

**Trade name:** R404A

**Product no.:** R404A

**Current version :** 1.0.0, issued: 14.12.2023

**Replaced version:** -, issued: -

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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Trade name**

**R404A**

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses of the substance or mixture**

Industrial Use

Professional use

Refrigerant

**Uses advised against**

Consumer use

### 1.3 Details of the supplier of the safety data sheet

**Address**

TEGA - Technische Gase und Gasetechnik GmbH

Werner-von-Siemens-Straße 18

97076 Würzburg

Telephone no. +49 931 2093-220

Fax no. +49 931 2093-180

e-mail kaeltmittel@tega.de

**Advice on Safety Data Sheet**

sdb\_info@umco.de

### 1.4 Emergency telephone number

For medical advice (in German and English):

+49 (0)551 192 40 (Giftinformationszentrum Nord)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification in accordance with Regulation (EC) No 1272/2008 (CLP)**

Press. Gas liq.; H280

**Classification information**

This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:

Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP

Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3, 4 and 5 of Annex I to CLP.

### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)**

**Hazard pictograms**



GHS04

**Signal word**

Warning

**Hazard statement(s)**

H280

Contains gas under pressure; may explode if heated.

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P410+P403 Protect from sunlight. Store in a well-ventilated place.

**Supplemental label elements**

Contains fluorinated greenhouse gases (HFC-143a, HFC-125, HFC-134a).

**2.3 Other hazards**

Danger of suffocation by displacement of air / oxygen. Contact with the liquid can cause cold burns or frostbite. Please observe the information given in this safety data sheet.

PBT assessment

The product is not considered to be a PBT.

vPvB assessment

The product is not considered to be a vPvB.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

Not applicable. The product is not a substance.

**3.2 Mixtures****Hazardous ingredients**

No	Substance name	Additional information	
	CAS / EC / Index / REACH no	Classification (EC) 1272/2008 (CLP)	Concentration %
1	<b>1,1,1-trifluoroethane</b>		
	420-46-2 206-996-5 - 01-2119492869-13	Flam. Gas 1A; H220 Press. Gas liq.; H280	>= 50,00 - < 70,00 Vol%
2	<b>pentafluoroethane</b>		
	354-33-6 206-557-8 - 01-2119485636-25	Press. Gas liq.; H280	>= 25,00 - < 50,00 Vol%
3	<b>norflurane</b>		
	811-97-2 212-377-0 - 01-2119459374-33	Press. Gas liq.; H280	< 5,00 Vol%

Full Text for all H-phrases and EUH-phrases: pls. see section 16

No	Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
1	-	Flam. Gas 1A; H220: C >= 7%	-	-

**SECTION 4: First aid measures****4.1 Description of first aid measures****General information**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove affected person from danger area, lay him down. Seek medical advice immediately.

**After inhalation**

Remove affected persons from dangerous area by observing suitable respiratory protection measures. Ensure supply of fresh air. Irregular breathing/no breathing: artificial respiration. Call a doctor immediately.

**After skin contact**

In case of contact with skin wash off immediately with soap and water. Rinse with much water in case of frostbites. Remove clothes only after unfreezing. Cover wounds with sterile dressing. Call a doctor immediately.

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Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes). Seek medical assistance.

**After ingestion**

Rinse the mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

**4.2 Most important symptoms and effects, both acute and delayed****Symptoms**

The following symptoms may occur: respiratory arrest. Shortness of breath; Light-headedness; muscle incoordination; Unconsciousness; cardiac arrhythmia; Dizziness; confusion; anesthetic effect; Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. May be fatal if inhaled.

**4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Extinguishing measures to suit surroundings.

**Unsuitable extinguishing media**

High power water jet

**5.2 Special hazards arising from the substance or mixture**

In the event of fire, the following can be released: Carbon monoxide and carbon dioxide; Hydrogen fluoride (HF); Carbonyl fluoride; fluorine compounds; Liquefied gas: Spilled liquid can cause cold burns. This gas is heavier than air and may accumulate in low areas.

