



Refrigerant Catalogue



Contact our experts to learn more about our products and find the right solution.

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Cooling Innovation, Trusted Performance:

The Season HVAC Promise

Season HVAC is a pioneering refrigerant solutions provider in the Middle East. Our advanced refrigeration gases and chemicals are essential for cooling application across industries in Iraq, UAE, and 60 other countries. Since 2007, we have delivered high-performance products that ensure efficient cooling while maintaining environmental consciousness. From residential comfort to industrial needs, Season HVAC provides trusted, quality-driven refrigerant technologies that exceed market expectations.

Season HVAC delivers the precise solution tailored to your needs. Our comprehensive range of refrigerant gases designed to meet diverse cooling requirements across industries. Our portfolio includes advanced refrigeration solutions compatible with various technical specifications, engineered to deliver optimal performance and efficiency for our Middle Eastern and global clients.

Season's refrigerants & gas portfolio

HCFCs (Hydrochlorofluorocarbons)

- R22: Legacy cooling agent
- R141B: Industrial solvent and foam blowing agent

HFCs (Hydrofluorocarbons)

- R134a: Automotive and commercial refrigeration
- R404A: Commercial refrigeration systems
- R410A: Modern air conditioning systems
- R407C: Residential Air Conditioning
- R417A: Replacement for R22 in various applications
- R32: High-efficiency air conditioning refrigerant
- R507: For commercial refrigeration

Natural Refrigerants

- R290 (Propane): Environmentally friendly cooling
- R600 (Isobutane): Low-impact refrigeration

Fuel Gas

- Maxx Map - Propylene for Brazing and Solidering

Our Commitment

We believe that every home and business deserves reliable, efficient climate control. Our commitment goes beyond just installing and repairing HVAC systems – we focus on:

- Exceptional customer service
- Energy-efficient solutions
- Cutting-edge technology
- Skilled and certified technicians
- Transparent pricing

Quality at Season HVAC

At Season HVAC, we understand that even tiny impurities like moisture can significantly reduce refrigerant performance. Our advanced quality control processes ensure every product meets the highest standards of purity and efficiency.

Key Quality Assurances:

- Rigorous moisture and contamination screening
- Precision manufacturing controls
- Packaging designed to maintain refrigerant integrity
- Adherence to international quality certification standards

We meticulously monitor and eliminate impurities that could compromise refrigerant effectiveness, guaranteeing that our customers receive the most reliable and high-performing cooling solutions.

Why Choose Us

When you select Season HVAC, you're choosing:

- Prompt and reliable service
- State-of-the-art equipment
- Competitive pricing
- Comprehensive warranties
- Local expertise

R134a Refrigerant

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Introduction

- R134a is a hydrofluorocarbon (HFC) refrigerant widely used in the refrigeration and air conditioning industry. Known for its efficient cooling properties and environmental compliance, it has become the preferred choice in automotive air conditioning, domestic refrigeration, and commercial cooling systems.
- R134a is relatively stable in the atmosphere, with an estimated atmospheric lifetime of around 13.4 years. This means that, once emitted, it remains in the atmosphere for an extended period, continuing to contribute to the greenhouse effect.
- Its popularity stems from its excellent thermodynamic performance, compatibility with existing equipment, and its adherence to international environmental regulations, such as those outlined in the Montreal Protocol.



Description

- Chemical Composition:** R134a is chemically known as **1,1,1,2-Tetrafluoroethane** with a molecular formula of **CH₂FCF₃**. It has a molecular weight of 102.03 g/mol.
- Physical Properties:** It has a boiling point of -26.3°C, a critical temperature of 101.1°C, and a critical pressure of 40.6 bar. These properties enable efficient heat exchange, making R134a ideal for cooling applications in a variety of environments.
- Environmental Impact:** R134a Global Warming Potential (GWP) of 1430, it is free of ozone-depleting substances (ODP = 0). While R134a doesn't deplete the ozone layer, its decomposition in the atmosphere is complex. When R134a breaks down, it forms other compounds, some of which may also have greenhouse properties.

Key Features

- Non-flammable
- Non-toxic
- Excellent thermodynamic properties
- Global compliance

Applications

- Automotive air conditioning
- Domestic refrigeration
- Commercial refrigeration
- Chillers and HVAC systems



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Chemical Information

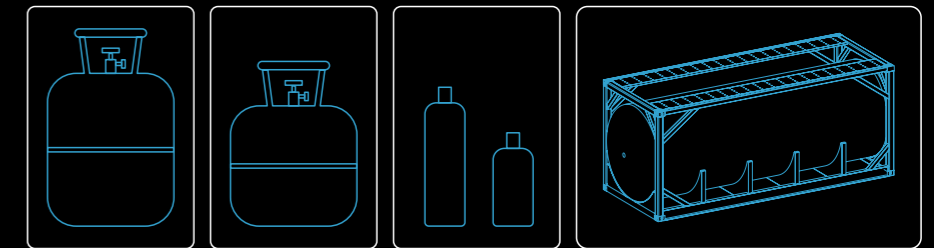
Chemical name	1,1,1,2-tetrafluoroethane (R134a)
Molecular Formula	CH ₂ FCF ₃
CAS Registry Number	811-97-2
Molecular Weight	102.03 g/mol
Chemical Structure	$ \begin{array}{c} \text{F} \quad \text{F} \\ \quad \\ \text{F}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{F} \quad \text{H} \end{array} $

