 1 – Placing on market prohibitions list, according to the recent agreement [1]

Products and equipment	**Date of prohibition**
Domestic refrigerators and freezers that contain HFCs with GWP of 150 or more	1 January 2015
Refrigerators and freezers for commercial use (hermetically sealed systems) - that contain HFCs with GWP of 2500 or more - that contain HFCs with GWP of 150 or more	 1 January 2020 1 January 2022
Stationary refrigeration equipment, that contains, or that relies upon for its functioning HFCs with GWP of 2500 or more except equipment intended for application designed to cool products to temperatures below -50°C	1 January 2020
Multipack centralised refrigeration systems for commercial use with a capacity of 40kW or more that contain, or that rely upon for their functioning, fluorinated greenhouse gases with GWP of 150 or more, except in the primary refrigerant circuit of cascade systems where fluorinated greenhouse gases with a GWP of less than 1500 may be used	1 January 2022
Movable room air-conditioning appliances (hermetically sealed equipment which is movable between rooms by the end user) that contain HFCs with GWP of 150 or more	1 January 2020
Single split air-conditioning systems containing less than 3kg of fluorinated greenhouse gases, that contain, or that rely upon for their functioning,	1 January 2025

fluorinated greenhouse gases with GWP of 750 or more	

Service of the equipment

The Regulations pays much attention to the training of the personal who is dealing with F-gases, including those who perform installation, servicing, maintenance of the refrigeration equipment. For instance, non-hermetically sealed equipment charged with hydrofluorocarbons placed on the market shall only be sold to the end user if the installation shall be carried out by certified personal.

Certain F-gases will be prohibited from being used in service. For instance, the use of F-gases with a global warming potential of 2500 or more to service or maintain refrigeration equipment with a charge size of 40 tonnes of CO_2 equivalent or more, shall be prohibited from 1 January 2020. This deadline is in some cases postponed for 10 years for reclaimed and recycled fluorinated greenhouse gases.

However, there are some exceptions from this rule. We refer to the text of the agreement [1] for more details on certification and service requirements.

Exceptions from the proposed prohibitions

According to the agreement text, “equipment containing fluorinated greenhouse gases should be allowed if their overall greenhouse gas emissions, taking into account realistic leakage and recovery rates, are less than those that would result from an equivalent equipment without fluorinated greenhouse gases, during its lifecycle” [1]. This exception is valid for the equipment that falls under the Ecodesign Directive [2]. Being a reasonable exception, the attention should be given to the methods used for lifecycle emissions estimation, as the estimation result is dependent on the quality of assumptions used in the calculation.

Moreover, the POM prohibitions could be bypassed for a time up to 4 years if “technical feasible alternatives are not available or cannot be used for technical or safety reasons or where the use of such alternatives would entail disproportionate costs” [1]

HFO are excluded from phase out

Some F-Gases, like unsaturated hydro(chloro)fluorocarbons and fluorinated ethers , are excluded from the phase-out schedule. The consumption of these gases is thus not limited and only needs to be reported in according to the Regulation requirements. This means that the consumption of the R1234yf is likely going to increase, especially in light of the Honeywell plans to invest $300 million in production of this F-gas [3].

Daimler is one of the car manufacturers which is most resistant to R1234yf. It points out that the risk assessments, which confirm the safety of R1234yf, are lacking both scientific evidence and careful conservative estimations, whereas real test by Daimler call into question many assumptions of the SAE risk assessment [4]. Moreover, German fire brigade association is asking clearly visible signs on the

windscreen of cars using the new refrigerant, as “R1234yf can be a serious threat for the lives of first-aiders, police and rescue forces” [5].

US politicians are willing to act

The adoption of the new F-gas Regulation will be a strong signal to other countries on greenhouse gases reduction. US government is proactively requesting the US Environmental Protection Agency for immediate national action to curb hydrofluorocarbons (HFCs) [6] pointing out that there is no need to wait to implement smart policies.

With current agreement, EU is getting very close to adoption of the new F-Gas Regulation by European Parliament. This will require further approvals by Member State Representatives, and then by the European Parliament and Council, before being adopted in early 2014 involved parties. In any case, no significant changes to current text are anticipated.

“This is the beginning of the end for HFCs in Europe”, said Clare Perry, Head of EIA’s Global Environment Campaign, “at least now the industries involved will be able to see which way the wind is blowing and invest in cleaner, greener alternatives”.

References

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