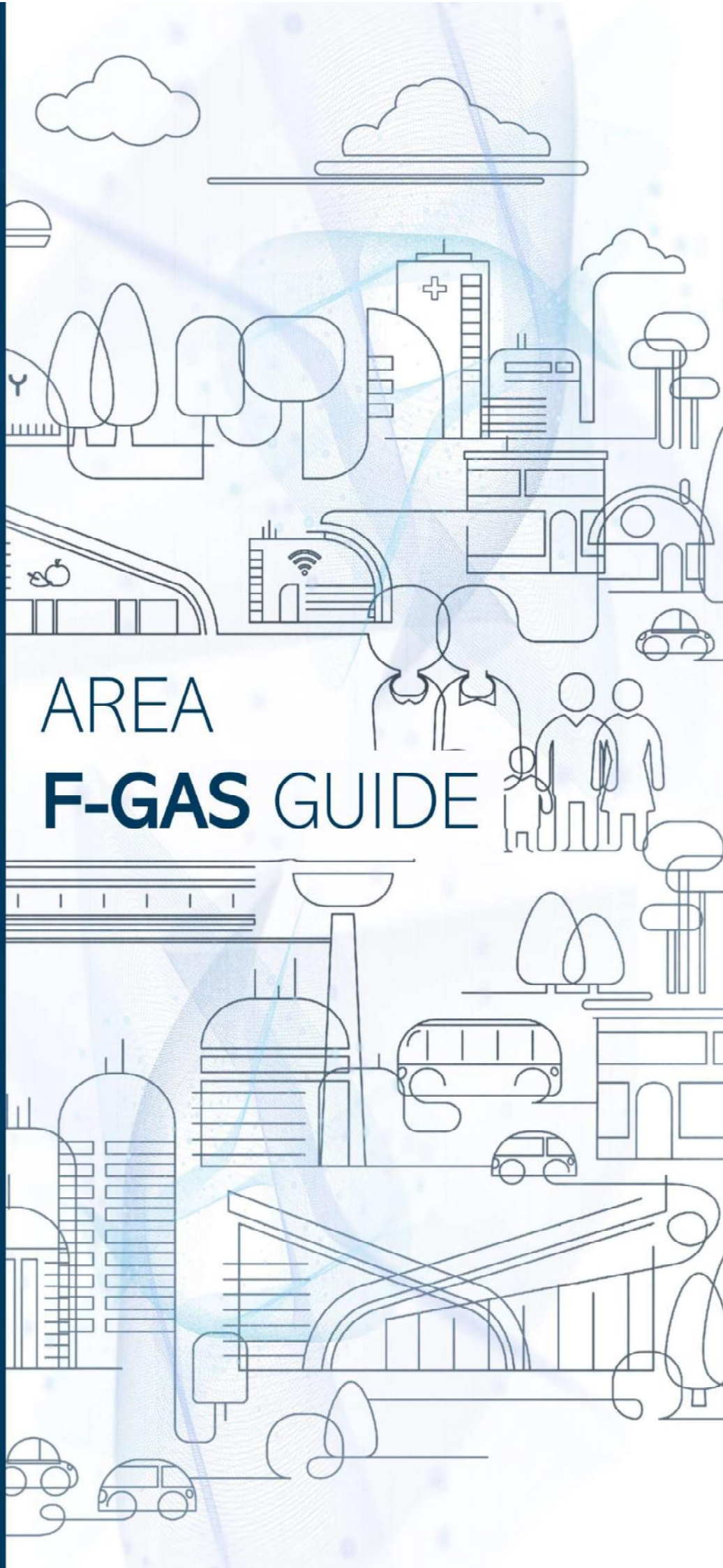


A practical guide
on the application
of the new F-Gas
Regulation
to the refrigeration,
air conditioning &
heat pump
contractors

AREA F-GAS GUIDE





The European voice of refrigeration, air conditioning and heat pumps contractors

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**A practical guide
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October 2024

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AREA

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I- Art. 3 - Definitions

The definitions referred to in these guidelines only refer to terms that:

- Are relevant to RACHP contractors, and
- Are new or have been substantially modified compared to Regulation 517/2014

'Import' / 'export'

These definitions are linked to EU Member States' responsibilities under the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. If a substance, product or equipment enters the customs territory of the EU, then it is considered 'import' if that territory (i.e. an EU Member State) is covered by ratification of the Montreal Protocol.

