# Heat Pump Association Position on Installer Training requirements for individuals working with non-Fluorinated flammable refrigerants and Fluorinated refrigerants in heat pump systems

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## Purpose

This document sets out the Heat Pump Association's (HPA) position on the recommended training requirements for those installing and working on heat pump appliances which contain non-Fluorinated-Gas (non-F-Gas) flammable refrigerants.

## Background

The Regulation (EU) 2024/573[1] on fluorinated greenhouse gases came into force in March 2024 and repealed the former Regulation (EU) 517/2014 covering the installation and servicing of equipment containing Fluorinated Gasses. The EU F-Gas Regulation (517/2014) is still retained in UK law and is reflected in the UK The Fluorinated Greenhouse Gases Regulations (310/2015)[2], under the responsibility of DEFRA.

Importantly, Regulation (EU) 2024/573[3] now covers “alternatives, including natural refrigerants”. Specifically, Article 10 sets out the general principles for Training and Certification for activities involving both fluorinated greenhouse gases and “alternatives, including natural refrigerants”. Regulation (EU) 2024/2215[4] (which repealed (EU) 2015/2067) now sets out the minimum certification and skills requirements for those working on refrigeration units containing “alternative refrigerants”. Regulation (EU) 2015/2067[5] which does cover “alternative refrigerants”, is still current and retained in the UK.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R0573
[2] https://www.legislation.gov.uk/uksi/2015/310/contents/made
[3] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R0573
[4] https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32024R2215
[5] https://www.legislation.gov.uk/eur/2015/2067

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Note that the EU Directive terminology of “alternatives” is understood to include non-fluorinated refrigerants, and those referred to as “natural” refrigerants, including ammonia, carbon dioxide and hydrocarbons. Propane refrigerant is a hydrocarbon.

A consultation on updating the UK F-Gas regulations is anticipated and is expected to clarify requirements relating to the training and certification of those working with “alternative refrigerants”.

With the increasing regulatory pressure to reduce the quantity of fluorinated refrigerants placed onto the market, equipment manufacturers are seeking to use lower Global Warming Potential (GWP) refrigerants in their latest heat pump technologies. Typically, these low GWP refrigerants are non-fluorinated, and importantly, this means that non-fluorinated refrigerant gases are not covered by the current UK F-Gas regulations.

In addition, many of the lower GWP refrigerants have a safety class rating of “flammable” or “higher flammability”. For these lower GWP non-fluorinated “flammable” refrigerants, within the UK, there is currently no minimum or mandatory training and handling requirement for engineers working on the refrigerant circuit of a heat pump, and there is no requirement to hold a “flammable refrigerant” handling qualification. It should be noted that the Health and Safety at Work Act obliges companies to consider risks and safe working practices.

The heat pump industry is mindful that appropriate safety consideration is given to the handling, training and installation of equipment containing “alternative” refrigerants, such as natural refrigerants and non-fluorinated, flammable refrigerants. The main risk of refrigerant leaks from a heat pump circuit arises during installation, servicing and end-of-life disposal. For heat pump systems containing non-fluorinated flammable refrigerants, it is vitally important that installation and service personnel are properly trained to handle these refrigerants safely. It is also important that those who play a role in the installation of such a system have at least a basic understanding of the considerations required.

The HPA has therefore developed this policy position paper to support the development of formalised training requirements and considerations for those who handle and work on heat pump systems which contain a non-fluorinated, flammable refrigerant. In this way, we seek to support the heat pump industry in its transition to low-GWP refrigerants safely and responsibly until clearer regulation requirements are available.

## Further explanation about ISO safety classes

Heat pump equipment manufacturers have typically tended to select refrigerants with the least safety concerns, i.e. refrigerants that are non-toxic and not flammable. However, with the environmental pressure to use lower GWP gasses, industry is beginning to transition to refrigerants that are lower GWP and are designing and selling equipment that uses such, for example, R290 (propane), which has a higher flammability rating. Other low GWP refrigerants, which also have a higher flammability rating, may also be used in the future.