Boiling Point	-26.1 °C
Freezing Point	-103.3 °C
Critical Temperature	101 °C
Critical Pressure	40.59 bar
Temp. atm Pressure @0.3 bar	-49.68
Vap. Density @ 25 °C	3.3 g/cm ³
Liquid Density @ 25 °C	1.206 g/cm ³

Quality Index

Purity	>99.9%
Moisture	≤ 10 PPM
Acidity	≤ 0.1 PPM
Vapor Residue	≤ 100 PPM

Packaging Information



13.6 kg

6.8 kg
3.4 kg

950 g
340 g

20 Ton ISO Tank

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Light blue (standard for R134a)
- Valves: Standard threaded 1/4" SAE valve



R404A Refrigerant

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Introduction

- R404A is a hydrofluorocarbon (HFC) refrigerant blend that has been a workhorse in the commercial refrigeration industry for many years. It was developed in the mid-1990s as a non-ozone-depleting replacement for refrigerants like R-502 and R-22, which were being phased out due to their significant ozone depletion potential (ODP). R404A is a preferred choice for various applications requiring medium and low-temperature refrigeration.
- R404A is valued for its high cooling capacity, which allows for efficient heat removal and temperature control in demanding applications. Its thermodynamic properties are well-suited for a range of operating temperatures, making it versatile for different refrigeration needs. While R404A has zero ODP, it has a high global warming potential (GWP).



Description

- Chemical Composition:** R404A is a chemical blend composed of 52% **HFC-143a (1,1,1-Trifluoroethane)**, 44% **HFC-125 (Pentafluoroethane)** and 4% **HFC-134a (1,1,1,2-Tetrafluoroethane)**. It has an average molecular weight of 97.6 g/mol.
- Physical Properties:** It has a boiling point of -46.5°C , a critical temperature of 72.1°C , and a critical pressure of 37.3 bar. R404A offers similar thermodynamic characteristics, making it suitable for retrofitting existing R-502 systems in some cases.
- Environmental Impact:** R404A has zero Ozone Depletion Potential (ODP). However, it has a high Global Warming Potential (GWP) of 3922. This high GWP makes it subject to regulations and phase-down efforts under international agreements like the Kigali Amendment to the Montreal Protocol.

Key Features

- Non-flammable
- Excellent thermodynamic performance for refrigeration
- Zero Ozone Depletion Potential (ODP)
- Reliable and efficient operation in extreme conditions

Applications

- Commercial Refrigeration Systems
- Cold Storage and Warehousing Facilities
- Refrigerated Transport Units
- Ice Machines and Low-Temperature Applications



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Chemical Information

Chemical name	1,1,1-trifluoroethane, (HFC-143a) Pentafluoroethane (HFC-125) 1,1,1,2-Tetrafluoroethane (HFC-134a)
Molecular Formula	$\text{C}_2\text{H}_3\text{F}_3$ / C_2HF_5 / $\text{C}_2\text{H}_2\text{F}_4$
CAS Registry Number	Mixture: 420-46-2, 354-33-6, 811-97-2
Molecular Weight	~97.6 g/mol (average)
Chemical Structure	

Boiling Point	-46.5°C
Freezing Point	-117.5°C
Critical Temperature	72.1°C
Critical Pressure	37.35 bar
Temp. atm Pressure @0.3 bar	-67.76°C
Vap. Density @ 25°C	3.42 kg/m^3
Liquid Density @ 25°C	1.06 kg/m^3

Quality Index

Purity	>99.9%
Moisture	$\leq 10\text{ PPM}$
Acidity	$\leq 0.1\text{ PPM}$
Vapor Residue	$\leq 100\text{ PPM}$

Packaging Information



10.9 kg

5.4 kg
2.7 kg

650 g

Ton Cylinder of 780 kg
18 Ton ISO Tank

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Orange (standard for R404A)
- Valves: Standard threaded 1/4" SAE valve



R407C Refrigerant

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Introduction

- R407C is a hydrofluorocarbon (HFC) refrigerant blend widely used in air conditioning and some medium-temperature refrigeration applications. It was developed as a non-ozone-depleting alternative to R-22, a hydrochlorofluorocarbon (HCFC) that was phased out due to its ozone depletion potential.
- R407C is known for its relatively good energy efficiency and its ability to be used in systems designed for R-22 with some modifications. It's important to note that R407C is a zeotropic blend, meaning its components have different boiling points, which can lead to temperature glide during phase changes.



