

New **environmental rules** for refrigeration

2020
UPDATE

ARE YOU READY?

Major regulatory changes under EU and UK legislation have come into effect, impacting every food service and hospitality operator, and more will follow very soon.



How does refrigeration affect the environment?

Refrigerators rely on the form-changing property of liquids (from liquid to gas and vice versa). Compressed gas makes its way through the coils inside the refrigerator where it cools down and absorbs energy, lowering the temperature of the food inside. Refrigeration was invented in the 19th century and became popular in the mid 20th century, with a big impact on food safety. But there is a downside for the environment.

The **F-Gas Regulation** aims to reduce Global Warming emissions caused by F-gases (the refrigerants typically found in heating and cooling applications, including commercial refrigeration equipment), and is part of the European climate change agenda as set out in the **EU Low Carbon Roadmap**.

The mechanism ensures emission reduction through a schedule of gradual phase-down's and outright bans over an agreed time period.

In effect since 2015, the eventual goal is **a reduction** in the use of HFCs (hydrofluorocarbons) **of 79% by 2030**, encouraging manufacturers, services companies and operators to adopt technologies operating on refrigerants with significantly lower Global Warming Potential.

Big changes came into effect on **January 1, 2020**, impacting operators in areas such as service and maintenance of existing refrigeration equipment, and availability of like-for-like replacements.





The risk of leaks

Although refrigerant circuits are designed to be leakproof, even the tiniest of leaks can release gas into the air. CFCs in use until 1987 were banned once it was discovered that they were extremely harmful for the ozone layer. But there is a major problem with the HFCs that replaced them: Their greenhouse effect is much, much higher than CO₂, as much as 13,000 times higher! That's why it's so important to:

- Have reliably built, robust refrigerators. This is only relevant to large remote systems, not the type of products which True sell
- Choose an appliance that uses refrigerant with the lowest possible greenhouse effect
- Perform statutory checks for leaks



Energy consumption

Refrigerators run 24/7, 365 in kitchens **using energy**. A well-insulated model built to the latest standards will be much more eco-friendly.

Stricter standards across all industries starting in 2020

The **refrigeration** industry will have to make major changes to the type of refrigerant used.



Cars and trucks will have ten years to drastically lower their CO₂ emissions.



New **construction** will be governed by the environmental regulations anticipated in the E+C- (energy positive carbon reduction) scheme.

glossary

F-gases : fluorinated gases, man-made, that can stay in the atmosphere

GHG: Refrigerants are considered to be greenhouse gases.

tCO₂e (metric ton of CO₂ equivalent):

Unit of measurement for refrigerant emissions. Metric ton of CO₂ equivalent for a gas = amount of gas x Global Warming Potential of the gas.

GWP (Global Warming Power): Indicator of a refrigerant's radiative properties.

HFC (hydrofluorocarbons): Halogen compound gases used to replace substances that deplete the ozone layer (CFCs), but that contribute to the greenhouse effect.

CFCs : Gas used before 1907, very harmful for the ozone layer

HC : Hidrocarbon Refrigerants. Natural gases, nontoxic with no impact on ozone layer, and low GWP



Fridge laws

Increasingly strict for refrigerants

The 2030 target of Europe's F-gas Regulation is clear: Refrigerant-related greenhouse gas emissions must be reduced by a factor of five.

Under F-gas, high-GWP (Global Warming Potential)* refrigerants will be phased down. The amount of HFCs** made available on the market will be progressively reduced according to their GWP, which will drop from about 2,000 to 400 over 15 years.

1987

Montreal Ban on CFCs (chlorofluorocarbons) and HCFCs (hydrochlorofluorocarbons), which deplete the ozone layer and contribute to the greenhouse effect. They are replaced by HFCs (hydrofluorocarbons), which have a low impact on the ozone layer.

1997

Kyoto 1997 Ban on HFCs:
They are now known to produce greenhouse gases (100 to 300 times more than CO₂)

2006

The EU adopts the **greenhouse gas regulation (F-gas)**.

2015

The European F-gas II regulation speeds up the reduction of greenhouse gas emissions with an eventual ban on HFCs still on the refrigeration market.

2020

Ban on R404A

(GWP 3922)

is the most widely used gas in commercial refrigeration throughout the EU today, commonly found in low-temperature remote systems (such as those used in supermarkets) and in smaller integral freezer cabinets. Since January 1, 2020, there has been a ban on the sale of new commercial refrigeration equipment that uses high-GWP gases.

2022

Ban on R134a

(GWP 1430)

Where R404A is the refrigerant gas typically found in larger cold systems and integral freezer units, R134a is the HFC used for commercial refrigerator/cooler equipment. While not as immediate, the ban on this gas is also coming shortly, in 2022, and will likely result in similar outcomes for existing equipment.

2030

Ban on the use of recovered, regenerated, and/or recycled refrigerants

with a GWP > 2,500 for service and maintenance (applies to freezers and refrigerators that use R404A).

Going green is more cost effective

When you buy equipment that uses low-GWP refrigerant gases:

1. You're saving the planet
 2. You're saving money
- Some countries subsidize the design and purchase of clean equipment.
 - Some countries apply taxes that make all unclean gases more expensive.