**Table 1: ISO 817 safety groups as defined by flammability and toxicity**

| | Safety Group | |
|---|---|---|
| | Lower toxicity | Higher toxicity |
| **Higher Flammability** | A3 | B3 |
| **Flammable** | A2 | B2 |
| **Lower Flammability** | A2L | B2L |
| **No flame propagation** | A1 | B1 |

Many lower GWP refrigerants are non-Fluorinated gasses and under ISO 817:2014[6] have a safety classification of "flammable" or "higher flammability". Two common examples of low GWP refrigerants used in heat pump systems are:

- R290: GWP <3; ISO 817 class A3 (higher flammability, lower toxicity)
- R123yf: GWP 4; ISO 817 class A2L (flammable, lower toxicity)

Some of the common lower GWP refrigerant gasses are designated A3 "higher flammability", meaning that it is easier to inadvertently ignite the refrigerant if the gas were to leak out, either due to a system fault, building incident, or servicing error. These types of refrigerants have a higher burning velocity, lower flammability limit and lower minimum ignition energy, which means that in the unlikely event of an accidental release of the pressurised gas, it is easier to ignite the refrigerant gas than for a more traditional heat pump refrigerant, such as R410a (A1, "no flame propagation").

[6] ISO 817:2014 https://www.iso.org/standard/52433.html

## HPA Policy Position Statement

The HPA recommends that awareness of both F-Gas and non F-Gas flammable refrigerants should be held by all those installing heat pumps, and an overview of such must be included in **all** heat pump training courses.

Those installers who are installing split-refrigerant heat pump systems that contain an F-Gas and those who break the hermetic seal of a heat pump containing an F-Gas for servicing/maintenance purposes are legally required to be F-Gas trained and registered in line with the current UK "Fluorinated Greenhouse Gases Regulations (310/2015[7])".

For those installers who are installing split-refrigerant heat pump systems containing an "alternative" refrigerant, such as a natural refrigerant or non-F-Gas[8] flammable refrigerant and those who break the hermetic seal of a heat pump containing an "alternative" refrigerant, such as a natural refrigerant or non-F-Gas flammable refrigerant for servicing/maintenance purposes, the HPA recommends that they should hold a formal qualification on understanding the properties and application of non-F-Gas flammable refrigerants. See Section 5 for further details.

Also, the HPA recommends that a formal qualification be held by those performing a leak check on any heat pump, including those containing an "alternative" refrigerant, such as a natural refrigerant or non-F-Gas flammable refrigerant.

The HPA recommends that all those who currently hold a qualification for installing, servicing/maintaining or performing leak checks on any heat pump should seek to undertake appropriate training on "alternative" refrigerants, including natural refrigerants and non-F-Gas flammable refrigerants.

## Detailed explanation

A monobloc[9] heat pump has a sealed refrigerant circuit, which is pre-charged with refrigerant at the factory. In a split-refrigerant heat pump, the refrigerant circuit is divided between two or more factory assembled units and requires refrigerant pipework connecting between the outdoor unit and the indoor unit to be installed, charged (filled) and commissioned on-site by a qualified person. Air source heat pumps (ASHP) might be of either type, whilst ground source heat pumps (GSHP) and exhaust air heat pumps (EAHP) are generally but not exclusively monobloc types.

[7] https://www.legislation.gov.uk/uksi/2015/310/contents

[8] Non F-Gas refrigerants (hydrocarbons) examples include R290 Propane are rated A3. Current Flammable F-gasses R32 is rated as A2L under ISO817 whereas R290 is rated as A3.

[9] Monobloc heat pump is one which has a hermetically sealed compressor in the heat pump unit.

Under current GB F-Gas legislation, all engineers who are installing split refrigerant heat pump systems that contain an F-Gas and all those who are servicing, maintaining, or breaking the refrigerant seal of either monobloc or split-refrigerant systems that contain an F-Gas must have a formal F-Gas qualification. To service refrigeration or stationary air conditioning and heat pump systems that contain an F-Gas for other businesses, companies must have certification from a DEFRA-recognised certification body[10], such as REFCOM or equivalent.