Description

- Chemical Composition:** R407C is a ternary blend composed of 52% **HFC-134a (1,1,1,2-Tetrafluoroethane)**, 25% **R-125 (Pentafluoroethane)** and 23% **R-32 (Difluoromethane)**. It has an average molecular weight of 86.2 g/mol.
- Physical Properties:** It has a boiling point of -43.6°C , a critical temperature of 86.19°C , and a critical pressure of 46.32 bar. R407C is a hydrofluorocarbon (HFC) refrigerant blend widely used in air conditioning and some medium-temperature refrigeration applications.
- Environmental Impact:** This blend was formulated to closely match the performance characteristics of R-22 while eliminating its ozone-depleting properties. The Global Warming Potential (GWP) of 1774.

Key Features

- Non-flammable (as a blend)
- Excellent thermodynamic performance for air conditioning.
- Zero ozone depletion potential
- Zeotropic blend with temperature glide during phase change
- Compatible with existing R-22 systems (with modifications)

Applications

- Residential Air Conditioning
- Commercial Air Conditioning
- Heat Pumps
- Medium-Temperature Refrigeration
- Retrofitting R-22 Systems



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Chemical Information

Chemical name	Difluoromethane (R-32) Pentafluoroethane (R-125) Pentafluoroethane (R-125)
Molecular Formula	CH_2F_2 / CHF_2CF_3 / CH_2FCF_3
CAS Registry Number	Mixture: 75-10-5, 354-33-6, 811-97-2
Molecular Weight	~86.2 g/mol (average)
Chemical Structure	

Boiling Point	-43.6°C
Freezing Point	-160°C
Critical Temperature	86.19°C
Critical Pressure	46.32 bar
Temp. atm Pressure @0.3 bar	-58.71°C
Vap. Density @ 25°C	3.0 kg/m^3
Liquid Density @ 25°C	1.16 kg/m^3

Quality Index

Purity	>99.9%
Moisture	$\leq 10 \text{ PPM}$
Acidity	$\leq 0.1 \text{ PPM}$
Vapor Residue	$\leq 100 \text{ PPM}$

Packaging Information



11.3 kg

2.8 kg

650 g

Ton Cylinder of 780 kg
18 Ton ISO Tank

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Dark Orange (standard for R407C)
- Valves: Standard threaded 1/4" SAE valve



R410A Refrigerant

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Introduction

- R410A is a hydrofluorocarbon (HFC) refrigerant widely used in residential and commercial air conditioning systems. Developed as a replacement for R-22 (an HCFC being phased out due to its ozone-depleting properties), R410A offers higher energy efficiency and cooling capacity compared to its predecessor.
- R410A's superior performance stems from its unique thermodynamic properties, enabling it to absorb and release heat more effectively. While R410A has zero ozone depletion potential (ODP), it does have a relatively high global warming potential (GWP), which has driven research and development into lower-GWP alternatives. However, it remains a widely used refrigerant due to its established infrastructure and efficiency advantages in many applications.



Description

- Chemical Composition:** R410A is a near-azeotropic blend composed of 50% R-32 (Difluoromethane, CH_2F_2), 50% R-125 (Pentafluoroethane, CHF_2CF_3). It has an average molecular weight of 72.6g/mol.
- Physical Properties:** It has a boiling point of -51.4°C , a critical temperature of 71.4°C , and a critical pressure of 49.5 bar. It behaves almost like a single-component refrigerant, with minimal temperature glide during phase change. This characteristic simplifies system design and operation compared to zeotropic blends like R407C.
- Environmental Impact:** R410A does not contribute to the depletion of the ozone layer. With a GWP of 2088. Its relatively high GWP has led to the development and adoption of lower-GWP alternatives, such as R-32 and R-454B.

Key Features

- Non-flammable
- High Cooling Capacity
- Near-azeotropic blend with minimal temperature glide
- Higher operating pressures compared to R-22
- Requires POE (Polyol Ester) lubricating oil

Applications

- Residential Air Conditioning:
- Light Commercial Air Conditioning
- Heat Pumps



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Chemical Information

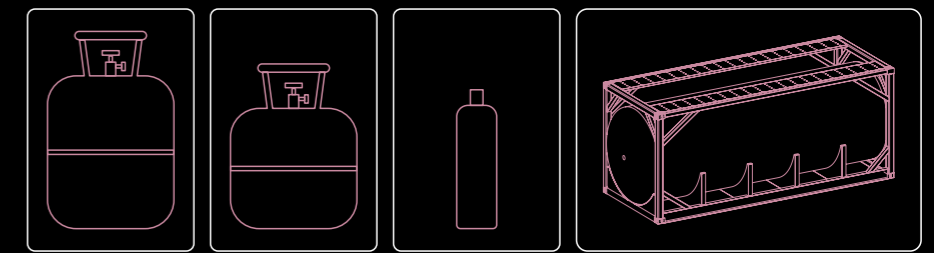
Chemical name	Difluoromethane (R-32) Pentafluoroethane (R-125)
Molecular Formula	CH_2F_2 / CHF_2CF_3
CAS Registry Number	Mixture: 75-10-5, 354-33-6
Molecular Weight	~72.6 g/mol (average)
Chemical Structure	

