

**SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

1.1. Product Identifier

Mixture identification:

Name: R404A

UFI code: CRCK-TTU2-V002-6HT4

1.2. Relevant identified uses of the substance/mixture and uses advised against

Recommended use:

Industrial and professional

Refrigerant gas

1.3. Details of the supplier of the safety data sheet

Company:

TAZZETTI S.P.A

CORSO EUROPA 600/A

10088 VOLPIANO (TO) - ITALY-

Tel. +39 011 97021

Fax +39 011 9702460

rsg.inquiry@tazzetti.com**SECTION 2. HAZARDS IDENTIFICATION**

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP):

Warning, Liquef. Gas, Contains gas under pressure

2.2. Label elements

Symbols:



Signal word: Warning

Hazard statements:

H280 Contains gas under pressure; may explode if heated.

Precautionary statements:

P403 Store in a well ventilated place

P410 Protect from sunlight

P273 Avoid release to the environment.

P314 Get medical advice/attention if you feel unwell

Special Provisions:

Contains fluorinated greenhouse gases covered by the Kyoto protocol.

2.3. Other hazards

Inhalation: Like the other volatile aliphatic halogenated compounds, through the accumulation of vapors and/or the inhalation of large quantities, the substance can cause: Loss of consciousness and heart troubles aggravated by stress and lack of oxygen; mortal risk



Contact with liquid may cause cold burns/frostbite.

Vapour heavier than air, may accumulate below ground level and cause choking.

Results of PBT and vPvB assessment : According to Annex III of the REACH regulation, this mixture does not contain any substance meeting the PBT and vPvB criteria.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixtures

Hazard component	No. Reg. REACH	CAS No.	EC No.	% (w/w)	Classific. CLP
1,1,1-trifluoroethane	01-2119492869-13-0007	420-46-2	206-996-5	52.0	H221 Flam. Gas 1B H280 Press. Gas
Pentafluoroethane	01-2119485636-25-0011	354-33-6	206-557-8	44.0	H280 Press. Gas
1,1,1,2-tetrafluoroethane	01-2119459374-33-0010	811-97-2	212-377-0	4.0	H280 Press. Gas

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

Skin contact:

In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

Eye contact:

In case of contact with eyes, rinse immediately (for at least 15 minutes) with plenty of water and seek medical advice.

Ingestion:

Do not induce vomiting. Obtain medical assistance.

Inhalation:

Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

4.2. Most important symptoms and effects, both acute and delayed

Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects., Other symptoms potentially related to misuse or inhalation abuse are: Anaesthetic effects, Light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness. In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.

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

Treatment: Do not administer catecholamines (due to cardiac effects caused by the product).

SECTION 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

All known extinguishants can be used.

Extinguishing media which must not be used for safety reasons:

None in particular.



5.2. Special hazards arising from the substance or mixture

The product is not flammable in air, in a normal temperature and pressure conditions. Certain mixtures of the product with air, in certain conditions of pressure may be flammable. Avoid mixtures of the product with air, under pressure.

Certain mixtures of the product and chlorine may be flammable or reactive under certain conditions. Thermal decomposition causes the emission of fumes very toxic and corrosive gases (hydrogen fluoride).

Containers may explode if heated

Do not inhale explosion and combustion gases.

5.3. Advice for fire-fighters

Specific methods: Cool containers / tanks with water spray. Provide a rapid container evacuation system.

In case of fire nearby, remove containers exposed to fire.

Special activities for the protection of firefighters: Wear self-contained breathing apparatus and protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Evacuate area.

Ensure adequate air ventilation.

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

See protective measures under point 7 and 8.

6.2. Environmental precautions

Avoid discharge to atmosphere.

6.3. Methods and material for containment and cleaning up

Ventilate area.

6.4. Reference to other sections

See also section 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not allow backfeed into the container.

Use only equipment suitable for the product and the operating pressure.

Avoid contact with skin and eyes, inhalation of vapours and mists.

Only experienced and properly instructed persons should handle compressed gases.

The substance must be handled in accordance with good industrial hygiene and safety procedures.

Close container valve after each use and when empty, even if still connected to equipment.

Never attempt to repair or modify container valves or safety relief devices.

Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.

Never use direct flame to raise the pressure of a container.

Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

Do not cut, drill, grind, weld or do similar operations on containers.

7.2. Conditions for safe storage, including any incompatibilities

Observe all regulations and local requirements regarding storage of containers.

