

Frio+ 404A*

Mixture of :

R143a: 1,1,1-trifluoroethane

R125: Pentafluoroethane

R134a: 1,1,1,2-tetrafluoroethane

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Standad ARI 700-2004
06.2009

PHYSICAL PROPERTIES

Chemical formula :		Density, liquid :	1,048 kg/l
	R143a CH ₃ -CF ₃	Specific heat ratio Cp/Cv (1 bar / 30°C) :	1,114
	R125 CHF ₂ -CF ₃	Heat of vaporization at boiling point :	202,1 kJ/kg
	R134a CH ₂ F-CF ₃	Thermal conductivity, liquid :	0,0683 W/m C
Molecular weight :	97,6 g/mol	Thermal conductivity, vapour :	0,01346 W/m C
Boiling point at 1 bar :	-46,7 C	Viscosity, liquid :	0,128 mPas
Freezing point :	Not available	Viscosity, vapour :	0,0122 mPas
Critical temperature :	72,1 C	Surface tension (at 30°C) :	5 mN/m at 25 C
Critical pressure :	37,32 bar	Relative dielectric strength (1 bar / 23°C) :	Not available
Critical density :	0,485 kg/l	Solubility in water at 1 bar :	negligible
Specific heat, liquid :	1,53 kJ/kg C	Solubility of water in the product at 1 bar :	0,055 %w
Specific heat, vapour at 1 bar :	0,887 kJ/kg C at 30 C	Kauri-Butanol value (KB) :	Not available

All data are given for a temperature of 25°C, unless otherwise specified

COMMERCIAL SPECIFICATIONS

Warranted purity :	
R143a	51-53 %
R125	42-46 %
R134a	2-6 %
Moisture in weight :	max. 10 ppm w.
Content of non-condensable gases (vapour) at 25°C :	max. 1.5 % vol.
Content of impurities at boiling point :	max.0,01 % by volume
Total acidity asHCl :	max. 1 ppm w.

PACKAGING

Disposable : 10,9 kg

NOMENCLATURES

	404A	R143a	R125	R134a
CAS nr :	-	420-46-2	354-33-6	811-97-2
EINECS nr :	-	206-996-5	206-557-8	212-377-0
UN nr :	3337	2035	3220	3159
IMDG class :	2.2	2.1	2.2	2.2
ADR class :	2.2 A			
Customs tariff :	3824 9095 90			
EmS :	2-09			
MFAG :	620			

ENVIRONMENTAL DATA

Type : HFC
ODP : 0
GWP : 3900

PROCESSED BY :

galco canalite

Avenue Carton de Wiart 79 B-1090 Brussels, Belgium

32-2-421.01.84 - Fax 32-2-425.46.03

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Frio+ 410A*

Mixture of :

R32: Difluoromethane
R125: Pentafluoroethane

*Registered Trademark of Galco
Standard ARI 700-2004
06 2009

PHYSICAL PROPERTIES

Chemical formula :	R32	CH2F2	Density, liquid :	1,062 kg/l
	R125	CHF2-CF3	Specific heat ratio Cp/Cv (1 bar / 30°C) :	1,17
			Heat of vaporization at boiling point :	264,3 kJ/kg
			Thermal conductivity, liquid :	0,0851 W/m C
Molecular weight :		72,58 g/mol	Thermal conductivity, vapour :	0,01243 W/m C
Boiling point at 1 bar :		-51,5 C	Viscosity, liquid :	0,125 mPas
Freezing point :		Not available	Viscosity, vapour :	0,0131 mPas
Critical temperature :		72,1 C	Surface tension (at 30°C) :	Not available
Critical pressure :		49,20 bar	Relative dielectric strength (1 bar / 23°C) :	Not available
Critical density :		0,489 kg/l	Solubility in water at 1 bar :	Not available
Specific heat, liquid :		1,834 kJ/kg C	Solubility of water in the product at 1 bar :	0,28 %w
Specific heat, vapour at 1 bar :		0,826 kJ/kg C	Kauri-Butanol value (KB) :	Not available