Boiling Point	-51.4°C
Freezing Point	-
Critical Temperature	71.34°C
Critical Pressure	49.01 bar
Temp. atm Pressure @0.3 bar	-72.61°C
Vap. Density @ 25°C	2.6 kg/m^3
Liquid Density @ 25°C	1.09 kg/m^3

Quality Index

Purity	>99.9%
Moisture	$\leq 10 \text{ PPM}$
Acidity	$\leq 0.1 \text{ PPM}$
Vapor Residue	$\leq 100 \text{ PPM}$

Packaging Information



11.3 kg

5.6 kg
2.8 kg

650 g

Ton Cylinder of 780 kg
18 Ton ISO Tank

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Pink (standard for R410A)
- Valves: Standard threaded 1/4" SAE valve



Introduction

- R417A is a hydrofluorocarbon (HFC) blend designed as a "drop-in" replacement for R-22 in existing air conditioning and refrigeration systems. It can be used with minimal modifications to existing equipment, which made it a popular choice during the R-22 phase-out period. While it can often be used with minimal changes, some adjustments may still be necessary for optimal performance.
- R417A is formulated to closely match the pressure and performance characteristics of R-22, making it a convenient option for retrofitting existing systems. It has zero Ozone Depletion Potential (ODP), addressing the environmental concerns associated with R-22. However, like other HFCs, it has a significant Global Warming Potential (GWP), which is a consideration as lower-GWP alternatives are being developed and adopted.



Description

- Chemical Composition:** R417A is a zeotropic blend composed of 50% R-134a (1,1,1,2-Tetrafluoroethane, CH_2FCF_3), 46.6% R-125 (Pentafluoroethane, CHF_2CF_3) and 3.4% Isobutane (R-600a, C_4H_{10}). It has an average molecular weight of 106.75 g/mol.
- Physical Properties:** It has a boiling point of -39.07°C , a critical temperature of 85.42°C , and a critical pressure of 38.94 bar. Being a zeotropic blend, its components have different boiling points, resulting in a temperature glide during phase change. This characteristic can affect system performance and requires careful consideration during system design and operation.
- Environmental Impact:** R417A does not contribute to the depletion of the ozone layer. With a GWP of 2346, R417A is designed as a more environmentally friendly alternative to R-22, though its GWP remains a consideration.

Key Features

- Non-flammable with ASHRAE safety classification A1
- "Drop-in" Replacement for R-22
- Zeotropic blend with temperature glide.
- Compatible with mineral oil and POE lubricants.
- Similar operating pressures to R-22

Applications

- Residential Air Conditioning:
- Light Commercial Air Conditioning
- Retrofitting R-22 Air Conditioning Systems
- Medium-Temperature Refrigeration



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Chemical Information

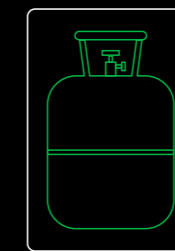
Chemical name	1,1,1,2-Tetrafluoroethane (R-134a) Pentafluoroethane (R-125) Isobutane (R-600a)
Molecular Formula	$\text{CF}_3\text{CH}_2\text{F}$ / CF_3CHF_2 / C_4H_{10}
CAS Registry Number	Mixture: 811-97-2, 354-33-6, 75-28-5
Molecular Weight	106.7 g/mol
Chemical Structure	

Boiling Point	-39.07°C
Freezing Point	-
Critical Temperature	85.42°C
Critical Pressure	38.94 bar
Temp. atm Pressure @0.3 bar	-56.65°C
Vap. Density @ 25°C	-
Liquid Density @ 25°C	1.19 g/cm ³

Quality Index

Purity	>99.9%
Moisture	≤ 10 PPM
Acidity	≤ 0.1 PPM
Vapor Residue	≤ 50 PPM

Packaging Information



11.3 kg

- Cylinder Type: Non-Refillable steel cylinders
- Cylinder Color: Green (standard for R417A)
- Valves: Standard threaded 1/4" SAE valve



Introduction

- R-32 (Difluoromethane) is a hydrofluorocarbon (HFC) refrigerant increasingly used in residential and commercial air conditioning systems. It has gained prominence as a lower-GWP alternative to R-410A and other HFC blends. R-32 offers excellent thermodynamic properties, including high energy efficiency and superior heat transfer characteristics.
- As a single-component refrigerant, R-32 provides consistent performance without temperature glide during phase changes. While it has a lower GWP compared to many common HFC refrigerants, it is classified as mildly flammable (A2L safety class), requiring specific safety considerations in system design and handling.