Keep container in a well ventilated place.



Protect cylinders from physical damage; do not drag, roll, slide or drop.

Keep away from open flames, sparks and heat sources.

Keep container below 50 °C.

Containers should not be stored in conditions likely to encourage corrosion.

Incompatible materials:

Strong oxidizing agents Alkali hydroxides Alkaline earth metals Finely divided metals

Packing material:

Recommended: Carbon steel

To be avoided: Alloy containing more than 2% magnesium, Plastic materials.

Instructions as regards storage permises:

Adequately ventilated.

7.3. Specific end use(s)

If annexed, please make reference to the scenario

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Components:

1,1,1- trifluoroethane WEEL 2010 LELT - 8 ore TWA 1.000 ml/m³ 3.400 mg/m³

Pentafluoroethane WEEL 2010 LELT - 8 ore TWA 1.000 ml/m³ 4.900 mg/m³

norflurano (1,1,1,2-tetrafluoroetano) Fonte WEEL 2010 LELT - 8 ore TWA 1.000 ml/m³ 4.240 mg/m³

DNEL:

norflurano (1,1,1,2-tetrafluoroetano) :

Exposure routes: Inhalation Workers 13936 mg/m³ (LT, SE)

Consumers 2476 mg/m³ (LT, SE)

pentafluoroethane :

Exposure routes: Inhalation Workers 16444 mg/m³ (LT, SE)

Consumers 1753 mg/m³ (LT, SE)

1,1,1- trifluoroethane:

Exposure routes: Inhalation Workers 38800 mg/m³ (LT, SE)

Consumers 10700 mg/m³ (LT, SE)

PNEC:

norflurano (1,1,1,2-tetrafluoroetano) : Compartimento: Valore:

fresh water 0,1 mg/l

marine water 0,01 mg/l

water (Intermittent use/release) 1 mg/l

water (sewage treatment plants) 73 mg/l

fresh water sediment:0,75 mg/kg dw

Pentafluoroethane:

fresh water 0,1 mg/l

water (Intermittent use/release) 1 mg/l

fresh water sediment:0,6 mg/kg dw

1,1,1-trifluoroethane: fresh water 0,35 mg/l

8.2. Exposure controls

The product should be handled in a closed circuit.

Provide adequate general and local ventilation.

Make sure the exposure is well below the occupational exposure limits.

If the risk assessment indicates this is necessary, use the following protection

Eye protection:

If foreseeable a risk of spurts or squirts, please wear safety glasses with lateral protection in compliance with rule of law EN 166.

Protection for skin:

Protective clothing



Protection for hands:

If foreseeable a direct contact with liquid or with cold machineries/equipments for which exist a risk of cold burn, please use cold protection gloves in compliance with rule of law EN511 – 020.

Respiratory protection:

Wear self-contained breathing apparatus in compliance with EN 137 when entering area unless atmosphere is proved to be safe.

Thermal Hazards:

Contact with liquid may cause cold burns/frostbite.

Environmental exposure controls:

Refer to environment legislation. Please observe section 13 (Waste treatment methods).

Contact with liquid may cause cold burns/frostbite.

In high concentrations may cause asphyxiation.

Vapour heavier than air, may accumulate below ground level and cause choking.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Gas
Colour:	Incolour
Odour:	Ethereal
Odour threshold:	Information not available
pH:	Not applicable to substance
Melting point / freezing point:	
norflurano (1,1,1,2-tetrafluoroetano) :	-108 °C
pentafluoroethane :	-103 °C
1,1,1- trifluoroethane:	-111 °C
Initial boiling point and boiling range:	from -47.2 to -46.4 °C
Solid/gas flammability:	no flammable (NF EN 378-1)
Upper/lower flammability or explosive limits:	Not applicable to substance
Vapour pressure:	3,57 MPa , at 70 °C 2,33 MPa , at 50 °C 1,27 MPa , at 25 °C
Density:	1.041 Kg/m ³ , a 25 °C
Liquified gas	655 Kg/m ³ , a 70 °C
Vapour density (Acqua=1):	1,05 a 25 °C
Vapour density:	5,39 Kg/m ³ at boiling point
Vapour density (air=1):	3,43 , a 25 °C
Flash point:	Not applicable to substance
Evaporation rate:	Information not available
Solubility in water:	
norflurano (1,1,1,2-tetrafluorethane) :	1 g/l at 25 °C (misurated)
pentafluoroethane:	430 mg/l at 25 °C (calculated)
1,1,1- trifluoroethane:	761 mg/l at 25 °C (calculated)
Solubility (in other substances):	Alcohols, chlorinated solvents, esthers
Partition coefficient n-octanol/water:	
1,1,1- trifluoroethane: log Kow :	1,06 , at 25°C, (Guideline OECD 107)
pentafluoroethane: log Kow :	1,48 , at 25°C (Guideline OECD 107)
norflurano (1,1,1,2-tetrafluorethane) : log Kow :	1,06 , at 25 °C (Guideline OECD 107)
Auto-ignition temperature:	> 750 °C
Decomposition temperature:	728°C
Viscosity:	Not tested