For those installers who are installing split-refrigerant heat pump systems containing a non-F-Gas flammable refrigerant and those who break the hermetic seal of a heat pump containing a non-F-Gas flammable refrigerant for servicing/maintenance purposes, the HPA recommends they should hold a formal qualification on understanding the properties and application of non-F-Gas flammable refrigerants - in accordance with ACRIB specification (A2L, A2 and A3)[11],[12] . Such courses require a Certificate of Training in handling F-Gasses from an accredited organisation[13] as a prerequisite.

The HPA recommend that all those installing and servicing monobloc heat pumps, including GSHPs, where they do not break the hermetically sealed refrigerant circuit, should have an awareness of both (i) F-Gas and (ii) Non-F-Gas Flammable refrigerants and an overview of such must be included in all heat pump training courses. All engineers should undergo awareness training to recognise if the refrigerant is leaking, if a refrigerant circuit is not working correctly, and how to take appropriate action. The HPA RQF specification has been updated to reflect these recommendations for non-F-Gas flammable refrigerant awareness training.

Whilst there is currently no mandatory requirement for engineers to hold a “flammable refrigerants” qualification, the HPA would like to remind engineers, installers and employees working on heat pump systems of their obligations under the Health and Safety at Work Act. The HPA are calling for an overview of non-F-Gas Flammable refrigerants to be included in all heat pump training courses at the earliest opportunity.

Please also see the reference documents from the Institute of Refrigeration, Good Practice Guides 113 and 56.[14]

[10] https://www.gov.uk/guidance/certification-for-companies-working-on-equipment-containing-f-gas
[11] https://lclawards.co.uk/qualifications/rqf/lcl-awards-level-3-award-in-understanding-the-properties-and-use-of-flammable-refrigerants-in-accordance-with-acrib-specification-a2l-a2-and-a3/
[12] https://acrib.org.uk/public/downloads/Rc9SG/ACRIB%20flammable%20training%20spec%20R2%2025.9.pdf
[13] https://www.gov.uk/guidance/qualifications-required-to-work-on-equipment-containing-f-gas#working-with-f-gas-in-the-eu
[14] https://ior.org.uk/technical/rachp-publications

| Training Requirements summary | Monobloc (where the hermetic seal is not broken) | Split (plus Monobloc where the hermetic seal is broken) |
|---|---|---|
| Installation and servicing of heat pumps with fluorinated refrigerant gasses (F-Gas) | Awareness training as part of all heat pump training courses. | To be trained, competent and registered under a F-Gas scheme managed by a Certified Body |
| Installation and servicing of heat pumps with non-fluorinated flammable (non-F-Gas) refrigerants | NEW: HPA recommends engineers undergo awareness training as part of any heat pump training course which must include flammability risk and siting requirements. | Not currently mandatory. NEW: HPA recommends engineers hold a formal qualification on understanding the properties and application of non-F-Gas flammable refrigerants in accordance with the ACRIB specification. |

## Flammables Refrigerant Handling Training courses

**The HPA recommends Flammables Refrigerant Handling courses that align with the ACRIB specification.**

The "Air Conditioning and Refrigeration Industry Board" (ACRIB) has produced a specification[15] for the development of training courses and qualifications which cover the understanding, properties and the application of all A2L, A2 and A3 class flammable refrigerants, including RAC system installation, testing, servicing and maintenance techniques and specific requirements when using different refrigerant classifications in various applications.

Qualifications and training based on the ACRIB specification are currently[16] available from:

- BESA Flammable refrigerants (classification A2L A2 and A3)
- LCL Awards Level 3 Award in Understanding the properties and use of flammable refrigerants in accordance with ACRIB specification (A2L, A2 and A3).

[15] https://acrib.org.uk/help-and-advice/careers-and-training

[16] Correct as of 9th September 2025.

*Note: The ACRIB specification can be used by trainers or awarding bodies or anyone else as a basis to develop their own courses. ACRIB do not endorse or act as an awarding body.*

***Disclaimer:*** *While the information in this document has been compiled in good faith, no warranty is given or should be implied for its use, and the Heat Pump Association hereby disclaims any liability that may arise from its use to the fullest extent permitted under applicable law.*