Description

- Chemical Composition:** R32 is a pure refrigerant of 100% **Difluoromethane (CH₂F₂)**. It has an average molecular weight of 52.02 g/mol.
- Physical Properties:** It has a boiling point of -51.7 °C, a critical temperature of 78.11 °C, and a critical pressure of 57.82 bar.
- Environmental Impact:** R32 does not contribute to the depletion of the ozone layer and has a Global Warming Potential (GWP) of 675.

Key Features

- Mildly flammable (A2L safety classification)
- High energy efficiency
- Single-component refrigerant (no temperature glide)
- Lower compression ratio compared to R-410A
- Higher cooling capacity per volume
- Requires POE (Polyol Ester) lubricating oil

Applications

- Residential Air Conditioning
- Commercial Air Conditioning
- Heat Pumps
- Variable Refrigerant Flow (VRF) systems
- New equipment designed specifically for R-32



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Chemical Information

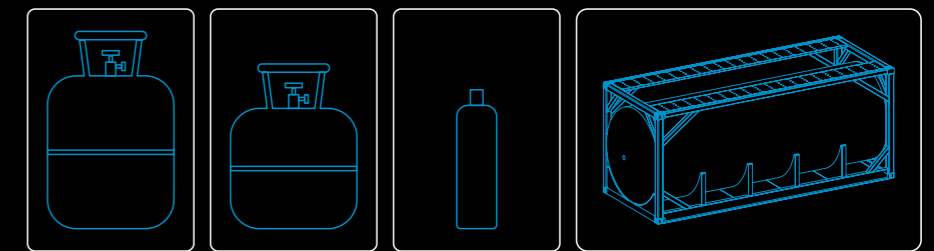
Chemical name	Difluoromethane
Molecular Formula	CH ₂ F ₂
CAS Registry Number	75-10-5
Molecular Weight	52.02 g/mol
Chemical Structure	

Boiling Point	-51.7 °C
Freezing Point	-
Critical Temperature	78.11 °C
Critical Pressure	57.82 bar
Temp. atm Pressure @0.3 bar	-72.6 °C
Vap. Density @ 25 °C	2.13 kg/m ³
Liquid Density @ 25 °C	0.96 g/cm ³

Quality Index

Purity	>99.9%
Moisture	≤ 10 PPM
Acidity	≤ 0.1 PPM
Vapor Residue	≤ 50 PPM

Packaging Information



10 kg
9.5 kg

3 kg

650 g

Ton Cylinder of 680 kg
18 Ton ISO Tank

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Light Blue (standard for R32)
- Valves: Standard threaded 1/4" SAE valve



Introduction

- R-22 (Chlorodifluoromethane) is a hydrochlorofluorocarbon (HCFC) refrigerant that was widely used in air conditioning and refrigeration systems for many decades. Due to its ozone-depleting potential, it has been phased out under the Montreal Protocol, with production and import banned in developed countries. While existing equipment may continue to operate with R-22, its use is declining globally as systems are converted to alternative refrigerants.
- Despite its environmental impact, R-22 gained widespread adoption due to its excellent thermodynamic properties, efficiency, and versatility. It served as the industry standard for residential and commercial air conditioning systems throughout the latter half of the 20th century.



Description

- Chemical Composition:** R22 is a pure refrigerant of 100% **Chlorodifluoromethane (CHClF₂)**. It has an average molecular weight of 86.47 g/mol.
- Physical Properties:** It has a boiling point of -40.8 °C, a critical temperature of 96.15 °C, and a critical pressure of 49.9 bar.
- Environmental Impact:** R22 does contribute to the depletion of the ozone layer with Ozone Depletion Potential (ODP) of 0.055 and Global Warming Potential (GWP) of 1,810.

Key Features

- Non-flammable (A1 safety classification)
- Excellent thermodynamic properties
- Single-component refrigerant (no temperature glide)
- Compatible with mineral oil lubricants
- Moderate operating pressures
- Good heat transfer properties

Applications

- Residential air conditioning (Phased-Out)
- Commercial air conditioning (Phased-Out)
- Medium-temperature refrigeration
- Industrial process cooling
- Heat pumps

Phase-Out Information

- Production and import banned in developed countries (2010)
- Common replacement options: R-407C, R-417A, R-422D, R-438A



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Chemical Information

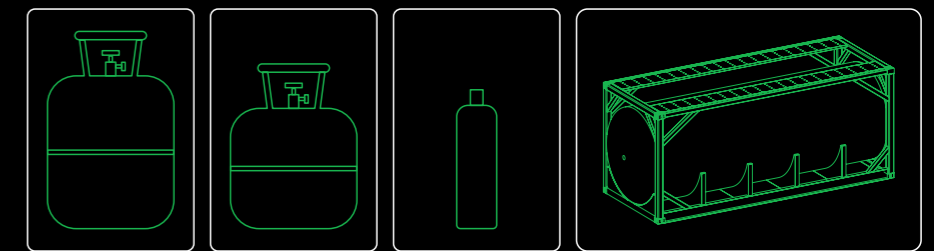
Chemical name	Chlorodifluoromethane
Molecular Formula	CHClF ₂
CAS Registry Number	75-45-6
Molecular Weight	86.47 g/mol
Chemical Structure	