9.2. Other information

Critical Point:

Critical Pressure: 3,74 MPa,



Critical temperature: 72 °C
Explosive properties: Not applicable
Oxidizing properties: Not applicable

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

The product is not flammable in air, in a normal temperature and pressure conditions. Certain mixtures of the product with air, under certain pressure conditions which may be flammable. Avoiding product mixtures with air under pressure.

Certain product mixtures and chlorine may be flammable or reactive under certain conditions. Thermal decomposition gas emissions very toxic and corrosive fumes (hydrogen fluoride)

10.2. Chemical stability

Stable in normal conditions

10.3. Possibility of hazardous reactions

Can react violently if in contact with alkali metals, alkaline earth metals.

10.4. Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Don't smoke.

10.5. Incompatible materials

Finely divided metals, magnesium and alloys containing more than 2% magnesium, powdered metal salts.

10.6. Hazardous decomposition products

Hydrogen fluoride by thermal decomposition and hydrolysis, carbon oxides, carbonyl fluoride, fluorocarbons.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the mixture:

Acute inhalation toxicity:

Due to its composition, it can be considered as slightly harmful by inhalation.

1,1,1-trifluoroethane: Like the other volatile aliphatic halogenated compounds, through the accumulation of vapors and/or the inhalation of large quantities, the substance can cause: Loss of consciousness and cardiac disorders aggravated by stress and lack of oxygen; mortal risk

- In animals : No mortality/4 h/Rat: 591000 ppm (Method: OECD Test Guideline 403)

Pentafluoroethane : Inhalation of high concentrations of vapors causes effects which may include:, headache, Dizziness, Drowsiness. Like the other volatile aliphatic halogenated compounds, through the accumulation of vapors and/or the inhalation of large quantities, the substance can cause: Loss of consciousness and cardiac disorders aggravated by stress and lack of oxygen; mortal risk

- In animals: No mortality /4 h/Rat: 800000 ppm (Method: OECD Test Guideline 403)

1,1,1,2-tetrafluoroethane: Like the other volatile aliphatic halogenated compounds, through the accumulation of vapors and/or the inhalation of large quantities, the substance can cause: Loss of consciousness and cardiac disorders aggravated by stress and lack of oxygen; mortal risk

- In animals: No mortality /4 h/Ratto: 567000 ppm (Method: OECD Test Guideline 403).

Central nervous system depression, narcosis.

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact: Freezing possible from liquefied gas splashes

Eye contact: Freezing possible from liquefied gas splashes



Sensitisation: inhalation:

1,1,1-trifluoroethane:

- In animals: No-observed-effect level (cardiac sensitization, Dog) (< 30 %)

:

- In animals: No-observed-effect level 7 % (cardiac sensitization, Dog)

1,1,1,2-tetrafluoroethane:

- In animals: No-observed-effect level 5 % (cardiac sensitization, Dog)

Skin contact Pentafluoroethane: Not relevant (gas)

CMR effects:

Mutagenicity: By its composition: Non genotoxic In vitro

1,1,1-trifluoroethane: Ames Test: Inactive (Method: OECD Guideline 471)

In Vitro Human Lymphocyte Chromosomal Aberration Test: Inactive

In Vitro Mammalian Cell Gene Mutation Test: Inactive (Method: OECD Guideline 490)

Pentafluoroethane: Ames Test: Inactive (Method: OECD Guideline 471)

In Vitro Chromosome Aberration Test With CHO Cells: Inactive (Method: OECD Guideline 473)

In Vitro Chromosome Aberration Test With Human Lymphocytes: Inactive (Method: OECD Guideline 476)

