



Refrigerants

Solstice[®] zd

R-1233zd - Trans-1-chloro-3,3,3-trifluoropropene

GUARANTEED COMMERCIAL SPECIFICATIONS

STANDARD SPECIFICATION	LIMIT VALUE
Purity	≥ 99.5 % weight
Water content	\leq 20 ppm weight
Total Acidity (HCL)	≤1 ppm weight
Non-condensable content (gas phase)	N/A

MAIN APPLICATIONS

R-1233zd is a pure HFO with very low GWP. It is suitable for new installations in industrial air conditioning applications or in installations equipped with centrifugal compressors. Its low pressure makes it a motor fluid for organic rankine cycle (ORC) turbines.

OILS

Use a polyol ester (POE) oil.

Consult **Climalife** regarding the viscosity of the oil selected for your application and the most suitable for your application.

PRECAUTIONS OF USE

Refer to the Safety Data Sheet*.

REGULATION

Use, implementation and recovery of R-1233zd are governed by European regulation no. 2024/573. It is also important to refer to the regulations in force in each country in Europe and outside Europe.

* Find the Safety Data Sheet (SDS) directly on our website www.climalife.com

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PHYSICO-CHEMICAL PROPERTIES OF SOLSTICE ® zd

Boiling point (at 1.013 bar) $^{\circ}$ C18.26Saturated liquid density at 25°Ckg/m³1263Vapour density at boiling pointkg/m³5.7Vapour pressure at:bar1.3025°Cbar2.93Critical temperature°C166.45Critical pressurebar36.24Critical densitykg/m³480Latent heat of vaporisation at boiling pointkJ/kg194.62Thermal conductivity at 25°Cw/m.K0.083LiquidW/m.K0.011Surface tension at 25°C10°³ Pa.s0.286Vapour at 1.013 bar10°³ Pa.s0.286Vapour at 1.013 bar0.3° Pa.s0.010Specific heat at 25°CkJ/(kg,K)1.216LiquidkJ/(kg,K)1.216Vapour at 1.013 bar1.105Specific heat at 25°C at 1.013 bar1.105Flammability in airNon-flammableFlash pointNoneClassification NF-EN 378 PEDA1 Group 2Group 2020ne Depletion Potential0GWP according to Regulation (EU) 2024/573 (F- Gas III)3.88 (CO2 = 1)	Molar mass	g/mol	130.5
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Vapour at 1.013 bar $W/m.K$ 0.011 Surface tension at 25°C 10 ⁻³ N/m 14.56 Viscosity at 25°C 10 ⁻³ Pa.s 0.286 Liquid 10 ⁻³ Pa.s 0.010 Specific heat at 25°C 10 ⁻³ Pa.s 0.010 Specific heat at 25°C 10 ⁻³ Pa.s 0.010 Specific heat at 25°C 12 ⁻³ Pa.s 0.010 Liquid kJ/(kg.K) 1.216 Vapour at 1.013 bar kJ/(kg.K) 0.820 Cp/Cv ratio at 25°C at 1.013 bar 1.105 Flammability in air Non-flammable Flash point None Classification NF-EN 378 A1 PED Group 2 Ozone Depletion Potential 0 GWP according to Regulation (EU) 2024/573 (F-Gas III) 3.88 Gas III) (CO ₂ = 1)	Thermal conductivity at 25°C		
Surface tension at 25°C 10^{-3} N/m 14.56 Viscosity at 25°C 10 ⁻³ Pa.s 0.286 Liquid 10^{-3} Pa.s 0.010 Specific heat at 25°C 1216 Liquid kJ/(kg.K) 1.216 Vapour at 1.013 bar 0.820 Cp/Cv ratio at 25°C at 1.013 bar 1.105 Flammability in air Non-flammable Flash point None Classification NF-EN 378 PED Group 2 Ozone Depletion Potential 0 GWP according to Regulation (EU) 2024/573 (F-Gas III) 3.88 Gas III) (CO ₂ = 1)	Liquid	W/m.K	0.083
Viscosity at 25°C 10 ⁻³ Pa.s 0.286 Liquid 10 ⁻³ Pa.s 0.010 Specific heat at 25°C 10 ⁻³ Pa.s 0.010 Liquid kJ/(kg.K) 1.216 Vapour at 1.013 bar kJ/(kg.K) 0.820 Cp/Cv ratio at 25°C at 1.013 bar 1.105 Flammability in air Non-flammable Flash point None Classification NF-EN 378 PED Group 2 Ozone Depletion Potential 0 GWP according to Regulation (EU) 2024/573 (F-Gas III) 3.88 (CO ₂ = 1) 4.5 / 3.89	Vapour at 1.013 bar	W/m.K	0.011