'Export' is the exit of a substance, product or equipment from an EU's customs territory that is covered by the Montreal Protocol.

'Reclamation'

In the new definition, it is added that the reclamation has to be performed by an authorized facility which has the appropriate equipment and can assess and attest to the quality of reclaimed refrigerant.

'Refrigerated light-duty vehicle'

A distinction is made between refrigerated trailers, which have a mass of more than 3,5 tonnes, and refrigerated light-duty vehicles, which had a mass of 3,5 tonnes or less. Like the refrigerated truck, the refrigerated light-duty vehicle is designed and constructed primarily to carry goods and is equipped with a refrigeration unit.

'Undertaking'

This definition has been simplified and now means any natural or legal person which carries out an activity referred to in the regulation.

'Self-contained'

This definition is new and referred to several times in the product bans (annex IV of the new Regulation). It is defined as a complete factory-made system which is in a suitable frame or casing, is fabricated and transported complete or in two or more sections, can contain isolation valves and in which no gas-containing parts are connected on site.

'Split system'

Whereas only 'single split air conditioning systems' was defined before, in the new Regulation split systems are defined more generally, since this term features in the list of product bans (annex IV). Split systems are defined as a system consisting of a number of refrigerant piped units that form a separate but interconnected unit, requiring the installation and connection of refrigerant circuit components at the point of use.

‘Air-conditioning’

The process of treating air to meet the requirements of a conditioned space by controlling its temperature, humidity, cleanliness or distribution.

‘Heat pump’

This term is central to the transition from gas boilers to electric heating, and is therefore mentioned extensively in the Regulation. It is defined as a piece of equipment capable of using ambient heat or waste heat from air, water or ground sources to provide heat or cooling and is based on the interconnection of one or more components forming a closed cooling circuit in which a refrigerant circulates to extract and release heat.

‘Safety requirements’

In the wording of several product bans (annex IV) it is mentioned that the GWP of a refrigerant may not exceed a certain number, “except if required to meet safety requirements at the site of operation.”

The term ‘safety requirements’ is defined as requirements on the safety of using fluorinated greenhouse gases and natural refrigerants or products and equipment containing or relying on them, prohibiting the use of certain fluorinated greenhouse gases or their alternatives, including when contained in a product or in equipment at a specific place of intended utilisation due to site and application specificities that are set out in:

- (a) Union or national law; or
- (b) a non-legally binding act containing technical documentation or standards that have to be applied to ensure safety at the specific location, provided that they are in accordance with relevant Union or national law;

‘Refrigeration’

‘refrigeration’ means the process of maintaining or lowering the temperature of a product, substance, system or other item.

‘Chiller’

‘chiller’ means a single system whose primary function is to cool a heat transfer fluid (such as water, glycol, brine or CO₂) for refrigeration, process, preservation or comfort purposes.

II- Article 4 – Prevention of emissions – Leak check after repair

There has been an important change in the new Regulation, regarding the mandatory leak check after a repair (paragraph 5). The new Regulation maintains the obligation to perform a leak check within one month after the repair has been done. However, the new Regulation adds that the leak check must be performed at the earliest **after an operating time of 24 hours**. So, whereas in the past, the leak check would be usually done on the same day as the repair, this is no longer allowed, since the installation needs to have run at least 24 hours before the leak check is performed.