Boiling Point	-40.8 °C
Freezing Point	-157 °C
Critical Temperature	96.15 °C
Critical Pressure	49.9 bar
Temp. atm Pressure @0.3 bar	-62.3 °C
Vap. Density @ 25 °C	3.66 kg/m ³
Liquid Density @ 25 °C	1.21 g/cm ³

Quality Index

Purity	>99.9%
Moisture	≤ 10 PPM
Acidity	≤ 0.1 PPM
Vapor Residue	≤ 50 PPM

Packaging Information



13.6 kg

6.8 kg
3.0 kg

1000 g
950 g
340 g

Ton Cylinder of 980 kg
20 Ton ISO Tank

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Green (standard for R22)
- Valves: Standard threaded 1/4" SAE valve



R290 Refrigerant

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Introduction

- R-290 (propane) is a natural hydrocarbon refrigerant gaining significant attention as an environmentally friendly alternative to synthetic refrigerants. Characterized by its zero ozone depletion potential and extremely low global warming potential, R-290 represents a sustainable solution for various cooling applications, particularly in commercial refrigeration and heat pump systems.
- The emergence of R-290 reflects the global shift towards natural refrigerants that offer both high performance and minimal environmental impact. Its molecular simplicity, excellent thermodynamic properties, and compatibility with modern system designs have positioned it as a leading alternative in the ongoing transformation of refrigeration technology.



Description

- Chemical Composition:** R290 is a pure refrigerant of 100% Propane (C₃H₈). It has an average molecular weight of 44.10 g/mol.
- Physical Properties:** It has a boiling point of -42.2 °C, a critical temperature of 96.7 °C, and a critical pressure of 42.5 bar.
- Environmental Impact:** R290 does not contribute to the depletion of the ozone layer with Ozone Depletion Potential (ODP) of 0 and Global Warming Potential (GWP) of 3.3, Atmospheric lifetime of approximately 12 days.

Key Features

- High volumetric cooling capacity
- Excellent heat transfer properties
- Low viscosity
- High energy efficiency
- Low toxicity
- Minimal refrigerant charge requirements
- Low operating pressures

Applications

- Commercial refrigeration
- Supermarket display cases
- Industrial freezers
- Heat pumps
- Vending machines
- Transport refrigeration

Safety Consideration

- ASHRAE Safety Classification: A3 (Flammable)
- Requires specialized handling procedures
- Specific installation and design requirements



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Chemical Information

Chemical name	Propane
Molecular Formula	C ₃ H ₈
CAS Registry Number	74-98-6
Molecular Weight	44.10 g/mol
Chemical Structure	$ \begin{array}{c} \text{H} & \text{H} & \text{H} \\ & & \\ \text{H}-\text{C} & -\text{C} & -\text{C}-\text{H} \\ & & \\ \text{H} & & \text{H} \end{array} $

Boiling Point	-42.2 °C
Freezing Point	-187.7 °C
Critical Temperature	96.7 °C
Critical Pressure	42.5 bar
Temp. atm Pressure @0.3 bar	-55.6 °C
Vap. Density @ 25 °C	2.02 kg/m ³
Liquid Density @ 25 °C	0.58 g/cm ³

Quality Index

Purity	>99.9%
Moisture	≤ 10 PPM
Acidity	≤ 0.1 PPM
Vapor Residue	≤ 50 PPM

Packaging Information



5 kg

380 g

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Orange (standard for R290)
- Valves: Standard threaded 1/4" SAE valve



R507 Refrigerant

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Introduction

- R-507A represents a significant advancement in refrigeration technology, developed specifically as a long-term, non-ozone-depleting replacement for R-502 in commercial and industrial refrigeration applications. This azeotropic blend, consisting of equal parts R-125 (pentafluoroethane) and R-143a (1,1,1-trifluoroethane), was introduced in the 1990s as part of the industry's transition away from ozone-depleting substances.
- While R-507A has proven highly successful in commercial refrigeration, its high Global Warming Potential (GWP) of 3985 has led to increasing regulation under various climate protection frameworks. This has prompted some markets to begin transitioning to lower-GWP alternatives, though R-507A remains widely used due to its excellent performance characteristics and reliability.



