

Making our world more productive



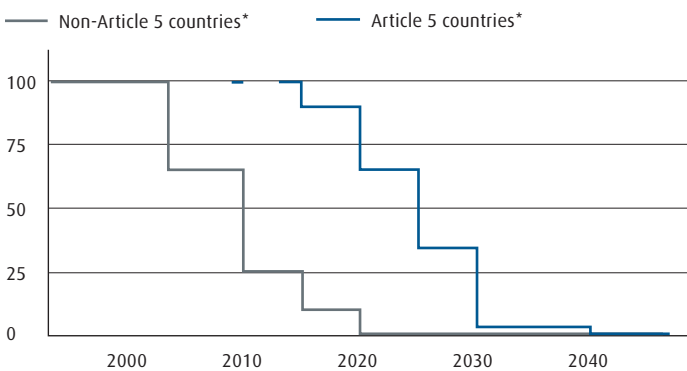
R32.

Lower GWP HFC refrigerant for
air conditioning applications.

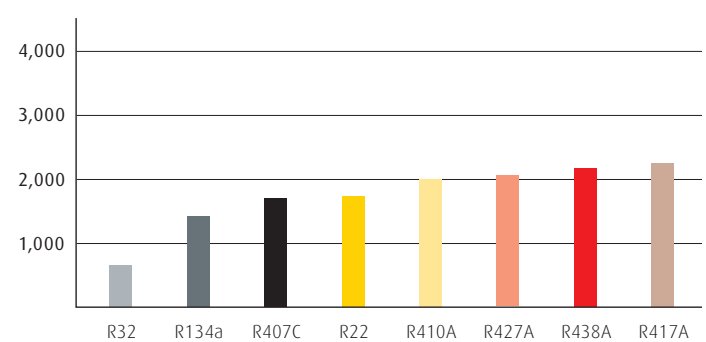


R32. Lower GWP HFC refrigerant for air conditioning applications.

HCFC phase-down schedule (in %)



GWP of some common HFC refrigerants



The environmental challenge

A growing focus on the environmental impact of refrigerants is fuelling demand for sustainable refrigeration and air conditioning solutions that can provide satisfactory cooling performance with zero ozone depletion potential and lower global warming impact.

Government regulation is increasingly impacting the choice of gas used in refrigeration and air conditioning applications. The Montreal Protocol is phasing out the use of gases such as R22 with ozone depleting potential (ODP). In parallel local legislation, such as EU f-gas regulations, are aiming to reduce the use of HFCs with higher global warming potential (GWP). This is propelling environmentally friendly HVAC solutions to the top of the corporate sustainability agenda.

R32: Zero ODP, lower GWP refrigerant

R32 is an HFC that is already widely used as a component in many existing refrigerant blends including R407 series, R410A, R427A, R438A, R442A and R449A.

However the use of pure R32 is gaining momentum, as the drive for high energy efficiency and low environmental impact refrigerants increases. This zero-ODP and lower-GWP (only 675) alternative provides substantial environmental benefit whilst also providing additional advantages such as substantially lower system charge sizes and higher efficiency versus R410A.

R32 is especially suitable for use in applications that historically have used R22 or R410A. Prime examples include small split domestic air conditioning systems.

R32 is generally not suitable for use as a retrofit gas due to differing thermodynamic and physical properties including mild flammability. Instead it is most suited for use in new equipment designed with these properties in mind.

	R32	R22	R410A
Gas type	HFC	HCFC	HFC blend (50% R32, 50% R125)
Preferred oil	Polyolester (POE)	Mineral (MO) or alkylbenzene (AB)	Polyolester (POE)
ASHRAE safety classification	A2L – non-toxic and mildly-flammable	A1 – non-toxic and non-flammable	A1 – non-toxic and non-flammable
Boiling point @ 1atm	-52 °C	-41 °C	-51 °C
Critical temperature	78 °C	96 °C	71 °C
Critical pressure	58 bar(a)	50 bar(a)	49 bar(a)
Ozone depletion potential (ODP)	0	0.055	0
Global warming potential (GWP)	675	1810	2088
GWP % R410A	32%	87%	100%



Benefits at a glance

- Lower environmental impact
- Zero ozone depletion potential
- Non-toxic
- GWP of 675 – just 32% of R410A
- 25% smaller charge sizes further lowering CO₂e footprint
- Meets EU f-gas requirements for small single-split AC systems
- (GWP <750)

Impressive performance

- Especially suitable for use in air conditioning systems
- Better system efficiency than R410A
- Suited to all climates across the world

Other benefits

- Pure gas – no fractionation risk
- Existing HFC gas already being manufactured as a blend component
- Growing range of compatible equipment
- Successfully launched in Japan & India

Additional information

R32 is flammable and may require additional measures during implementation, use and service to meet safety and regulatory requirements (e.g. ISO 817, EN 378). We also recommend that you carry out a risk assessment prior to purchasing.

R32 should only be used in systems designed to operate with this gas. It should not be used to retrofit existing R22 or R410A systems.

R32 has higher discharge temperatures than R410A. It is thus advisable to consult compressor manufacturers to confirm acceptable discharge temperatures.

Trusted partner

The Gases Division of Linde is one of the largest and most global distributors of refrigerants. For more than 40 years, we have been a trusted partner of refrigeration and air conditioning companies around the world. We operate throughout Europe, Africa, Asia-Pacific and the Americas.

Our broad product range spans both traditional fluorocarbon and natural refrigerants in a wide range of packages. R32 is a new product at early stages of commercialisation; therefore it is most commonly available in cylinders. Larger volumes may be available on request.

Our high-quality operations and vast distribution networks ensure the quality and availability of our products. We also offer a range

of complementary services, including technical support, legislative compliance assistance and environmental audits

Getting ahead through innovation.

With its innovative concepts, Linde is playing a pioneering role in the global market. As a technology leader, our task is to constantly raise the bar. Traditionally driven by entrepreneurship, we are working steadily on new high-quality products and innovative processes.

Linde offers more. We create added value, clearly discernible competitive advantages and greater profitability. Each concept is tailored specifically to meet our customers' requirements – offering standardized as well as customised solutions. This applies to all industries and all companies regardless of their size.

Linde – ideas become solutions.