III- Comparison of the respective articles on leak detection – old articles 4 & 5 against new articles 5 & 6

Old F-GAS	New F-GAS	Changes
Leak detection		
<p>Operators of equipment that contains fluorinated greenhouse gases in quantities of 5t CO₂eq or more and not contained in foams shall ensure that the equipment is checked for leaks.</p>	<p>Operators and manufacturers of equipment that contains 5t CO₂eq or more of HFCs or 1kg or more of HFOs, that is not contained in foams, shall ensure that the equipment is checked for leaks.</p> <p>Paragraph 1 shall apply to operators and manufacturers of the following mobile equipment that contains HFCs:</p> <p>(a) refrigeration units of refrigerated trucks and refrigerated trailers;</p> <p>(b) refrigeration units of refrigerated light-duty vehicles, intermodal containers, including reefers, and train wagons;</p> <p>(c) air-conditioning equipment and heat pumps in heavy duty vehicles, vans, non-road mobile machinery used in agriculture, mining and construction operations, trains, metros, trams and aircraft.</p>	<p>Operators as well as manufacturers of all equipment, static or mobile, with 5t CO₂eq or more of HFCs or 1kg or more of HFOs are now obligated to leak check their products.</p>
<p>Leak checks must be carried out by certified natural persons.</p>	<p>Leak checks must be carried out by certified natural persons.</p> <p>As regards the mobile equipment referred to in paragraph 3, point (c), the checks shall be carried out by natural persons holding at least a training attestation in accordance with Article 10(1), second subparagraph.</p>	<p>No changes regarding the persons carrying out the leak checks of static equipment.</p> <p>Mobile (a) refrigeration units of refrigerated trucks must now be leak checked by trained attested natural persons.</p> <p>Mobile (b) refrigeration units of refrigerated light-duty vehicles, intermodal containers, including reefers, and train wagons;</p>

		(c) air-conditioning equipment and heat pumps in heavy duty vehicles, vans, non-road mobile machinery used in agriculture, mining and construction operations, trains, metros, trams and aircraft must now be leak checked by trained attested natural persons after 3 years of this regulation entry into force.
Equipment with 5t CO ₂ eq HFCs must be checked every 12 months 50t CO ₂ eq HFCs must be checked every 6 months 500t+ CO ₂ eq HFCs must be checked every 3 months Intervals are doubled if a leak detection equipment is installed.	Equipment with 5t CO ₂ eq HFCs or 1kg HFOs must be checked every 12 months 50t CO ₂ eq HFCs or 10kg HFOs must be checked every 6 months 500t+ CO ₂ eq HFCs or 100kg HFOs must be checked every 3 months Intervals are doubled if a leak detection equipment is installed.	Leak detection is now also required for HFOs as well as HFCs. HFOs have their own leak detection steps at 1kg, 10kg and 100kg of refrigerant with the same intervals as HFCs.
Hermetic equipment of 10t CO₂eq or less HFCs shall not be checked.	Hermetic equipment of 10t CO₂eq or less HFCs or 2kg or less HFOs shall not be checked. By way of derogation from the second subparagraph, where hermetically sealed equipment is installed in residential buildings, it shall not be checked for leaks where that equipment contains less than 3kg of fluorinated greenhouse gases provided that it is labelled as hermetically sealed	Hermetic equipment with 2kg or more of HFOs must also have leak checks carried out. Hermetic equipment installed in residential buildings are now exempted from leak checks if they contain less than 3kg of fluorinated gases and are properly labelled as such.
-	8. The Commission may, by means of implementing acts, specify requirements for the leak checks to be carried out in accordance with paragraph 1 for each type of equipment referred to in paragraphs 2 and 3 and identify those parts of the equipment most likely to leak. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 34(2).	The Commission may specify further requirements for leak checks of equipment and identify parts that are most likely to leak.

