F-Gas regulation – Toughening up on refrigerant gases in 2020

By Stephen Harrison, Rob Cockerill | 19 February 2020

Two months into 2020 and tougher legislation and punishments are coming into play for the refrigerants gases business in the wake of both the F-Gas regulation and the illegal imports associated with it.

With the confirmation of the UK's withdrawal from the EU – 'Brexit' – last month, there are also question marks over how the UK tackles its adherence to the F-Gas regulations.

The EU fluorinated greenhouse gases (F-Gas) regulations are a central part of the 'European Green Deal' to limit climate change. F-Gases include refrigerants known as HFCs, which are potent greenhouse gases (GHGs).

The regulations aim to stimulate a switch from F-Gases with a high global warming potential (GWP) to more modern gases with a lower GWP using a mix of end-use bans and quotas. These quotas were introduced in 2015 and have progressive reductions through to 2030 to cap the environmental impact of F-Gases used in the EU.

In 2018 and 2019, however, the refrigeration sector media was full of stories about the illegal import of F-Gases into the EU outside of this quota system.

A-Gas urges users to switch to reclaimed refrigerants

These additional products were both undermining the intent of the legislation and causing a slump in F-Gas pricing in the EU. In the 12-month run up to the EU import quota reduction on 1stJanuary 2018, the prices for HFCs such as R134a and R404A increased approximately 10-fold. At this price point, the risk-to-reward ratio for smuggling activities was highly favourable and sucked in illegal imports estimated to be as much as 30% of total EU demand.

The increased supply led to falling prices and at the end of 2019, common HFCs were trading at about 30% below levels in 2018. Furthermore, throughout 2019 there were highly publicised cases of smuggled goods seizures and prosecutions leading to fines. As the rewards are falling the risks rising, many industry participants expect a reduction in illegal F-Gas trade in 2020.

Getting tougher on illegal trade in 2020

Most countries in the European Union (EU) had implemented legislation to cascade the EU F-Gas regulations into national law. At the beginning of 2019, however, neither Romania nor Italy had legislated at a local level.

Both are EU border states with extensive coastlines representing potential import routes for F-Gases from major chemical producing countries such as China.

On 17th January this year, tough legislation came into force in Italy that could see fines of up to €100,000 for breaches of the EU F-Gas regulations.

Alessandro Borri, Director – Sales & Marketing at GeneralGas Kryon® Refrigerants in Italy, spoke to **gas**world about the impact this legislation is already having. "In 2018 and 2019, illegally imported refrigerant gas cylinders were being offered onto the Italian market through non-conventional channels such as social media websites.We tracked a lot of these adverts and used our communication channels to point out the quality, safety and environmental risks of purchasing these illegally imported products."

"For example, they are often contained in disposable cylinders (which are banned in the EU) or in refillable cylinders that do not have the required TPED safety approval. Furthermore, when analysed using laboratory instruments, most of them are revealed to have poor quality

with high humidity, out-of-spec percentages of the blend components or high amounts of non-condensable gases. They also lack the required CLP safety labelling and are supplied without a safety data sheet and emergency telephone number, which are mandatory by law. Each one of those points falls short of the practices that reputable suppliers such as GeneralGas adhere to."

Borri continued, "In the past, there was no legislation in Italy to punish this behaviour. However, since the new legislation has come into force in Italy, our market intelligence has shown an 80% reduction in the number of offers for illegally imported refrigerant gases on these social media sites."

"The integrity hotline, which is operated by EQS on behalf of the European Fluorocarbons Technical Committee (EFCTC), is also a good idea. This all adds up to being great news for legitimate businesses and the successful implementation of the EU's flagship environmental policy."

Policy at a regional level sets the future direction

Fabrizio Codella, who works in the Italian refrigeration equipment supply sector, said that, "the changes in Italy are a good antidote to illegal trade and will shut one more door into the EU."

He added that, "At a regional level there are also loud noises being made to send strong signals that the EU is getting tough."

Codella pointed to a conference on the fight against illegal imports of refrigerant gases into the EU, held on 22nd and 23rd January as an example. The event was organised by the European Anti-Fraud Office (OLAF) in cooperation with two EC departments, DG TAXUD and DG CLIMA, thereby bringing together the financial and environmental stakeholders to accelerate the resolution of this illegal F-Gas trade problem."

Through the EFCTC, Honeywell and other leading refrigerant gas producers have been in dialogue with the EC to consider bolstering F-Gas enforcement with measures such as better border controls and real time access to customs import data and quota registrations to combat the illegal import of HFCs.