**5.3 Advice for firefighters**

Use self-contained breathing apparatus. Wear full protective suit. Containers close to fire should be transferred to a safe place. Cool closed containers exposed to fire with water. Pressure increase, bursting and explosion hazard during heating. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Refer to protective measures listed in sections 7 and 8. Provide good room ventilation even at ground level (vapours are heavier than air). Do not breathe gas. Keep away from ignition sources. Use personal protective clothing. Cordon and mark contaminated area. Remove persons to safety.

**For emergency responders**

No data available. Personal protective equipment (PPE) - see Section 8.

**6.2 Environmental precautions**

Avoid release in the environment. Suppress gases/vapours/mists with water spray jet.

**6.3 Methods and material for containment and cleaning up**

Ensure adequate ventilation. Dispose of absorbed material in accordance with the regulations.

**6.4 Reference to other sections**

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

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Only qualified and trained persons are authorised to handle. Provide good ventilation at the work area (local exhaust ventilation, if necessary). To be used only according to instructions for use. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers heat or sources of ignition. In case of accidental release: danger due to low temperature of the liquid product. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Comply with the health and safety at work laws.

**General protective and hygiene measures**

Wash hands before breaks and after work. Do not inhale gases. Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Have emergency shower available.

**Advice on protection against fire and explosion**

The product is not combustible. The substance can form a combustible mixture with air at elevated pressure. Isolate from sources of heat, sparks and open flame. Take precautionary measures against electrostatic loading (earthing necessary during loading operations). Electrical equipment should be protected to the appropriate standard.

**7.2 Conditions for safe storage, including any incompatibilities****Technical measures and storage conditions**

Keep container tightly closed in a cool, well-ventilated place, open and handle carefully. Protect from heat and direct sunlight.

**Recommended storage temperature**

Value < 50 °C

**Storage stability**

Value > 10 a

Comments When stored properly, the storage life is unlimited.

**Requirements for storage rooms and vessels**

Containers which are opened must be carefully closed and kept upright to prevent leakage. Always keep in containers of same material as the original.

**Incompatible products**

Do not store together with: inflammatory substances; organic peroxides; oxidizing agents; Materials in contact with water emit flammable gases. pyrophoric substances; self-heating substances and mixtures; explosives; toxic substances and mixtures

**Storage Class according TRGS 510**

2A Gases (except aerosol dispensers and lighters)

**7.3 Specific end use(s)**

No data available.

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Occupational exposure limit values**

No	Substance name	CAS no.	EC no.
1	norflurane	811-97-2	212-377-0
	TRGS 900		
	Norfluran		
	WEL long-term (8-hr TWA reference period)	4200	mg/m <sup>3</sup> 1000 ml/m <sup>3</sup>
	Ceiling Limit	8(II)	
	Notes	Y	

**Biological limit values**

No	Substance name
1	pentafluoroethane

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<b>TRGS 903</b>	
Fluorwasserstoff und anorganische Fluorverbindungen (Fluoride)	
parameter	Fluorid
Value	7,0 mg/g Kreatinin
sample material	U
Sampling moment	b
<b>TRGS 903</b>	
Fluorwasserstoff und anorganische Fluorverbindungen (Fluoride)	
parameter	Fluorid
Value	4,0 mg/g Kreatinin
sample material	U
Sampling moment	d

**DNEL, DMEL and PNEC values****DNEL values (worker)**

No	Substance name	CAS / EC no	
	Route of exposure	Exposure time	Effect
1	1,1,1-trifluoroethane		Value
	inhalative	Long term (chronic)	systemic
2	pentafluoroethane		Value
	inhalative	Long term (chronic)	systemic
3	norflurane		Value
	inhalative	Long term (chronic)	systemic

**DNEL value (consumer)**

No	Substance name	CAS / EC no	
	Route of exposure	Exposure time	Effect
1	1,1,1-trifluoroethane		Value
	inhalative	Long term (chronic)	systemic
2	pentafluoroethane		Value
	inhalative	Long term (chronic)	systemic
3	norflurane		Value
	inhalative	Long term (chronic)	systemic