Old F-GAS	New F-GAS	Changes
Leak detection equipment		
Leak detection equipment must be installed on systems: a) stationary refrigeration equipment; (b) stationary air-conditioning equipment; (c) stationary heat pumps; (d) stationary fire protection equipment; (f) electrical switchgear; (g) organic Rankine cycles. that contain 500t+ CO ₂ eq or more of HFCs	Leak detection equipment must be installed on systems: a) stationary refrigeration equipment; (b) stationary air-conditioning equipment; (c) stationary heat pumps; (d) stationary fire protection equipment; (f) electrical switchgear; (g) organic Rankine cycles. that contain 500t+ CO ₂ eq of HFCs as well as 100kg+ of HFOs	Leak detection equipment is now additionally required for stationary equipment with 100kg+ of HFOs

IV- Article 12 – Labelling and product and equipment information

Article 12 stipulates which products and equipment containing F-gases must be labelled, and how. Implementing Regulation (EU) 2024/2174 (published in September 2024) provides further details on what information should be mentioned on the label. Some changes have been made in the new Regulation and the new Implementing Regulation compared to the previous versions. Relevant changes are mentioned below. They will be mandatory from **1 January 2025** onward.

Equipment pre-charged with F-gases: Often, refrigerant is added to pre-charged F-gas equipment by the supplier or by the installer at the site of installation. Therefore, in addition to mentioning the quantity charged at the manufacturing site (or the charge for which the equipment is designed), the label must **leave space** for the quantity charged by the supplier and/or installer, as well as the resulting total quantity of F-gas in the equipment prior to putting the equipment into operation.

Reclaimed or recycled F-gases: The following text must be included on F-gas containers (cylinders) in certain cases (see below):

- a) '100 % Recycled' for recycled fluorinated greenhouse gases listed in Annexes I and II to Regulation (EU) 2024/573 (the new F-gas Regulation) that do not contain any virgin substances.
- b) '100 % Reclaimed' for reclaimed fluorinated greenhouse gases listed in Annexes I and II to Regulation (EU) 2024/573 that do not contain any virgin substances, or, in the case of mixtures, that the addition of virgin substances, to adjust the mixture composition, does not exceed 10 % of the mass of the mixture.

This applies to (see Regulation 2024/573, article 12(7) to (13)):

- Containers containing recycled or reclaimed F-gases listed in Annexes I and II. In the case of reclamation, information on the batch number and the name and address of the reclamation facility in the Union must be included.
- Containers containing F-gases listed in Annex I (HFC's) to be destroyed. They must also be labelled with an indication that the contents of the container are for destruction only.

- Containers containing F-gases listed in Annex I to be exported directly. They must also be labelled with an indication that the contents of the container are for direct export only.
- Containers containing fluorinated greenhouse gases listed in Annex I for use in military equipment. It must also be labelled with an indication that the contents of the container are to be used for that purpose only.

Annex IV of the new F-gas Regulation ((EU) 2024/573) – ‘Placing on the market prohibitions’ (colloquially referred to as ‘product bans’) – mentions in several instances: “[...] except if required to meet safety requirements at the site of operation.” If this is mentioned in a certain product ban in Annex IV, then the label on the corresponding equipment must include the following text: “Prohibited to be operated, unless required by safety requirements that have to be applied at the site of operation”, complemented by a reference to the applicable safety requirement that would make the use of an F-gas with a higher GWP than mentioned in the product ban necessary.

V- Article 13: Control of use / service ban

Refrigeration equipment

The service ban concerning refrigeration equipment with a refrigerant charge size of 40 tonnes CO₂-equivalent or more, using refrigerants with ≥ 2500 GWP in the previous Regulation (517/2014) is generalized in the new Regulation (2024/573) to include all systems, regardless of refrigerant charge size:

- Service and maintenance of any refrigeration equipment with refrigerants ≥ 2500 GWP is prohibited from 1 January 2025.
- Exception for reclaimed or recycled refrigerant until 1 January 2030, provided that:
 - o Reclaimed refrigerant has been properly labelled in accordance with article 12(7). Furthermore, the reclaimed refrigerant is used for servicing and maintenance of existing refrigeration equipment. (Note the definition of ‘reclaimed’ in the new Regulation.)
 - o Recycled refrigerant has been recovered from existing equipment. It may only be used by the undertaking which carried out the recovery or by the undertaking for which the recovery was carried out. (Note the definition of ‘recycled’ in the new Regulation.)
- The use of refrigerants ≥ 750 GWP for maintenance or service of refrigeration equipment (excluding chillers) is prohibited from 1 January 2032.