Description

- Chemical Composition:** **R507** is a azeotropic blend consisting of 50% **R-125 (Pentafluoroethane)** and 50% **R-143a (1,1,1-Trifluoroethane)** It has an average molecular weight of 98.9 g/mol.
- Physical Properties:** It has a boiling point of -46.7°C , a critical temperature of 70.9°C , and a critical pressure of 37.1 bar.
- Environmental Impact:** R22 does contribute to the depletion of the ozone layer with Ozone Depletion Potential (ODP) of 0 and Global Warming Potential (GWP) of 3985

Key Features

- Non-flammable (A1 safety classification)
- Excellent energy efficiency across wide operating range
- Negligible temperature glide
- Lower discharge temperatures
- Works well with Polyol Ester (POE) lubricants

Applications

- Supermarket display cases and cold rooms
- Walk-in coolers and freezers
- Food service equipment
- Vending machines
- Blast freezers

Chemical Information

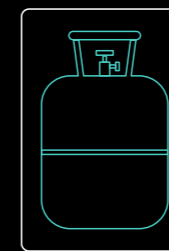
Chemical name	1,1,1-trifluoroethane, (HFC-143a) Pentafluoroethane (HFC-125)
Molecular Formula	$\text{C}_2\text{H}_3\text{F}_3$ / C_2HF_5
CAS Registry Number	Mixture: 420-46-2,354-33-6
Molecular Weight	~98.9 g/mol (average)
Chemical Structure	

Boiling Point	-46.7°C
Freezing Point	-
Critical Temperature	70.9°C
Critical Pressure	37.1 bar
Temp. atm Pressure @0.3 bar	-46.0°C
Vap. Density @ 25°C	4.14 kg/m^3
Liquid Density @ 25°C	1.05 g/cm^3

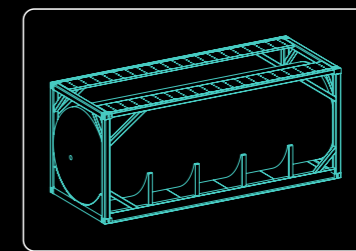
Quality Index

Purity	>99.9%
Moisture	$\leq 10 \text{ PPM}$
Acidity	$\leq 0.1 \text{ PPM}$
Vapor Residue	$\leq 50 \text{ PPM}$

Packaging Information



11.3 kg



Ton Cylinder of 780 kg

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Bluish Green (standard for R507)
- Valves: Standard threaded 1/4" SAE valve



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Introduction

- R-141B (1,1-dichloro-1-fluoroethane) is a hydrochlorofluorocarbon (HCFC) that has been widely used as a foam blowing agent and solvent in various industrial applications. While it has been phased out in many countries due to its ozone depletion potential, it remains important to understand its properties and characteristics for existing systems and historical context.
- It offering excellent solvent properties and foam blowing characteristics while having a lower ozone depletion potential than its predecessors. Its unique combination of physical properties, including low boiling point and excellent solvency, made it particularly valuable in the production of rigid polyurethane foams for insulation applications.



Description

- Chemical Composition: **R141B is 1,1-dichloro-1-fluoroethane**, It has an average molecular weight of 116.95g/mol.
- Physical Properties: It has a boiling point of 32.1 °C, a critical temperature of 204.2 °C, and a critical pressure of 42.5 bar.
- Environmental Impact: R141B does contribute to the depletion of the ozone layer with Ozone Depletion Potential (ODP) of 0.11 and Global Warming Potential (GWP) of 725

Key Features

1. Excellent solvency properties
2. Low boiling point
3. Good thermal stability
4. Effective foam blowing agent
5. Compatible with most metals
6. Non-flammable Low toxicity

Applications

1. Foam blowing agent for: Polyurethane foams
2. Phenolic foams
3. Insulation panels
4. Precision cleaning solvent
5. Heat transfer medium
6. Aerosol propellant (historical)
7. Industrial degreasing
8. Electronics cleaning



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Chemical Information

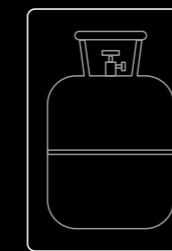
Chemical name	1,1-dichloro-1-fluoroethane
Molecular Formula	CH ₃ CCl ₂ F
CAS Registry Number	1717-00-6
Molecular Weight	116.95 g/mol
Chemical Structure	$\begin{array}{c} \text{F} \\ \\ \text{Cl}-\text{C}-\text{Cl} \\ \\ \text{CH}_3 \end{array}$

Boiling Point	32.1 °C
Freezing Point	-103.5 °C
Critical Temperature	204.2 °C
Critical Pressure	42.5 bar
Temp. atm Pressure @0.3 bar	-12.5 °C
Vap. Density @ 25 °C	4.8 kg/m ³
Liquid Density @ 25 °C	1.24 g/cm ³

Quality Index

Purity	>99.9%
Moisture	≤ 10 PPM
Acidity	≤ 0.1 PPM
Vapor Residue	≤ 50 PPM

Packaging Information



13.6 kg

- Cylinder Type: Non-Refillable steel cylinders
- Cylinder Color: Grey (standard for R141B)
- Valves: Standard threaded 1/4" SAE valve



Introduction

- R-600A (isobutane) represents a pivotal advancement in refrigeration technology, emerging as a critical natural refrigerant solution. As a direct hydrocarbon alternative to synthetic refrigerants, R-600A has rapidly gained prominence in domestic and commercial refrigeration applications due to its exceptional thermodynamic properties and minimal environmental footprint.
- The unique molecular structure of R-600A enables superior performance. Its chemical composition allows for extremely efficient heat transfer, resulting in lower energy consumption and reduced operational costs across various cooling applications. Its naturally occurring properties make it an ideal candidate for replacing high-global warming potential (GWP).