All data are given for a temperature of 25°C, unless otherwise specified

COMMERCIAL SPECIFICATIONS

Warranted purity :	
R32	48,5-50,5 %
R125	49,5-51,5 %

Moisture in weight :	max. 10 ppm w.
Content of non-condensable gases (vapour) at 25°C :	max. 1,5 % vol.
Content of impurities at boiling point :	max.0,01 % by volume
Total acidity asHCl :	max. 1 ppm by weight

PACKAGING

Disposable : 11,3 kg

NOMENCLATURES

	410A	R32	R125
CAS nr :	-	75-10-5	354-33-6
EINECS nr :	-	200-839-4	206-557-8
UN nr :	1078	3252	3220
IMDG class :	2.2	2.1	2.2
ADR class :	2.2 A		
Customs tariff :	3824 9095 90		
EmS :	2-09		
MFAG :	620		

ENVIRONMENTAL DATA

Type : HFC
ODP : 0
GWP : 2100

PROCESSED BY :

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Frio+ 22*

Chlorodifluoromethane

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Standard ARI 700-2004
06.2009

PHYSICAL PROPERTIES

Chemical formula :	CHClF2	Density, liquid :	1,194 kg/l
		Specific heat ratio Cp/Cv (1 bar / 30°C) :	1,177
		Heat of vaporization at boiling point :	233,51 kJ/kg
		Thermal conductivity, liquid :	0,09 W/m C
Molecular weight :	86,5 g/mol	Thermal conductivity, vapour :	0,0105 W/m C
Boiling point at 1 bar :	-40,8 C	Viscosity, liquid :	1,198 mPas
Freezing point :	-160 C	Viscosity, vapour :	0,0127 mPas
Critical temperature :	96,2 C	Surface tension (at 30°C) :	7,4 dyne/cm
Critical pressure :	49,8 bar	Relative dielectric strength (1 bar / 23°C) :	1,06 (nitrogen = 1)
Critical density :	0,525 kg/l	Solubility in water at 1 bar :	0,3 % w
Specific heat, liquid :	1,255 kJ/kg C	Solubility of water in the product at 1 bar :	0,13 %v
Specific heat, vapour at 1 bar :	0,657 kJ/kg C	Kauri-Butanol value (KB) :	25

All data are given for a temperature of 25°C, unless otherwise specified

COMMERCIAL SPECIFICATIONS

Warranted purity :	99,5 % vol.
Moisture in weight :	max. 10 ppm w.
Content of non-condensable gases (vapour) at 25°C :	max. 1,5 % vol.
Content of impurities at boiling point :	max. 0,01 % vol.
Total acidity asHCl :	max. 1 ppm by weight

PACKAGING

Disposable : 13,6 kg
Maxi dispo : 22,7 kg

NOMENCLATURES

	22			
CAS nr :	75-45-6			
EINECS nr :	200-871-9			
UN nr :	1018			
IMDG class :	2.2			
ADR class :	2.2 A			
Customs tariff :	2903 4911 00			
EmS :	2-09			
MFAG :	350			

ENVIRONMENTAL DATA

Type : HCFC
ODP : 0,050
GWP : 1810

PROCESSED BY :

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Frio+ 407C*

Mixture of :
R134a: 1,1,1,2-tetrafluoroethane
R125: Pentafluoroethane
R32: Difluoromethane