Heat pump and air conditioning equipment

A similar ban is introduced for heat pump and air conditioning equipment, but one year later.

- Service and maintenance of heat pump and air conditioning equipment with refrigerants ≥ 2500 GWP is prohibited from 1 January 2026.
- Exception for reclaimed or recycled refrigerant until 1 January 2032, with the following conditions:
 - o Reclaimed refrigerant has been properly labelled in accordance with article 12(7). Furthermore, the reclaimed refrigerant is used for servicing and maintenance of existing refrigeration equipment.
 - o Recycled refrigerant has been recovered from existing equipment, and they may only be used by the undertaking which carried out the recovery or by the undertaking for which the recovery was carried out.

Exemptions

The following types of equipment are however **exempted**:

- Military equipment;
- Equipment used for deep freezing (below -50°C);

What does this mean for contractors?

Refrigerants ≥ 2500 GWP are mostly seen in mid or low temperature applications such as in supermarkets, cold stores, in the food processing industry, in catering, reefers, fruit & vegetable refrigeration and industrial refrigeration. In most of these installations the refrigerant charges are higher or much higher than 10-15 kg, which means they fall under the service ban even before 1 January 2025.

This provision will continue to have a great impact on the contractor as well as the customer. It is expected that recycling and reclaiming of F-gases with $\text{GWP} \geq 2500$ will occur more and more often in order to increase availability, although prices are expected to rise due to the quota restrictions.

What does AREA recommend?

AREA recommends already now being very restrictive in promoting and quoting installations containing higher-GWP refrigerants. Under the new Regulation, the phase-down will be significantly accelerated. Availability and price of higher-GWP refrigerants will be ever increasing challenges.

If such refrigerants are chosen despite this, we strongly recommend that customers / end users are carefully informed of the consequences they will face regarding availability and price level of these refrigerants in the future.

VI- Training and certification

Article 10

The new regulation adds more requirements on certification of natural persons and legal persons/undertakings. The certification shall cover activities involving fluorinated greenhouse gases (adding HFO blends in Annex II) and relevant alternatives to fluorinated greenhouse gases including natural refrigerants such as carbon dioxide, ammonia and hydrocarbons.

Who needs to be certified?

A- Natural persons (i.e. personnel) carrying out certain tasks on certain types of equipment must be certified or qualified.

Relevant equipment:

1. stationary refrigeration, air conditioning and heat pumps
2. refrigeration units of refrigerated trucks (above 3,5 t) and trailers
3. **New!** refrigeration units of refrigerated light-duty vehicles, intermodal containers including reefers and train wagons
4. **New!** air-conditioning equipment and heat pumps in heavy duty vehicles, vans, non-road mobile machinery used in agriculture, mining and construction operations, trains, metros, trams and aircraft

5. air conditioning equipment in road vehicles within the scope of Directive 2006/40/EC on mobile air conditioning (recovery only)

Member States can adopt further certification and training programmes on other types of equipment.

Depending on the certificate (see below), certification is required for performing the following tasks:

- a) Installation, servicing, maintenance
- b) Repair
- c) Decommissioning
- d) Leakage checking
- e) Recovery

B- Legal persons (i.e. undertakings/companies, but also self-employed contractors) carrying out certain tasks on certain types of equipment for other parties must be certified.

Relevant equipment:

1. Stationary refrigeration, air conditioning and heat pumps
2. refrigeration units of refrigerated trucks (above 3,5 t) and trailers
3. **New!** refrigeration units of refrigerated light-duty vehicles, intermodal containers including reefers and train wagons
4. **New!** air-conditioning equipment and heat pumps in heavy duty vehicles, vans, non-road mobile machinery used in agriculture, mining and construction operations, trains, metros, trams and aircraft

Member States can adopt further certification and training programmes on other types of equipment.

