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FACTSHEET

Alternative Refrigerants – FAQs

The *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989* controls the manufacture, import and export of all ozone-depleting substances (ODSs) and synthetic greenhouse gases (SGGs) while the Regulations control major end-uses. According to a recent, industry-wide study[1], these gases make up approximately 95% of all refrigerant gas currently in use.

The remaining 5% of 'alternative' refrigerants (alternative to SGGs) include ammonia, carbon dioxide and hydrocarbons. These gases are not covered by the ARC licence scheme.

Some commonly asked questions and answers about alternative refrigerants

Q - Do I need an ARC licence to handle alternative refrigerants – like hydrocarbons?

A – Only fluorocarbon-based refrigerants are covered under the ARC licence scheme and the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995.

If you are recovering fluorocarbon gas from a system – whether from stationary or automotive equipment – and replacing it with an alternative refrigerant, you will require an appropriate refrigerant handling licence through the ARC.

You can find out more, including what type of ARC licence you require for the type of work you are doing, by going to the ARC website at www.arctick.org.

Q – Do I need any licences or cards to use alternative refrigerants – like hydrocarbons?

A – An ARC licence is not required to handle alternative refrigerants as they are not listed as scheduled substances under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*. However, other licence requirements may apply, for example, in relation to Work Health and Safety and dangerous goods requirements.

In Queensland, under its *Petroleum and Gas (Production and Safety) Act 2004*, a license is required to undertake work with Hydrocarbon refrigerant.

Contact your relevant state/territory agency to find out what your obligations are.

[1] Cold Hard Facts 4, Peter Brodribb, Michael McCann, Graeme Dewerson, Jelena Franjić and Graham Anderson, report prepared for the Department of Climate Change, Energy, the Environment and Water, Canberra. CC BY 4.0. https://www.dcceew.gov.au/sites/default/files/documents/cold-hard-facts-4.pdf

You can visit the Safe Work Australia website to find the relevant work health and safety authority in your state or territory: www.safeworkaustralia.gov.au/sites/SWA

You can also view Regulatory Landscape for Flammable Refrigerants on the Refrigerants Australia at website at www.refrigerantsaustralia.org/overview-infographic.html which provides an overview and links to the regulatory and quasi-regulatory instruments that control the use and handling of flammable refrigerants in different jurisdictions around Australia.

Q – What are the safety issues when using alternative refrigerants?

A – All refrigerants should be handled with care as each refrigerant comes with its own unique risks: some are toxic, some are flammable and some are used under high pressure.

Check with the relevant state-based WorkSafe agencies and refer to the relevant material safety data sheets available from refrigerant wholesalers for specific safeguards when handling alternative refrigerants.

For flammable refrigerants such as hydrocarbons and R32 also refer to the:

- Flammable refrigerant gases – position paper, by the Heads of Workplace Safety Authorities (HWSA) which covers information on the obligations of work health and safety duty holders with respect to the use of flammable refrigerant gases at workplaces.
- AIRAH Flammable Refrigerants Safety Guide which sets out in detail the safety considerations when handling and using flammable refrigerants. This booklet can be downloaded from the AIRAH website – https://airah.org.au/site/site/resources/flammable-refrigerants-safety-guide.aspx.
- AS/NZS 5149.1:2016 Refrigerating systems and heat pumps—Safety and environmental requirements, Part 1: Definitions, classification and selection criteria.
- AS/NZS 5149.2:2016 Refrigerating systems and heat pumps—Safety and environmental requirements, Part 2: Design, construction, testing, marking and documentation.
- AS/NZS 5149.3:2016 Refrigerating systems and heat pumps—Safety and environmental requirements, Part 3: Installation site.
- AS/NZS 5149.4:2016 Refrigerating systems and heat pumps—Safety and environmental requirements, Part 4: Operation, maintenance, repair and recovery.
- AS/NZS 60335.2.40:2019 Household and similar electrical appliances — Safety, Part 2.40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers.
- AS/NZS ISO 817:2016 Refrigerants—Designation and safety classification.

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Q – Can alternative refrigerants be used in air conditioners (stationary and car) and refrigerators?

A – Generally, equipment is designed for a particular refrigerant. Equipment manufacturers, gas suppliers, refrigeration engineers and state and territory work health safety regulators, can provide advice on equipment and refrigerant selection, as well as warranties and safety.

Existing systems designed to operate of Class A1 (non-flammable) refrigerants must not be retrofitted to use Class A2/A2L or A3 (flammable) refrigerants. They would require extensive modification and laboratory validation to confirm the safety level has been increased to satisfy the requirements of Australian and international standards. It is not just the electrical components that must be compliant with the mandatory safety requirements for the refrigerant used, it is the whole system. Anyone doing a conversion or modification takes on the responsibilities of the designer/manufacturer and therefore must certify that the modified product is compliant with all applicable codes, standards and charge limit requirements.

Under the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995, it is an offence to charge RAC equipment with a refrigerant that has a higher global warming potential (GWP) than the refrigerant the equipment was designed to use.

Q – Is there any training available for the use of alternative refrigerants?

A – The following national units of competency cover:

A2/A2L refrigerants (including R32)

- VU22583 Handle Class A2/A2L Flammable Refrigerants

A2/A2L and A3 refrigerants

- UEERA0007 Apply safety awareness and legal requirements for flammable refrigerants
- UEERA0048 Install and commission flammable refrigerant air conditioning and refrigeration systems
- UEERA0084 Service and repair self-contained flammable refrigerants air conditioning and refrigeration systems

Ammonia (R717) refrigerant

- UEERA0005 Apply safety awareness and legal requirements for ammonia refrigerant
- UEERA0046 Install and commission ammonia refrigeration systems, components and associated equipment
- UEERA0065 Repair and service ammonia refrigeration systems

Carbon dioxide (R744) refrigerant

- UEERA0006 Apply safety awareness and legal requirements for carbon dioxide refrigerant
- UEERA0047 Install and commission carbon dioxide refrigeration systems, components and associated equipment
- UEERA0066 Repair and service carbon dioxide refrigeration systems
- UEERA0068 Repair and service self-contained carbon dioxide refrigeration and heat pump systems

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The ARC Green Scheme Accreditation program provides national accreditation for Refrigerant Handling Licence holders to demonstrate they are qualified to work with natural refrigerants. More information is available at: www.arcltd.org.au/support/green-scheme-accreditation/

To find registered training organisations visit www.training.gov.au

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