Liquid 10^{-3} Pa.s 0.286 Vapour at 1.013 bar 10^{-3} Pa.s 0.010 Specific heat at 25°C kJ/(kg.K) 1.216 Liquid kJ/(kg.K) 0.820 Vapour at 1.013 bar kJ/(kg.K) 0.820 Cp/Cv ratio at 25°C at 1.013 bar 1.105 Flammability in air Non-flammable Flash point None Classification NF-EN 378 A1 PED Group 2 Ozone Depletion Potential 0 GWP according to Regulation (EU) 2024/573 (F-Gas III) 3.88	Surface tension at 25°C	10⁻³N/m	14.56
Vapour at 1.013 bar 10^{-3} Pa.s 0.010 Specific heat at 25°C kJ/(kg.K) 1.216 Liquid kJ/(kg.K) 0.820 Vapour at 1.013 bar kJ/(kg.K) 0.820 Cp/Cv ratio at 25°C at 1.013 bar 1.105 Flammability in air Non-flammable Flash point None Classification NF-EN 378 PED Group 2 Ozone Depletion Potential 0 GWP according to Regulation (EU) 2024/573 (F-Gas III) 3.88	Viscosity at 25°C		
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LiquidkJ/(kg.K)1.216Vapour at 1.013 barkJ/(kg.K)0.820Cp/Cv ratio at 25°C at 1.013 bar1.105Flammability in airNon-flammableFlash pointNoneClassification NF-EN 378 PEDA1 Group 2Ozone Depletion Potential0GWP according to Regulation (EU) 2024/573 (F- Gas III)3.88 $(CO_2 = 1)$ $(EO_2 = 1)$	Vapour at 1.013 bar	10⁻³ Pa.s	0.010
Vapour at 1.013 barkJ/(kg.K)0.820Cp/Cv ratio at 25°C at 1.013 bar1.105Flammability in airNon-flammableFlash pointNoneClassification NF-EN 378 PEDA1 Group 2Ozone Depletion Potential0GWP according to Regulation (EU) 2024/573 (F- Gas III)3.88 (CO2 = 1)	Specific heat at 25°C		
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Flammability in airNon-flammableFlash pointNoneClassificationNF-EN 378 PEDA1 Group 2Ozone Depletion Potential0GWP according to Regulation (EU) 2024/573 (F-Gas III)3.88 (CO2 = 1)	Vapour at 1.013 bar	kJ/(kg.K)	0.820
Flash pointNoneClassificationNF-EN 378 PEDA1 Group 2Ozone Depletion Potential0GWP according to Regulation (EU) 2024/573 (F- Gas III)3.88 (CO2 = 1)	Cp/Cv ratio at 25°C at 1.013 bar		1.105
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PEDGroup 2Ozone Depletion Potential0GWP according to Regulation (EU) 2024/573 (F- Gas III)3.88(CO2 = 1)4.5 / 3.88			None
Ozone Depletion Potential0GWP according to Regulation (EU) 2024/573 (F- Gas III)3.88(CO2 = 1)4.5 / 3.88			
GWP according to Regulation (EU) 2024/573 (F- Gas III) 3.88 (CO2 = 1) $4.5 \ / \ 2.88$			
Gas III) $(CO_2 = 1)$	•		0
Gas III) $(CO_2 = 1)$			3.88
	Gas III)	$(CO_2 = 1)$	
	GWP (AR4 / AR6)		4.5 / 3.88

Please contact your distributor or **Climalife** sales department for more information. In addition, if the refrigeration system you want to install, or are working on, does not appear to be a typical installation, please do not hesitate to contact us for advice and information.

The information contained in this product sheet is the result of our studies and experience. It is provided in good faith, but should not, under any circumstance, be taken to constitute a guarantee on our part or an assumption of our responsibility. This is particularly the case when third party rights are at stake or in situations where a user of one of our products fails to observe applicable regulations.