Refrigerants for refrigerated sea containers

Speaking for Honeywell's Advanced Materials division, Lee Hermitage – EMEA Marketing Director, Fluorine Products – said, "We are pleased that the EC recognises the illegal import issue, however at the same time believe there is still a long way to go in tackling it. Many sources have estimated that 2018 saw illegal imports at 25-30% of the total EU import quota level. We believe that this illegal trade did reduce a little in 2019, but we are sure that much more needs to be done."

"Clearly, additional disruptive measures such as tougher financial and custodial penalties for offenders and better training of customs officers will be needed to put a stop to illegal imports soon. Ultimately, the EC and the member states must continue to work together and apply focus here to ensure that climate protection goals are not undermined by illegal trade."

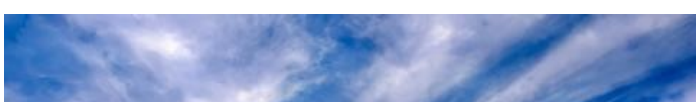
It's thought that product bans from 1st January (2020) will also drive change.

Anybody who has bought a new car in the EU since 2017, for example, will most likely have purchased a model with an air conditioning system filled with the modern HFO type of refrigerant gas knownas R1234yf. This is a low GWP alternative to its fore-runner, the HFC called R134a. The change here was driven by mobile air conditioning (MAC) regulations which put a cap on the maximum GWP of the refrigerant gases used in automotive air-conditioning units.

Reformation in refrigerants – F-Gases, the MAC Directive and the future

To force the transition from higher GWP HFC refrigerants to lower GWP products, such as carbon dioxide, propane, HFC/HFO blends or HFOs in other applications apart from MAC, the F-Gas regulation employs a mix of import quota reductions and similar end-use bans. The most recent ban became effective on 1stJanuary 2020 for larger stationery refrigeration systems with a charge of more than approximately 10kg of refrigerants such as R404A or R507C.

"For sure the market for recovered and regenerated refrigerants will increase because the ban only covers the sale of so called 'virgin' molecules," reflected Codella. "Whilst there are a few suitable drop-in replacements for R404A, such as R448A, R449A and R452A there are not so many choices to replace R507C and I can imagine that recovered R507C will be in particularly high demand."



Speaking from the perspective of a refrigerant gas distributor, Borri concurred, "In 2018 and 2019 refrigeration service

engineers continued to use high GWP gases such as R404A instead of the lower GWP retrofit gases such as R448A. Since January of this year, we have seen a big difference and our sales of the retrofit gases have increased by 30% compared to the same period last year. We believe that this is directly related to the 1stJanuary end use ban on virgin R404A in these larger systems – the legislation is clearly driving practice in the right direction."

Honeywell's Hermitage sees both challenges and solutions. His view is that, "In recent years, there has indeed been a lot of R404A pulled out of large supermarket refrigeration systems as they have switched to more modern gases. However, there is simply not enough regeneration capacity in the EU to clean this recovered R404A gas for re-use."

As an alternative to using regenerated high GWP materials, he also points to evidence of long-term thinking in the sector.

"One of our alternatives for the R404A refrigerant gas is called Solstice®N-40. It's our proprietary name for the zeotropic blend of R448A with a GWP of 1273. Because it is a drop-in replacement, its convenience will appeal to many operators. However, we anticipate that some end-users will leapfrog these transitional drop-in replacements and move straight to the end-game with a product such as Solstice®L40-X, also known as R455A. Changing to this refrigerant gas would require the operator to invest in new refrigeration equipment, but the financial and environmental pay-back through improved energy efficiency coupled with the low GWP makes this choice compelling."

Brexit might mean more complexity

With his office location in England, Hermitage is well placed to share an opinion on how the departure of the UK from the EU on 31stJanuary this year will impact the EU F-Gas quotas. In short, he anticipates continuity for the environmental policies, although exports from the UK to EU member states are likely to become more complex.

He said, "The simplest outcome would be for the UK to stay in the EU F-Gas quota system and abide by the F-Gas regulations. However, if the UK takes a different approach, one potential outcome would be to operate a parallel quota system, with similar reductions based on a starting point set at the current level of EU quotas owned by UK entities."

"In spirit, nothing would change," he concluded, "but the trade of F-Gases and refrigeration equipment that is pre-charged with these gases would become more complex."