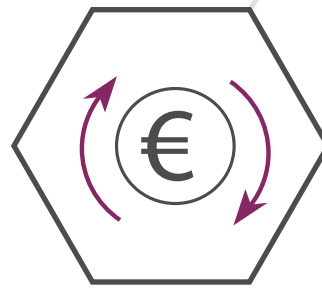
What does all this mean for me?

Chances are, if you own integral freezer cabinets or larger coolers, then you have equipment which operates on R404A gas. The 2020 ban also includes service restrictions, but on larger systems which contain a large amount of the gas, now being limited to using reclaimed rather than new supplies.



Legal obligations

As the owner of equipment containing F-gas, the regulation also places a number of legal responsibilities on the operator with regard to limiting harmful gas leakage. Violation of these obligations can lead to fines, penalties and criminal offence charges, depending on the severity of the breach and the EU region where the operator is based.



Costs

Technicians will still be allowed to use new/virgin gas to recharge integral units (until 2030), however the reduced availability overall is resulting in volatile gas costs which could have a big impact on the cost of service. If equipment is out of warranty, operators should expect to see the cost of service increase, perhaps drastically, due to erratic gas prices.



QUIZ

Check the right answer!

The more refrigerant an appliances uses,

- 1 ☐ the more frequently it needs to be inspected
- 2 ☐ the quieter it is
- 3 ☐ the more robust it is

Answer 1, especially if there is no automatic leak detector.

When a gas leak is detected, operators must stop using equipment that contains fluorinated greenhouse gases within

- 1 ☐ 30 minutes
- 2 ☐ four days
- 3 ☐ one month

Answer 2

If a leak is found during an inspection, and the operator can't fix it there and then, the operator must

- 1 ☐ destroy the equipment
- 2 ☐ call the fire department
- 3 ☐ put a red sticker on it to indicate a defect

Answer 3

What is your **HFC exit plan?**

The regulations are in the place. The phase-out deadlines are upon us. Now is the time to assess your refrigeration assets and determine the impact on your operation.

Regardless of F-Gas, undertaking regular audits and keeping an up to date record of the refrigeration equipment assets in your estate is just good practice. With accurate data, you can effectively determine the point at which equipment replacement makes sense.

6 information to identify



1. **Manufacturer, model name, serial and asset numbers**
2. **Refrigerant gas used**
3. **Age of the equipment**
4. **Warranty coverage status**
5. **Condition of the equipment (at last PPM)**
6. **Quantity and costs of service calls to date**



To avoid the added costs and legal obligations of F-Gas, and receive the benefits of HC refrigeration technology, any existing assets operating on HFC gasses which are out of warranty, in poor condition and/or 5+ years old should be considered for replacement.

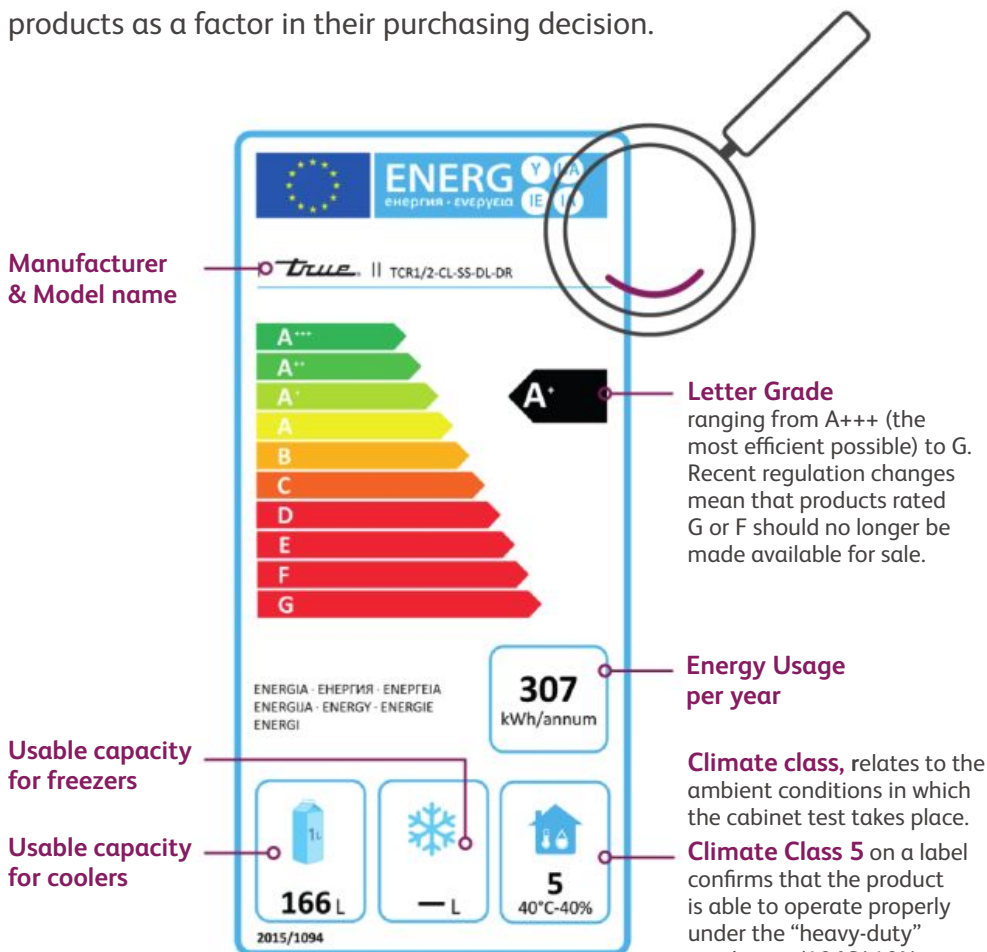
Once assets have been identified and information compiled, it is possible to compare the energy usage of equipment, old-for-new, based on product labelling published on manufacturer and distributor websites.

