

**Trade name:** R404A**Product no.:** R404A**Current version :** 1.3.0, issued: 14.02.2020**Replaced version:** 1.2.0, issued: 21.03.2019**Region:** GB**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.

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

**Hazard statements (EU)**

EUH018 In use may form flammable/explosive vapour-air mixture.  
 EUH209 Can become highly flammable in use.

**Precautionary statement(s)**

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 1; 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 1; 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.

**Trade name:** R404A**Product no.:** R404A**Current version :** 1.3.0, issued: 14.02.2020**Replaced version:** 1.2.0, issued: 21.03.2019**Region:** GB**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.

**After eye contact**

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 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; Dizziness; 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 sources of ignition. 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 chapter 7. Information regarding personal protective measures, see chapter 8. Information regarding waste disposal, see chapter 13.

**SECTION 7: Handling and storage**

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

## 7.1 Precautions for safe handling

### Advice on safe handling

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

## 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
<b>List of approved workplace exposure limits (WELs) / EH40</b>			
1,1,1,2-Tetrafluoroethane (HFC134a)			
	WEL long-term (8-hr TWA reference period)	4240	mg/m <sup>3</sup> 1000 ppm

#### DNEL, DMEL and PNEC values

##### DNEL values (worker)

No	Substance name	CAS / EC no		
	Route of exposure	Exposure time	Effect	Value
1	1,1,1-trifluoroethane			420-46-2 206-996-5

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

	inhalative	Long term (chronic)	systemic	38800	mg/m <sup>3</sup>
2	<b>pentafluoroethane</b>			<b>354-33-6</b>	<b>206-557-8</b>
	inhalative	Long term (chronic)	systemic	16444	mg/m <sup>3</sup>
3	<b>norflurane</b>			<b>811-97-2</b>	<b>212-377-0</b>
	inhalative	Long term (chronic)	systemic	13936	mg/m <sup>3</sup>

**DNEL value (consumer)**

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	<b>1,1,1-trifluoroethane</b>			<b>420-46-2</b>	<b>206-996-5</b>
	inhalative	Long term (chronic)	systemic	10700	mg/m <sup>3</sup>
2	<b>pentafluoroethane</b>			<b>354-33-6</b>	<b>206-557-8</b>
	inhalative	Long term (chronic)	systemic	1753	mg/m <sup>3</sup>
3	<b>norflurane</b>			<b>811-97-2</b>	<b>212-377-0</b>
	inhalative	Long term (chronic)	systemic	2476	mg/m <sup>3</sup>

**PNEC values**

No	Substance name		CAS / EC no	
	ecological compartment	Type	Value	
1	<b>1,1,1-trifluoroethane</b>		<b>420-46-2</b>	<b>206-996-5</b>
	water	fresh water	350	µg/L
2	<b>pentafluoroethane</b>		<b>354-33-6</b>	<b>206-557-8</b>
	water	fresh water	0.1	mg/L
	water	fresh water sediment	0.6	mg/kg dry weight
	water	Aqua intermittent	1	mg/L
3	<b>norflurane</b>		<b>811-97-2</b>	<b>212-377-0</b>
	water	fresh water	0.1	mg/L
	water	marine water	0.01	mg/L
	water	fresh water sediment	0.75	mg/kg dry weight
	water	Aqua intermittent	1	mg/L
	sewage treatment plant	-	73	mg/L

**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

with 1907/2006/EC

**Trade name:** R404A**Product no.:** R404A**Current version :** 1.3.0, issued: 14.02.2020**Replaced version:** 1.2.0, issued: 21.03.2019**Region:** GB