**PNEC values**

No	Substance name	CAS / EC no	
	ecological compartment	Type	Value
1	1,1,1-trifluoroethane		Value
	water	fresh water	350 µg/L
2	pentafluoroethane		Value
	water	fresh water	0,1 mg/L
	water	fresh water sediment	0,6 mg/kg dry weight
3	norflurane		Value
	water	fresh water	0,1 mg/L
	water	marine water	0,01 mg/L
	water	fresh water sediment	0,75 mg/kg dry weight
	sewage treatment plant	-	73 mg/L

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## 8.2 Exposure controls

### Appropriate engineering controls

Ensure adequate ventilation, local exhaust at the work station if necessary. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn.

### Personal protective equipment

#### Respiratory protection

Self-contained breathing apparatus. In case of insufficient ventilation or long-term effect use breathing apparatus.

Danger of suffocation due to high concentrations in breathing air.

Respiratory filter (gas) : AX

#### Eye / face protection

Tightly fitting safety glasses (EN 166).

#### Hand protection

Low-temperature-resistant gloves (EN 511). Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.

Appropriate Material Leather

#### Other

Chemical-resistant work clothes. Protective shoes.

#### Environmental exposure controls

Information regarding waste disposal, see chapter 13.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>State of aggregation</b>	
gas	
<b>Form</b>	
liquified gas	
<b>Colour</b>	
colourless	
<b>Odour</b>	
slightly like ether	
<b>pH value</b>	
No data available	
<b>Boiling point / boiling range</b>	
Value	-46,2 °C
<b>Melting point/freezing point</b>	
No data available	
<b>Decomposition temperature</b>	
Value	728 °C
<b>Flash point</b>	
No data available	
<b>Ignition temperature</b>	
No data available	
<b>Oxidising properties</b>	
none (supplier)	

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Product does not present an explosion hazard.

**Flammability**

The product is not combustible.

**Lower explosion limit**

none

Method	ASTM E 681
Reference substance	mixture R404A
Source	supplier

**Upper explosion limit**

none

Method	ASTM E 681
Reference substance	mixture R404A
Source	supplier

**Vapour pressure**

Value	12,5	hPa
Reference temperature	25	°C
Value	23,1	hPa
Reference temperature	50	°C

**Relative vapour density**

No data available

**Evaporation rate**

Value	> 1
Comments	CCl4 = 1

**Relative density**

No data available

**Density**

Value	1,044	g/cm³
Reference temperature	25	°C
Comments	as liquid	

**Solubility**

No data available

**Partition coefficient n-octanol/water (log value)**

No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
log Pow			
Reference temperature			
Source			
2	pentafluoroethane	354-33-6	206-557-8
log Pow			
Reference temperature			
with reference to			
Method			
Source			
3	norflurane	811-97-2	212-377-0
log Pow			
Reference temperature			
with reference to			
Method			
Source			

**Kinematic viscosity**

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No data available

**Particle characteristics**

No data available

**9.2 Other information****Other information**

No data available.

**SECTION 10: Stability and reactivity****10.1 Reactivity**

Dangerous reactions are not expected if the product is handled according to its intended use.

**10.2 Chemical stability**

Stable under recommended storage and handling conditions (See section 7).

**10.3 Possibility of hazardous reactions**

Stable under recommended storage and handling conditions (See section 7). Reacts with strong oxidizing agents.

**10.4 Conditions to avoid**

Temperatures &gt; 50°C. Heat, naked flames and other ignition sources.

**10.5 Incompatible materials**

strong oxidizing agents

**10.6 Hazardous decomposition products**

None, if handled according to intended use. In case of fire: see section 5.

**SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute oral toxicity**

No data available

**Acute dermal toxicity**

No data available

**Acute inhalational toxicity**

No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
ATE	>		
Duration of exposure		591000	ppmV
State of aggregation		4	h
Species	Gas		
Method	rat		
Source	OECD 403		
Evaluation/classification	ECHA		
	Based on available data, the classification criteria are not met.		

**Skin corrosion/irritation**

No data available

**Serious eye damage/irritation**

No data available

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
Type of examination	In vitro Mammalian Chromosomal Aberration Test		



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Species	Human Lymphocyte
Method	EPA OPPTS 870.5375
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.
Type of examination	in vitro gene mutation study in bacteria
Species	Salmonella typhimurium / Escherichia coli
Method	OECD 471
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.
Type of examination	in vitro gene mutation study in mammalian cells
Species	Mouse lymphoma cells
Method	OECD 490
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

<b>2</b>	<b>pentafluoroethane</b>	<b>354-33-6</b>	<b>206-557-8</b>
Type of examination	in vitro gene mutation study in bacteria		
Species	Salmonella typhimurium / Escherichia coli		
Method	OECD 471		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
Type of examination	In vitro Mammalian Chromosomal Aberration Test		
Species	Chinese hamster Ovary (CHO)		
Method	OECD 473		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
Route of exposure	inhalational		
Type of examination	Mammalian Erythrocyte Micronucleus Test, In vivo		
Species	mouse		
Method	OECD 474		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
<b>3</b>	<b>norflurane</b>	<b>811-97-2</b>	<b>212-377-0</b>
Type of examination	Genotoxicity in vitro		
Species	Salmonella typhimurium		
Method	OECD 471		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
Type of examination	Genotoxicity in vitro		
Species	Human Lymphocyte		
Method	OECD 473		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
Route of exposure	inhalational		
Type of examination	Genotoxicity in vivo		
Species	mouse		
Method	EPA		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Reproduction toxicity			
No	Substance name	CAS no.	EC no.
1	norflurane	811-97-2	212-377-0
Route of exposure	inhalational		
Species	mouse		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Carcinogenicity			
No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5

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Route of exposure	oral		
NOAEL	>	300	mg/kg bw/d
Duration of exposure		52	week/s
Type of examination	Toxicity study		
Species	rat		
Method	Value taken from the literature		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
<b>2</b>	<b>norflurane</b>	<b>811-97-2</b>	<b>212-377-0</b>
Route of exposure	inhalational		
Species	rat		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

**STOT - single exposure**

No data available

**STOT - repeated exposure**

No	Substance name	CAS no.	EC no.
<b>1</b>	<b>1,1,1-trifluoroethane</b>	<b>420-46-2</b>	<b>206-996-5</b>
Route of exposure	inhalational		
Species	rat		
Method	OECD 413		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
<b>2</b>	<b>pentafluoroethane</b>	<b>354-33-6</b>	<b>206-557-8</b>
Route of exposure	inhalational		
Species	rat		
Method	OECD 413		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
<b>3</b>	<b>norflurane</b>	<b>811-97-2</b>	<b>212-377-0</b>
Route of exposure	inhalational		
Species	rat		
Method	OECD 453		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

**Aspiration hazard**

No data available

**11.2 Information on other hazards****Endocrine disrupting properties**

No data available.

**Other information**

No data available.

**SECTION 12: Ecological information****12.1 Toxicity**

<b>Toxicity to fish (acute)</b>			
No	Substance name	CAS no.	EC no.
<b>1</b>	<b>1,1,1-trifluoroethane</b>	<b>420-46-2</b>	<b>206-996-5</b>
LC50	>	40	mg/l
Duration of exposure		96	h
Species	Rainbow trout		
Method	OECD 203		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

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2	norflurane	811-97-2	212-377-0
LC50		450	mg/l
Duration of exposure		96	h
Species	Salmo gairdneri		
Method	EU C.1		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

**Toxicity to fish (chronic)**

No data available

**Toxicity to Daphnia (acute)**

No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
EC50		300	mg/l
Duration of exposure		48	h
Species	Daphnia magna		
Method	OECD 202		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

