Technical Data of R1234ze Gas

Characteristics and applications

The R-1234ze refrigerant gas is an HFO that replaces R-134a in chillers for industrial refrigeration and A/A. As with all HFO refrigerants, it causes no damage to the ozone layer. It has great thermal and chemical stability, low toxicity and is also highly compatible with the majority of materials.

R-1234ze is non-flammable, in accordance with the ASHRAE standard 34 (ISO 817). However, it may catch fire if it is mixed with pressurised air and is exposed to strong ignition sources. Its safety classification is **A2L** group **L2.**

It is miscible with polyolester synthetic oils (POE) and polyalkylene glycols (PAG), so it should always be used with these kinds of oils.

It is used in chillers, hermetic compressors for industrial refrigeration, vending machines, refrigerated cabinets and cold rooms.

Toxicity and storage

R-1234ze is a substance with a very low toxicity. R-1234ze cylinders should be stored in a cool and well-ventilated place, away from heat sources. The vapours from R-1234ze are heavier than air and may cause asphyxiation by reducing the oxygen in the air being breathed. Protect it from solar rays and avoid exposing it to temperatures over 50 °C.

A unique feature of R-1234ze is the fact that it is non-flammable when mixed with air at 30°C below room temperature. It is therefore considered non-flammable for handling and storage.

Components

Chemical Name	% By weight	CAS No.	EC No.
trans-1,3,3,3-Tetrafluoroprop-1-ene (R-1234ze)	100	29118-24-9	471-480-0

Physical properties

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Molecular weight	(g/mol)	114.0
Boiling point	(ºC)	-19.0
Critical temperature	(ºC)	109.4
Critical pressure	(bar)	36.36
Critical density	(Kg/m³)	489.0
Vapour pressure (20ºC)	(bar)	4.27
Vapour pressure (54,4ºC)	(bar)	11.15
Density (21,1ºC)	(Kg/m³)	1170
Solubility in water	(mg/l)	373
Sliding temperature or glide	(K)	0
Safety classification		A2L
Auto-ignition temperature	(ºC)	368
ODP	-	0
GWP	-	7*

* According to IPPCC-AR4/CIE (Fourth Assessment Report of the Intergovernmental Panel of Experts on Climate Change)-2007