* Registered Trademark of Galco
Standard ARI 700-2004
06.2009

PHYSICAL PROPERTIES

Chemical formula :		Density, liquid :	1,136 kg/l
	R134a CH2F-CF3	Specific heat ratio Cp/Cv (1 bar / 30°C) :	Not available
	R125 CHF2-CF3	Heat of vaporization at boiling point :	246,1 kJ/kg
	R32 CH2F2	Thermal conductivity, liquid :	0,0824 W/m C
Molecular weight :	86,2	Thermal conductivity, vapour :	0,0199 W/m C
Boiling point at 1 bar :	-43,6 C	Viscosity, liquid :	0,158 mPas
Freezing point :	< -100 C	Viscosity, vapour :	0,0128 mPas
Critical temperature :	86,7 C	Surface tension (at 30°C) :	Not available
Critical pressure :	46 bar	Relative dielectric strength (1 bar / 23°C) :	Not available
Critical density :	0,5068 kg/l	Solubility in water at 1 bar :	negligible
Specific heat, liquid :	1537 kJ/kg C	Solubility of water in the product at 1 bar :	Not available
Specific heat, vapour at 1 bar :	0,829 kJ/kg C	Kauri-Butanol value (KB) :	Not available

All data are given for a temperature of 25°C, unless otherwise specified

COMMERCIAL SPECIFICATIONS

Warranted purity :	
R134a	50-54 %
R125	23-27 %
R32	21-25 %

Moisture in weight :	max. 10 ppm w.
Content of non-condensable gases (vapour) at 25°C :	max. 1,5 % vol.
Content of impurities at boiling point :	max.0,01% by volume
Total acidity asHCl :	max.1 ppm by weight

PACKAGING

Disposable : 11.3 kg

NOMENCLATURES

	407C	R134a	R125	R32
CAS nr :	-	811-97-2	354-33-6	75-10-5
EINECS nr :	-	212-377-0	206-557-8	200-839-4
UN nr :	3340	3159	3220	3252
IMCO class :	2.2	2.2	2.2	2.1
ADR class :	2.2 A			
Customs tariff :	3824 9099 90			
EmS :	2-09			
MFAG :	620			

ENVIRONMENTAL DATA

Type :	HFC
ODP :	0
GWP :	1800

PROCESSED BY :

galco dimalife

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Frio+* 134a

1,1,1,2-tetrafluoroethane

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Standard ARI 700-2004
06.2009

PHYSICAL PROPERTIES

Chemical formula :	CH2F-CF3	Density, liquid :	1,206 kg/l
		Specific heat ratio Cp/Cv (1 bar / 30°C) :	1,12
		Heat of vaporization at boiling point :	217,1 kJ/kg
		Thermal conductivity, liquid :	0,0824 W/m C
Molecular weight :	102 g/mol	Thermal conductivity, vapour :	0,0145 W/m C
Boiling point at 1 bar :	-26,1 C	Viscosity, liquid :	0,202 mPas
Freezing point :	-101 C	Viscosity, vapour :	0,012 mPas
Critical temperature :	101,1 C	Surface tension (at 30°C) :	7,45 dyne/cm
Critical pressure :	40,6 bar	Relative dielectric strength (1 bar / 23°C) : 0,8-1,1 (nitrogen = 1)	
Critical density :	0,5153 kg/l	Solubility in water at 1 bar :	0,15 %w
Specific heat, liquid :	1,44 kJ/kg C	Solubility of water in the product at 1 bar :	0,11 %w
Specific heat, vapour at 1 bar :	0,852 kJ/kg C	Kauri-Butanol value (KB) :	Not available

All data are given for a temperature of 25°C, unless otherwise specified

COMMERCIAL SPECIFICATIONS

Warranted purity :		99,5 % w.
R134a		
Moisture in weight :		max. 10 ppm w.
Content of non-condensable gases (vapour) at 25°C :		max. 1,5 % vol.
Content of impurities at boiling point :		max. 0,01 % vol.
Total acidity asHCl :		max 1 ppm by weight

PACKAGING

Disposable : 13,6 kg

Maxi dispo : 22,7 kg

NOMENCLATURES

	134a			
CAS nr :	811-97-2			
EINECS nr :	212-377-0			
UN nr :	3159			
IMDG class :	2.2			
ADR class :	2.2 A			
Customs tariff :	2903 3990			
EmS :	2-09			
MFAG :	350			

ENVIRONMENTAL DATA

Type : HFC
ODP : 0
GWP : 1430

PROCESSED BY :

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