



Fluor & Energy
Materials

Klea®

Klea® 456A

Next Generation Refrigerant for the Automotive Aftermarket

Orbia Fluor & Energy Materials has over 50 years of experience delivering trusted solutions, with innovation, sustainability and customer focus driving our approach.

Our latest innovation for the automotive aftermarket, Klea® 456A is our new, direct replacement for R-134a. R-456A extends refrigerant availability* with 50%** of the global warming potential of R-134a.

Compatible*** with R-134a servicing equipment, R-456A's ease of use and low GWP supports the ever-increasing demand for sustainable solutions now and into the future.

*R-456A allows older vehicles previously charged with R-134a to age gracefully over the vehicle's lifetime.

**R-456A enables a 50% global warming potential reduction vs R-134a resulting in increased availability in regions with HFC phasedowns.

Application



Automotive Aftermarket



R-456A | Physical Properties

Property	S.I. Units	Value	British Units	Value
Molecular Weight	kg/kmol	101.42	lbm/lbmol	101.42
Critical Temperature	°C	102.1	°F	215.9
Critical Pressure	bara	41.38	psia	600
Critical Density	kg/m ³	491	lb/ft ³	30.7
Normal Boiling Point	°C	-30.8	°F	-23.4
Latent Heat of Vapourisation at Atmospheric Pressure	kJ/kg	217	BTU _{IT} /lb	93.4
Saturated Vapour Density at Atmospheric Pressure	kg/m ³	5.2	lb/ft ³	0.325
Liquid Vapour Pressure at 25°C	bara	7.36	psia	106.7
Coefficient of Volumetric Thermal Expansion for Saturated Liquid at	°C ⁻¹	0.00323	°F ⁻¹	0.0018
Speed of Sound* for Saturated Vapour at 25°C	m/s	145	ft/s	477
Adiabatic Exponent* for Saturated Vapour at 25°C		1.22		1.22
Latent Heat of Vapourisation at 25°C	kJ/kg	176	BTU _{IT} /lb	75.8
Saturated Vapour Density at 25°C	kg/m ³	31	lb/ft ³	1.93
Saturated Vapour Density at 0°C	kg/m ³	13.8	lb/ft ³	0.864

* Vapour composition as per bulk refrigerant at dew

Key Benefits



Direct replacement for R-134a that is compatible with existing R-134a air conditioning systems



Same efficiency and cooling performance as R-134a



Non-flammable – easy conversion, same safety classification as R-134a



Over 50% reduction in GWP – good news for future availability to service R-134a fleets

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For more information, contact

fem@orbia.com

orbia-fem.com

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