- a) Installation, servicing, maintenance
- b) Repair
- c) Decommissioning

The owners/operators of the equipment must take reasonable steps to ascertain that the undertaking performing the abovementioned tasks holds the necessary certificate.




























Summary of certification requirements:



Legal person/company



Natural person

	Installation, servicing, maintenance	Repair	Decommissioning	Leakage checking	Recovery
Stationary RACHP equipment	 	 	 		
Refrigerated trucks (above 3,5 t) & trailers	 	 	 		
Refrigeration units of refrigerated light-duty vehicles, intermodal containers including reefers and train wagons ²	 	 	 		
A/C in road vehicles specified in Directive 2006/40	 ¹⁾	 ¹⁾			 ¹⁾
A/C in road vehicles <i>not</i> specified in Directive 2006/40 ²	 ¹⁾	 ¹⁾	 ¹⁾	 ¹⁾	 ¹⁾

¹ Personnel must hold at least a training attestation

² The obligation will not apply until 12 March 2027.

Implementing Regulation 2024/2215- Certificates

Implementing Regulation 2024/2215 specifies the following certificates for persons (the term 'categories' is no longer used):

Certificate	Type of refrigerant	Remarks
A1	F-gas + hydrocarbons	All charges
A2	F-gas + hydrocarbons	Systems with charge < 3 kg (< 6 kg if hermetically sealed system and labelled as such)
B	Carbon dioxide (CO ₂)	All charges
C	Ammonia (NH ₃)	All charges
D	Recovery of F-gases only	Systems with charge < 3 kg (< 6 kg if hermetically sealed system and labelled as such)
E	Leak checks of F-gas equipment only	Without breaking into the refrigerant circuit

What happens to existing certificates and training attestations?

Certificates and training attestations issued in accordance with the previous Regulation - (EU) No 517/2014 - shall remain valid, in accordance with the conditions under which they were originally issued.

Holders of certificates under (EU) 517/2014 shall participate in refreshment training course or complete an evaluation process (certification) **no later than 12 March 2029** (5 years after Regulation 2024/573's entry into force).

Re-certification

At least **every seven years** certified natural persons will need to participate to refreshment training course or complete an evaluation process (renew the certification).

Holders of certificates under 517/2014 shall participate to refreshment training course or complete an evaluation process (certification) **no later than 12 March 2029** (5 years after the regulation's entry into force).

Regardless of the certificate's validity, individuals who would like to update their knowledge (notably on information on alternatives) can always do so and Member States must actually make sure training is available for that purpose.

Certification & training programmes

Content

The certification programmes and training on practical skills and theoretical knowledge shall cover the following:

- applicable regulations and technical standards;
- emission prevention;
- recovery of fluorinated greenhouse gases;
- safe handling of equipment of the type and size covered by the certificate;
- **New!** safe handling of equipment with flammable refrigerants (such as hydrocarbons) and/or toxic gases (such as ammonia) or those operating under high-pressure (such as carbon dioxide);
- **New!** the measures of improving or maintaining the energy efficiency of equipment during installation or maintenance

Certificates under the certification programmes referred to in the Regulation are subject to the condition that the applicant has successfully completed an evaluation process established in accordance with the Regulation and with implementing acts on minimum requirements, in particular **Implementing Regulation (EU) 2024/2215**, which was officially published by the European Commission on 9 September 2024. The Annex to (EU) 2024/2215 contains a table with minimum requirements concerning skills and knowledge.

Availability and mutual recognition

Member States will establish or adapt the certification programmes for legal persons and natural persons mentioned in F-gas Regulation (EU) 2024/573 by 29 September 2025, i.e. one year after the entry into force of Implementing Regulation (EU) 2024/2215.

Member States shall recognise certificates and training attestations issued in another Member State in accordance with the Regulation. They shall not restrict the freedom to provide services or the freedom of establishment because a certificate was issued in another Member State.