For existing older products, labelling (introduced 2016) may not exist, so it may be necessary to contact the manufacturer directly for information. In the case of discontinued products, it is safe to assume that a HC equivalent product available today will be at least 30% more energy efficient, but could be several hundred times more efficient. Recent technological advances have been that significant.

For operators with large estates, using the most energy efficient products available can have a huge impact on utility costs. Consider not just the acquisition cost of the equipment, but the operating costs over the lifetime of the product, which can equate to several times the capital cost of the product purchase.

Understanding Energy Labeling for Commercial Refrigeration

Regulations separate from F-Gas (but with similar intentions) were introduced July 2016 requiring some commercial refrigeration products to carry energy labels, similar to those found on many consumer electronic products. Equipment manufacturers are required to publish these labels so that operators can benchmark and compare running costs of similar products as a factor in their purchasing decision.



Electricity costs

With information on current assets and label data for available HC replacements, the operator can determine the running costs of equipment by multiplying the kWh/annum number stated on the label by the price they pay per kWh for electricity.

Warranty

Another factor which should be considered to determine the real lifetime operating cost of the product is the length and scope of the warranty coverage provided as standard.

« HC is the next step, not only in terms of environmental responsibility, but also better, more efficient, commercial refrigeration equipment. »





There is a natural refrigerant, and we're already using it.

As a leader in commercial refrigeration, True is committed to replacing dangerous substances with eco-friendly alternatives. Therefore, we use an R290 hydrocarbon refrigerant in our products.

What is hydrocarbon refrigerant?

Hydrocarbon (HC) refrigerants are natural, nontoxic gasses that have no ozone depleting properties and low global warming potential. For this reason they have been selected as the environmentally friendly successor to hydrofluorocarbon (HFC) refrigerants for commercial refrigeration, after being used widely for many years in domestic refrigeration.

R290 specifically, a highly refined propane, is the primary HC refrigerant gas now used in both commercial refrigerator and freezer equipment, and presents a number of advantages:

Environmental benefits

Global Warming Potential (GWP) is the relative measure of how much heat a greenhouse gas traps in the atmosphere. R290 carries a GWP of just 3, a massive reduction compared to typical HFC gasses. It also has ZERO ozone depleting properties (ODP).



Operational benefits

R290's thermodynamic properties are also superior to HFC's, with a heat capacitance around 90% greater than R134a and 140% greater than R404A, and lower viscosity. This means that R290 can absorb more heat, faster, resulting in quicker temperature recovery, and when harnessed by the latest in energy efficient components, significantly lower energy consumption.

Two key facts about refrigeration for retail outlets

In mass distribution, all refrigerated products are now displayed behind closed doors, which requires high-performance and robust glass-door refrigerators.

The trend is supported by European legislation. As of March 1, 2021, energy rating and ecodesign labels will be mandatory on glass-door display refrigerators, cold drink vending machines, and ice cream freezers.

Did you know?

When the regulations come into effect in 2021, it's likely that there won't be any refrigeration equipment in the top two energy categories. The best products will be in the categories for energy efficiency indexes ranging from 30 to 50.

Be ready today for the refrigeration of the future



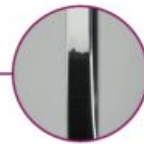
Door locks
as standard.



Digital control for state of the art temperature precision.
Environmentally friendly R290 hydrocarbon refrigeration system for the best in food preservation.



Dual tray slide system
with anti-tilt for wire shelves & 2/1 GN pan storage.



Sleek, heavy duty metal handles.



Compressors
perform better in the coolest, most grease free area of the kitchen.



Field reversible door hinge.



True first started testing R290 HC in 2007

Since then, our Natural Refrigeration development initiative has seen the redevelopment of our entire product offering, and by the end of 2020, we will have completed the transition to 100% HC. As a result of this investment, True now produce several of the most energy efficient commercial refrigeration products currently available on the market.

We are helping operators to be more environmentally responsible, achieve targets to reduce energy consumption, save money, and supplying them with a better, more reliable refrigeration product.

WARRANTY 5 YEARS
PARTS, COMPRESSOR AND LABOUR



true
REFRIGERATION

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