Description

- Chemical Composition: **R600A is Isobutane**, It has an average molecular weight of 58.12 g/mol.
- Physical Properties: It has a boiling point of -11.7°C , a critical temperature of 134.7°C , and a critical pressure of 36.4 bar.
- Environmental Impact: R600A does not contribute to the depletion of the ozone layer with Ozone Depletion Potential (ODP) of 0 and Global Warming Potential (GWP) of 3

Key Features

- High volumetric cooling capacity
- Excellent heat transfer properties
- Low viscosity
- High energy efficiency
- Minimal refrigerant charge requirements
- Low operating pressures

Applications

- Domestic refrigerators
- Commercial display cases
- Vending machines
- Small-scale cooling systems
- Beverage coolers
- Household appliances

Safety Consideration

- ASHRAE Safety Classification: A3 (Flammable)
- Requires specialized handling procedures
- Specific installation and design requirements



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Chemical Information

Chemical name	Isobutane
Molecular Formula	C_4H_{10}
CAS Registry Number	75-28-5
Molecular Weight	58.12 g/mol
Chemical Structure	

Boiling Point	-11.7°C
Freezing Point	-159.6°C
Critical Temperature	134.7°C
Critical Pressure	36.4 bar
Temp. atm Pressure @0.3 bar	-35.0°C
Vap. Density @ 25°C	2.76 kg/m^3
Liquid Density @ 25°C	1.1 g/cm^3

Quality Index

Purity	$>99.9\%$
Moisture	$\leq 10 \text{ PPM}$
Acidity	$\leq 0.1 \text{ PPM}$
Vapor Residue	$\leq 50 \text{ PPM}$

Packaging Information



6.5 kg 420 g 220 g
120 g

- Cylinder Type: Non-Refillable steel cylinders and disposable can
- Cylinder Color: Red
- Valves: Standard threaded 1/4" SAE valve



Introduction

- Mapp Max is widely used in industrial and commercial applications, particularly for brazing, soldering, and cutting operations. Its unique chemical composition provides higher flame temperatures and more stable combustion compared to traditional propane or acetylene.
- The gas was specifically engineered to address limitations in existing fuel gases, offering improved performance characteristics that made it valuable in metalworking, plumbing, HVAC installation, and specialized industrial processes. While no longer commercially produced in its original form, its legacy continues to influence industrial gas technologies.



Description

- Chemical Composition: **Mapp Max** is **Propylene**. It has an average molecular weight of 42.08 g/mol.
- Physical Properties: Mapp Max gas is colourless and slightly petroleum like smelling gas with a boiling point of -47.6°C
- Environmental Impact: Mapp Max does not contribute to the depletion of the ozone layer and has moderate Global Warming Potential (GWP) of 2.

Handling and Storage

- Store in cool, dry, well-ventilated area
- Keep away from heat sources
- Use only with compatible regulators
- Avoid direct sunlight
- Maintain cylinder pressure below 50°C

Applications

- Brazing and Soldering
- Metal Cutting
- Plumbing Installations
- HVAC System Fabrication
- Industrial Heating
- Jewelry Making
- Laboratory Torch Operations

Regulatory Classification

- UN Number: UN1077
- Hazard Class: 2.1 (Flammable Gas)
- DOT Shipping Classification: Compressed Gas

Chemical Information

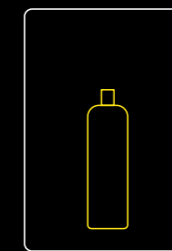
Chemical name	Propylene
Molecular Formula	C_3H_6
CAS Registry Number	115-07-1
Molecular Weight	42.08 g/mol
Chemical Structure	$\begin{array}{c} \text{H} & & \text{H} \\ & \backslash & / \\ & \text{C} = \text{C} \\ & / & \backslash \\ \text{H} & & \text{CH}_3 \end{array}$

Boiling Point	-47.6°C
Freezing Point	-
Critical Temperature	91.8°C
Critical Pressure	46.2 bar
Temp. atm Pressure @0.3 bar	-54.7°C
Vap. Density @ 25°C	1.92 kg/m^3
Liquid Density @ 25°C	0.61 g/cm^3

Quality Index

Purity	$>99.9\%$
Moisture	$\leq 10 \text{ PPM}$
Acidity	$\leq 0.1 \text{ PPM}$
Vapor Residue	$\leq 50 \text{ PPM}$

Packaging Information



400 g

- Cylinder Type: Disposable can
- Cylinder Color: Yellow

