Stay in business:

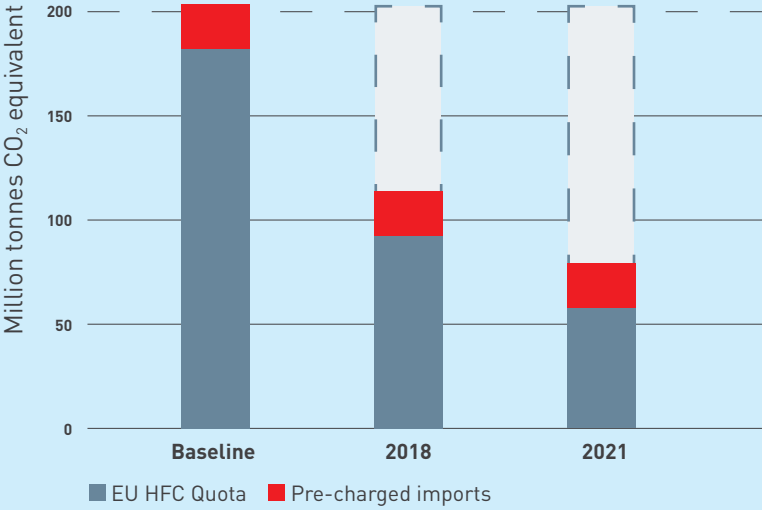
STOP installing R-404A / R-507A!

WHY IS IT URGENT TO ACT?

The massive HFC phase-down step in 2018 and the Global Warming Potential (GWP) limit of 2500 in 2020 do not leave you any choice:

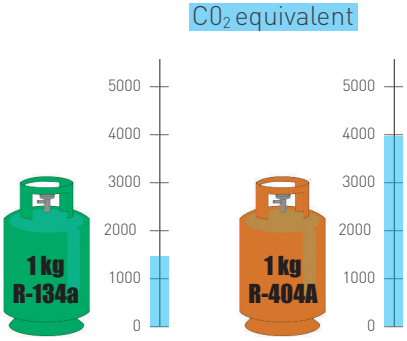
If you want to stay in business, you have to stop installing R-404A / R-507A - NOW!

From 2018 onwards, the EU F-Gas Regulation (EU 517/2014) creates massive cuts in the available quantities of HFCs in the EU.



This reduction scheme, known as the HFC phase-down, is based on a quota system. Quota are expressed in CO_2 equivalent.

The higher the Global Warming Potential of an HFC, the higher the quantity of CO_2-equivalent 1 kg of refrigerant represents.



Therefore, the HFC phase-down hits HFCs with a high GWP, such as R-404A and R-507A, hardest; and if the consumption of these HFCs does not go down rapidly, all other HFCs, including blends containing HFCs, will suffer as a result.

Pure HFOs, CO_2, hydrocarbons, ammonia, reclaimed or recycled HFCs etc. do not fall under the phase-down

Additional to the huge HFC phase-down steps in 2018 and 2021, the EU F-Gas Regulation bans the use of HFCs with a GWP $\geq$ 2500 from 2020 in new refrigeration equipment and also for service and maintenance in refrigeration equipment with a charge size of 40T of CO_2-equivalent or more (= approx. 10 kg of R-404A / R-507A).

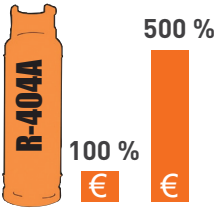
Only exception: recycled and reclaimed HFCs with a GWP > 2500 can still be used for service until 2030

From 2022, HFCs with a GWP $\geq$ 150 will be banned in new commercial, centralized, multipack refrigeration systems $\geq$ 40 kw (except certain cascade types) and in stand-alone commercial refrigerators and commercial freezers.

WHAT ARE THE MAIN RISKS IF NO ACTION IS TAKEN?

Impact on prices: A survey of the European Commission shows dramatic HFC price increases since the beginning of 2017 and expects this trend to continue.

Prices for R-404A have increased by >500% since January 2017



Immediate shortage or even unavailability of high GWP HFCs such as R-404A and R-507A but also of other HFC containing refrigerants, if no actions are taken on R-404A and R-507A.

WHAT CAN YOU DO?

Don't wait, act now!

- Stop using R-404A / R-507A in new equipment
- Retrofit existing equipment from R-404A / R-507A to lower GWP refrigerants when systems are prone to leakage and/or other failures
- Reduce leakages
- Reduce the refrigerant quantity per system as much as possible
- Recover, recycle and reclaim refrigerants

The higher the GWP of the refrigerant, the more it will come under pressure by the HFC phase-down, leading to likely price increases and potential shortages.

WHAT ARE THE ALTERNATIVES FOR SYSTEMS WITH R-404A / R-507A?

Numerous alternatives exist to replace R-404A and R-507A in new and in existing systems. However, properties such as volumetric refrigerating capacity, pressure level, flammability, toxicity, etc. of the alternatives may differ significantly from their predecessors. Therefore, it is always important to check availability of components and compressor manufacturer approval. Safety is more important than ever as many of the R-404A and R-507A alternatives are flammable.

CATEGORY	CLASSIFICATION
A3	**Highly flammable**
A2	**Flammable**
A2L	**Mildly flammable**
A1	**Non-flammable**

Many alternatives are currently under development and will become commercially available at a later stage. This leaflet will therefore be regularly updated and installers are invited to contact their suppliers for the latest information.