2	norflurane	811-97-2	212-377-0
EC50		980	mg/l
Duration of exposure		48	h
Species	Daphnia magna		
Method	EU C.2		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

**Toxicity to Daphnia (chronic)**

No data available

**Toxicity to algae (acute)**

No data available

**Toxicity to algae (chronic)**

No data available

**Bacteria toxicity**

No data available

**12.2 Persistence and degradability**

Biodegradability			
No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
Type	aerobic biodegradation		
Method	QSAR		
Source	ECHA		
Evaluation	not readily biodegradable		
2	pentafluoroethane	354-33-6	206-557-8
Type	aerobic biodegradation		
Value	appr.	5	%
Duration		28	d
Method	Closed Bottle Test (OECD 301D)		
Source	ECHA		
Evaluation	not readily biodegradable		
3	norflurane	811-97-2	212-377-0
Type	aerobic biodegradation		
Value	appr.	3	%
Duration		28	d
Method	OECD 301 D		
Source	ECHA		
Evaluation	not readily biodegradable		

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Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
log Pow		1,06	
Reference temperature		20	°C
Source		ECHA	
2	pentafluoroethane	354-33-6	206-557-8
log Pow		1,48	
Reference temperature		25	°C
with reference to		pH 6.34	
Method		OECD 107	
Source		ECHA	
3	norflurane	811-97-2	212-377-0
log Pow		1,06	
Reference temperature		25	°C
with reference to		pH 6.0	
Method		OECD 107	
Source		ECHA	

**12.4 Mobility in soil**

No data available.

**12.5 Results of PBT and vPvB assessment**

Results of PBT and vPvB assessment	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.

**12.6 Endocrine disrupting properties**

No data available.

**12.7 Other adverse effects**

Other adverse effects
Contains fluorinated greenhouse gases. global warming potential within a 100 year period: 3921.6

**12.8 Other information**

Other information
Do not discharge product unmonitored into the environment.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Product**

dispose of in accordance with local regulation.

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

**Packaging**

Compressed gas packaging under pressure. Do not open by force. Do not heat above 50°C. Dispose of compressed gas packagings only if completely discharged. Do not burn empty compressed gas packagings. Do not pierce, cut or weld uncleaned containers.

**SECTION 14: Transport information****14.1 Transport ADR/RID/ADN**

Class	2
Classification code	2A
Hazard identification no.	20

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UN number	UN3337
Proper shipping name	REFRIGERANT GAS R 404A
Tunnel restriction code	C/E
Label	2.2 RID: (+13)

**14.2 Transport IMDG**

Class	2.2
UN number	UN3337
Proper shipping name	REFRIGERANT GAS R 404A
EmS	F-C, S-V
Label	2.2

**14.3 Transport ICAO-TI / IATA**

Class	2.2
UN number	UN3337
Proper shipping name	Refrigerant gas R 404A
Label	2.2

**14.4 Other information**

No data available.

**14.5 Environmental hazards**

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

**14.6 Special precautions for user**

To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

**14.7 Maritime transport in bulk according to IMO instruments**

Not relevant

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations****Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)**

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances considered as substances requiring authorisation as listed on Annex XIV of the REACH regulation (EC) 1907/2006.

**REACH candidate list of substances of very high concern (SVHC) for authorisation**

According to available data and the information provided by preliminary suppliers, the product does not contain substances that are considered substances meeting the criteria for inclusion in annex XIV (List of Substances Subject to Authorisation) as laid down in Article 57 and article 59 of REACH (EC) 1907/2006.

**Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES**

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances subject to restriction as listed in Annex XVII of the REACH regulation (EC) 1907/2006.

**Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances**

This product is not subject to Part 1 or 2 of Annex I.

**Other regulations**REGULATION (EU) No 517/2014 on fluorinated greenhouse gases  
Adhere to the national sanitary and occupational safety regulations when using this product.**National regulations****Water Hazard Class (Germany)**

Class 1