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>Form/Colour</b>	
liquified gas	
colourless	
<b>Odour</b>	
slightly like ether	
<b>Odour threshold</b>	
No data available	
<b>pH value</b>	
No data available	
<b>Boiling point / boiling range</b>	
Value	-46.2 °C
<b>Melting point / melting range</b>	
No data available	
<b>Decomposition point / decomposition range</b>	
Value	728 °C
<b>Flash point</b>	
No data available	
<b>Auto-ignition temperature</b>	
No data available	
<b>Oxidising properties</b>	
none (supplier)	
<b>Explosive properties</b>	
This product is not explosive. In and after use danger of production of inflammable compounds.	
<b>Flammability (solid, gas)</b>	
The product is not combustible.	
<b>Lower flammability or explosive limits</b>	
none	
Method	ASTM E 681
Reference substance	mixture R404A
Source	supplier
<b>Upper flammability or explosive limits</b>	
none	
Method	ASTM E 681
Reference substance	mixture R404A
Source	supplier
<b>Vapour pressure</b>	
Value	12.5 hPa
Reference temperature	25 °C

with 1907/2006/EC

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

Value	23.1	hPa
Reference temperature	50	°C

**Vapour density**

No data available

**Evaporation rate**

Value	>	1
Comments	CCI4 = 1	

**Relative density**

No data available

**Density**

Value	1.044	g/cm <sup>3</sup>
Reference temperature	25	°C
Comments	as liquid	

**Solubility in water**

No data available

**Solubility(ies)**

No data available

**Partition coefficient: n-octanol/water**

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	

**Viscosity**

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.

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

**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 toxicological effects**

<b>Acute oral toxicity</b>			
No data available			
<b>Acute dermal toxicity</b>			
No data available			
<b>Acute inhalational toxicity</b>			
No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
ATE	>	591000	ppmV
Duration of exposure		4	h
State of aggregation	Gas		
Species	rat		
Method	OECD 403		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
2	pentafluoroethane	354-33-6	206-557-8
ATE	>	800000	ppmV
Duration of exposure		4	h
State of aggregation	Gas		
Species	rat		
Method	OECD 403		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		
<b>Skin corrosion/irritation</b>			
No data available			
<b>Serious eye damage/irritation</b>			
No data available			
<b>Respiratory or skin sensitisation</b>			
No data available			
<b>Germ cell mutagenicity</b>			
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		
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.		



Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

2	pentafluoroethane	354-33-6	206-557-8
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.		
3	norflurane	811-97-2	212-377-0
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
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.		
2	norflurane	811-97-2	212-377-0
Route of exposure	inhalational		
Species	rat		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

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

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish (acute)			
No	Substance name	CAS no.	EC no.
1	1,1,1-trifluoroethane	420-46-2	206-996-5
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.	
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

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

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		3	%
Duration		28	d
Method	OECD 301 D		
Source	ECHA		
Evaluation	not readily biodegradable		

**12.3 Bioaccumulative potential**

Partition coefficient: n-octanol/water			
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		

with 1907/2006/EC

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

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 Other adverse effects****Other adverse effects**

Contains fluorinated greenhouse gases.

global warming potential within a 100 year period: 3921.6

**12.7 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
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.

Trade name: R404A

Product no.: R404A

Current version : 1.3.0, issued: 14.02.2020

Replaced version: 1.2.0, issued: 21.03.2019

Region: GB

**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 Transport in bulk according to Annex II of Marpol and the IBC Code**

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, PREPARATIONS AND ARTICLES**

According to the data available and/or specifications supplied by upstream suppliers, this product does not contain any substances requiring authorisation as listed on 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.

**15.2 Chemical safety assessment**

Chemical safety assessments have been conducted for the substances in this mixture. For a mixture a chemical safety assessment according to (EC) 1907/2006 is not mandatory.

**SECTION 16: Other information****Sources of key data used to compile the data sheet:**

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.

EC Directives 2000/39/EC, 2006/15/EC, 2009/161/EU

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

**Full text of the H- and EUH- phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections)**

H220 Extremely flammable gas.

**Department issuing safety data sheet**

UMCO GmbH

This information is based on our present knowledge and experience.

The safety data sheet describes products with a view to safety requirements.

It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

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# Safety data sheet in accordance



with 1907/2006/EC

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**Trade name:** R404A

**Product no.:** R404A

**Current version :** 1.3.0, issued: 14.02.2020

**Replaced version:** 1.2.0, issued: 21.03.2019

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Prod-ID 755584