

Challenges of the F-gas regulation

eurammon member Dr. Frank Rinne, Director Systems & Solutions of Emerson Climate Technologies GmbH, Dina Köpke, Director Governmental Affairs at Emerson Climate Technologies GmbH and Dr. Jürgen Zöllner, Managing Director of Technische Gase und Gasetechnik GmbH, talk about their experiences and the effects of the European fluorinated gas regulation.



Dr. Frank Rinne,
Director Systems and
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The f-gas regulation already takes effect. What would you deem to be the main success points and what are the main challenges?

Dina Köpke: In terms of success points, the reporting of the European Commission shows that the registered market participants meet their quotas. Substituting R404A by R407A/F or R448A/499A is working, the according components have been qualified.

Regarding challenges we have seen a rise in illegal sales, especially via internet portals, since the first phase-down of the quota to 63 per cent. Also, from a technological point of view, the application of inflammable refrigerants remains a big challenge, especially concerning refrigerants of the groups 2, 2L and 3. For the commercial use of propane there are many components available, but for the group 2L, alternative components still have to be qualified due to the variety of

these refrigerants. This also affects the planning of equipment manufacturers and developers if they want to be able to offer a sufficient number of solutions with adequately low GWPs.

Dr. Jürgen Zöllner: I would say that the main success of the F-gas regulation is that it managed to create awareness about the impact of fluorinated gases on the greenhouse effect. But apart from that, I mostly see challenges. The complex system with phase-down quotas and GWPs is way too complicated and asks too much of the market participants. As a result, the market is in chaos and some products are just not available at all. Yet, the effect within the first two years was largely weakened by inventory sourcing. In 2017, the situation escalated and made prices explode. This year, we see the market flooded by illegal imports¹, which sent prices plummeting again. So, the regulation shows little effect but made the industrial gas market highly speculative. The question is now what will happen in the near future. If illegal imports will be sealed off, this will make prices surge again. If not, it is hard to forecast the effects.

The Kigali amendment to the Montreal Protocol aims for a further phase-down of HFCs until 2050. But considering the effects that the f-gas regulation achieved or did not achieve up to now – does an amendment like this or the planned Review 2022 to the European regulation make sense at all?

Dina Köpke: This is really hard to anticipate at this moment. I think, it would be very important to conduct a comprehensive study in order to get a more complete picture and then eventually take the right measures concerning amendments at the right point in time.

Dr. Jürgen Zöllner: From my point of view, it would be reasonable to establish clearly defined quota prices for HFC gases instead of leaving them to the market forces. This would facilitate better planning opportunities for the users. Currently, commercial users can't keep up with testing all the different alternatives and substitutes. So it is hardly a surprise that they stash away tons of supplies to be on the safe side. However, as I see the EU commission constricted in this respect, I expect amendments in this direction to be fairly unlikely.



Dina Köpke,
Director Governmental
Affairs at Emerson Climate
Technologies GmbH

Wouldn't it be wise for stakeholders in the climate and refrigeration sector to successively abstain from f-gases and substitute them with natural refrigerants already before the particular phase-down stages become effective?

Dina Köpke: It is essential for each market participant to utilize refrigerants with a lower GWP as soon as possible. Natural refrigerants are definitively future-proof – therefore they are the most reasonable solution if technically and legally feasible. In Germany and some other EU member states, public support programs additionally promote the use of natural refrigerants.

Dr. Jürgen Zöllner: As a vendor, we both offer HFC gases as well as natural refrigerants. If a manufacturer can build competitive products today, they should definitely not wait for the according phase-down steps. But as I mentioned before, the volatile market caused by illegal imports ruins any chance to plan and control even near-future developments.

How complex is the transition to alternative refrigerants for the industry? Do you assess manufacturers and craftspeople to be sufficiently prepared and trained?

Dr. Frank Rinne: I think manufacturers are well prepared, trained and equipped. However, for the crafts and trades the situation is quite different. But this has distinct reasons. Being located at the end of the value and communications chain, there is not much pressure on craftspeople yet – as alternative refrigerants have not been around for long. Also, we are talking about small enterprises that find it difficult to free up their personnel for the amount of training time that would be necessary to reach a quick and profound penetration of alternative solutions.

Dr. Jürgen Zöllner: Due to my observation, alternative refrigerants are not prevalent at all when it comes to smaller crafts and trades. For larger OEMs, the situation is different to some extent – but repair people need training courses for the handling of flammable refrigerants.

What can be done to intensify retrofits of existing facilities?

Dr. Frank Rinne: Retrofitting at existing facilities is limited to non-combustible refrigerants. Here, especially R448A/R449A are used, as they work with only slight adaptations. For R134a, the non-combustible alternatives R450A and R513A are available which can further reduce the global warming potential. However, when inflammable refrigerants have to be used, this requires a complete reassessment and must be approved by the authorities, as combustibility effectuates a substantial change in the operation. In many cases this leads to a change of the PED class of a component. And a retroactive certification is not possible.

Dr. Jürgen Zöller: This is a huge problem, as retrofits are only viable within the same safety category. So, in practice, only retrofits from refrigerants with a very high GWP to an alternative with a somewhat lower GWP are feasible. But the GWP targets for 2030 can only be met with flammable refrigerants, which demand a redesign and a new certification. Therefore, up to now the extent of retrofits is rather limited.

¹ Cooling Post Ltd (2018): Amazon in court over illegal F-gas sales. <https://www.coolingpost.com/world-news/amazon-in-court-over-illegal-f-gas-sales/>

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