



## R-23

### TRIFLUOROMETHANE – CHF<sub>3</sub>

#### GUARANTEED COMMERCIAL SPECIFICATIONS

STANDARD SPECIFICATIONS	LIMIT VALUE
Purity	≥ 99.5 % weight
Water content	≤ 10 ppm weight
Non-condensable content (gas phase)	≤ 1.5 % volume
High-boiling residues	≤ 0.01 % volume
Total acidity (HCl)	≤ 1 ppm weight

#### MAIN APPLICATIONS

R-23 is a "hydrofluorocarbon" (HFC) intended for very low temperatures (-60 to -100°C) applications with reciprocating or rotary compressors.

It is used for the second stage in a cascade refrigeration system, the first stage may be operating with R-448A or R-407F, which are replacement fluids for R-404A and R-507A (climatic test chamber, freeze-dry system).

#### OILS

Use a polyol ester (POE) oil.

Check with Marsis regarding the viscosity of the oil selected for your application, and the miscibility with the fluid under consideration.

#### PRECAUTIONS OF USE

Refer to the Safety Data Sheet\*.

\*To request direct access to Safety Data Sheets (SDS), please contact us: [marsisltd.com](http://marsisltd.com)

## R-23 PHYSICAL PROPERTIES

Molar mass	g/mol	70.01
Melting point	°C	-155.2
Boiling point (at 1.013 bar)	°C	-82.0
Density of the saturated liquid at 25°C	kg/ m <sup>3</sup>	680
Steam density at boiling point	kg/ m <sup>3</sup>	4662
Vapour pressure at 25°C	bar	46.99
Critical temperature	°C	26.14
Critical pressure	bar	48.32
Critical density	kg/ m <sup>3</sup>	527
Latent heat of vaporisation at boiling point	kJ/ kg	239.37
Thermal conductivity of liquid at 25°C	w/(m.K)	0.053
Thermal conductivity of vapour under 1.013 bar	w/(m.K)	0.014
Surface tension at 25°C	10 <sup>-3</sup> N/ m	0.04
Viscosity of liquid at 25°C	10 <sup>-3</sup> Pa-s	0.044
Viscosity of vapour at 1.013 bar		0.015
Specific heat of liquid at 25°C Specific heat of vapour at 1.013	kJ/(kg.K)	18.871 0.737
Cp/Cv ratio at -10°C at 1.013 bar		1.201
Flammability in air		non-flammable
Flash point		none
Classification NF-EN 378 / ASHRAE PE(S)R		A1 Category 2
Ozone Depletion Potential	(R-11=1)	0
GWP according to Regulation (EU) 2024/573 (F-Gas III)		14800
	(CO2 = 1)	
GWP (AR4 / AR6)		14800 / 14600

For more information, please contact the Marsis sales department.

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