



Klea® Edge™ 485A

Enhanced CO₂ for warmer climate applications

Klea® Edge™ 485A is a high performance, enhanced CO₂ refrigerant that extends effective system operating range into high ambient temperature regions. R-485A is a refrigerant blend suitable for commercial refrigeration and cold chain applications, including systems designed for R-744 refrigerant (CO₂). None of its components are PFAS.

Orbia Fluor & Energy Materials has over 50 years of experience delivering high-performing, sustainable refrigerant solutions to solve thermal management challenges. We leverage our technical and market expertise to deliver the best outcome for both our customers and their consumers.

Klea® Edge



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This gives manufacturers the flexibility to achieve a single system design that could be charged with either CO₂ or R-485A. R-485A provides a higher efficiency option, while CO₂ offers a so-called “natural” option* with an efficiency penalty.

■ CO₂ or R-485A ■ R-485A



* CO₂ refrigerant, R-744, is currently produced from either collecting combustion gases during electricity generation or from fracked natural gas during ammonia production for fertilizers.

Klea® Edge™ 485A Refrigerant Physical Properties

Property**	Units	R-744	R-485A
GWP		1	143
Molecular Mass	g/mol	44.0	47.0
Critical Temperature	°C	31.0	41.2
Critical Pressure	kPa	7377	7170
Liquid Density (0 °C)	kg/m ³	927	935
Bubble Pressure (-40 °C)	kPa	1004	842
Bubble Pressure (0 °C)	kPa	3485	2875
Isentropic Index (Cp/Cv) (Saturated at 0 °C)	---	2.14	1.7
Latent Heat at 0 °C	kJ/kg	231	245
Evaporator Glide (2800 kPa)	K	0	7

** Properties calculated using REFPROP v10, including the use of internally developed fluid files for R-485A

Key benefits include:

- GWP < 150
- Up to 20% energy consumption savings observed during peak summer operation***
- Reduced water consumption***
- 10% lower pressure than CO₂ with a higher critical point for more effective heat transfer
- Flexibility of charging: system can charge with either R-485A or CO₂ by changing only the compressor operating profile
- Uses same oils as CO₂
- Reduced energy consumption and increases savings
- Despite it's higher GWP, due to R-485A higher energy efficiency, the total system carbon footprint is lower than CO₂

*** Quercy Réfrigération reinvents refrigeration for Primever Group in Châteaurenard thanks to Orbia's Klea® Edge™ 485A fluid, an efficient alternative to transcritical CO₂ (2025)

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