WHAT DOES THAT MEAN?

A main difference between the categories is the lower flammability limit (LFL) of the refrigerant. For example, with an A3 gas such as R-290, the LFL (in kg/m3) is nearly 8 times lower than with an A2L gas. Another difference is the burning velocity which is much lower with A2L gases than with A3. In practical terms it means that for example in occupied spaces far higher charge sizes are possible with A2L refrigerants than with A3.

Always check relevant standards, building codes and the installation instructions from manufacturers when using flammable refrigerants.

WHAT REFRIGERANT TO USE IN NEW SYSTEMS?

- Does your customer want a new system?
- Is the existing system too old to be retrofitted and/or in bad shape?

→Then a new system needs to be installed

Always ensure the safe and energy efficient operation of the system.

APPLICATION

Multipack centralized refrigeration systems for commercial use with a rated capacity of 40 kW or more

	GWP<150	GWP<1500
Medium and low temperature, direct expansion	R-744 (CO_2)	
Primary refrigerant circuit (MT) of cascades	R-290 R-1270 R-454C R-455A R-744 (CO_2) R-1234yf R-1234ze(E)	R-32 R-134a R-407H R-448A R-449A R-450A R-513A R-515A
Primary refrigerant circuit (LT) of cascades	R-290 R-1270 R-744 (CO_2) R-454C R-455A	

Highly flammable (A3)	Mildly flammable (A2L)	Non flammable (A1)

APPLICATION
Commercial refrigerators and freezers

	GWP<150
Medium temperature	R-290 R-1270 R-454C R-455A R-744 (CO_2) R-1234yf R-1234ze(E)
Low temperature	R-290 R-1270 R-744 (CO_2) R-454C R-455A

APPLICATION
Condensing units and multipacks with a rated capacity below 40kW

	GWP<150	GWP <1500	GWP<2500
Medium & low temperature	R-454C R-455A R-744 (CO_2)	R-32 R-134a R-407H R-448A R-449A R-454A R-454B	R-407A R-407F R-410A R-452A

Highly flammable (A3) | Mildly flammable (A2L) | Non flammable (A1)

WHEN TO DO A RETROFIT AND WHAT REFRIGERANT TO USE?

- Your system is prone to leakage and/or other failures but has not yet arrived at the end of its useful lifetime?
- Your customer does not want to invest into a new system yet?

→Then you should consider a retrofit

Always ensure that refrigerants are recovered for reclaim when carrying out retrofits.

Criteria to be considered when selecting a refrigerant for retrofit of an existing R-404A / R-507A system

- The capacity must not be substantially lower than with the original refrigerant
- The pressure level must not be substantially higher
- Mildly flammable, flammable and highly toxic refrigerants are not suitable for retrofits of existing systems
- Discharge temperature, refrigerant mass flow, pressure / temperature relation, compatibility with oils and elastomers etc. differ in most of the cases from R-404A / R-507A. Always check with the supplier of components, especially compressors, for approval and reliable operation.

GWP < 1500	R-448A, R-449A, R-407H	**Medium and Low Temperature**
GWP < 2500	R-407A, R-407F, R-452A	
	Non flammable (A1)	

A WORD ABOUT REFRIGERANT RECOVERY

Refrigerants recycled and reclaimed in the EU do not fall under the HFC phase-down. Therefore, they can ease the pressure of the phase-down by providing additional refrigerant quantities to the market.

Make sure you do not miss that opportunity!

From 2030, the use of recycled and reclaimed refrigerants with a GWP>2500 will be banned in refrigeration equipment with a charge size of 40T of CO_2-equivalent or more (= approx. 10 kg of R-404A / R-507A).

Recover and reclaim the refrigerants at the end of life-time or when retrofitting systems so that they can be used again in a safe way.

Venting refrigerant is forbidden under the F-Gas Regulation and subject to fines

ACT NOW ...

... and stop installing R-404A / R-507A!

Choosing the right refrigerant is crucial for your business to survive and to grow.

That's why the European industry associations AREA, ASERCOM, EFCTC and EPEE have joined forces to alert the market and to communicate together on the urgency to step out of R-404A / R-507A.

AREA is the European association of refrigeration, air conditioning and heat pump contractors. Established in 1989, AREA voices the interests of 25 national associations from 22 countries representing 13,000 companies employing 110,000 people and with an annual turnover approaching € 23 billion.

www.area-eur.be

ASERCOM, the Association of European Component Manufacturers is the platform for dealing with scientific and technical topics and their challenges, promoting standards for performance rating, methods of testing and product safety, focusing on improved environmental protection, serving the refrigeration and air conditioning industry and its customers.

www.asercom.org

Representing the European Fluorocarbons and Sulphur Hexafluoride Manufactures.

www.fluorocarbons.org

The European Partnership for Energy and the Environment (EPEE) represents the interests of the refrigeration, air-conditioning and heat pump industry in Europe. Founded in the year 2000, EPEE's membership is composed of 47 member companies, national and international associations from Europe, the USA and Asia, employing more than 200,000 people in Europe and realising a turnover of over 30 billion Euro.

www.epeeglobal.org

Version 01 – February 2018

AREA

ASERCOM
ASSOCIATION OF EUROPEAN REFRIGERATION COMPONENT MANUFACTURERS

EFCTC

EPEE
The voice of the heating, cooling and refrigeration industry