1,1,1,2-tetrafluoroethane : Ames Test: Inactive (Method: OECD Guideline 471)

In Vitro Human Lymphocyte Test for Chromosomal Aberrations: Inactive (Method: OECD Guideline 473)

In vitro gene mutation test in mammalian cells: Inactive

In vivo

1,1,1-trifluoroethane: In vivo mouse micronucleus test: Inactive

Pentafluoroethane : In vivo mouse micronucleus test: Inactive (Method: OECD Guideline 474)

1,1,1,2-tetrafluoroethane : In vivo mouse micronucleus test: Inactive (Method: OECD Guideline 474)

Rat hepatocyte DNA repair assay: Inactive

Carcinogenicity:

1,1,1-trifluoroethane:

- In animals: Secondo i dati sperimentali disponibili : Concentrazione massima senza effetto (Ratto, 1 anno, Orale)

1,1,1,2-tetrafluoroethane:

- In animals: Absence of carcinogenic effects (Rat, 2 years, Inhalation) No Observed Adverse Effect Level (NOAEL): 10,000 ppm

Absence of carcinogenic effects (Rat, 1 year, Oral) No Observed Adverse Effect Level (NOAEL): 300 mg/kg bw/day

Toxicity to reproduction: Fertility: Based on the available data, it cannot be assumed that the substance has a reprotoxic potential.

1,1,1,2-tetrafluoroethane:

- In animals: Two-generation study NOAEL (Parental Toxicity): 50.000 ppm NOAEL (Fertility): 50.000 ppm NOAEL (Developmental Toxicity): 50000 ppm (Rat, Inhalation) Fetal Development: Based on the available data, it cannot be assumed that the substance has an potential for development.

1,1,1-trifluoroethane:

- In animals: NOAEL (Developmental Toxicity): 137 mg/l NOAEL (Maternal Toxicity): 137 mg/l (Method: OECD Guideline 414, Rat, Rabbit, Inhalation)

Pentafluoroethane:

- In animals: Absence of toxic effects on the development of the fetus. NOAEL (Developmental Toxicity): 245 mg/l NOAEL (Maternal Toxicity): 245 mg/l (Method: OECD Guideline 414, Rat, Rabbit, Inhalation)

1,1,1,2-tetrafluoroethane:

- In animals: Absence of toxic effects on the development of the fetus. NOAEL (Developmental Toxicity): 40.000 ppm NOAEL (Maternal Toxicity): 2.500 ppm (Method: OECD Guideline 414, Rat, Rabbit, Inhalation)
- Absence of toxic effects on the development of the fetus. NOAEL (Developmental Toxicity): 50.000 ppm NOAEL (Maternal Toxicity): 50.000 ppm (Method: OECD Guideline 414, Rat, Inhalation)

STOT — single exposure: No data available.



STOT — repeated exposure: The mixture is not classified as specific target organ toxicant, repeated exposure.

1,1,1-trifluoroethane: Prolonged inhalation studies in animals have not revealed any subchronic toxic effects

- In animals : inhalation: No specific toxic effects found NOAEL= 40000ppm (Method: OECD Guideline 413, Rat, 3 Months)

Pentafluoroethane:

- In animals: Prolonged inhalation studies in animals have not revealed any subchronic toxic effects

Inhalation: NOAEL= 50000ppm (Method: OECD Guideline 413, Rat, 3 Months)

1,1,1,2-tetrafluoroethane:

- In animals: inhalation: No harmful effects are reported. NOAEL= 50000ppm (Rat, several years)

Aspiration hazard: Not relevant

11.2 Information on other hazards

Endocrine Disrupting Properties:

Assessment: mixture does not contain components with endocrine disrupting properties in accordance with article 57(f) of REACH or in accordance with EU Regulations 2017/2100 and 2018/605 (<0,1% concentration).

SECTION 12. ECOLOGICAL INFORMATION

12.1. Toxicity

Fish: Due to its composition, it must be considered as: Little harmful to fish

1,1,1-trifluoroethane: LC50: 109 mg/l (Method: calculated)

Pentafluoroethane: It can be considered comparable to a similar product whose experimental results are:

1,1,1,3,3-PENTAFLUOROPROPANE : LC50/96h/Danio rerio > 200 mg/l (Method: OECD Guideline 203)

1,1,1,2-tetrafluoroethane: LC50/96h/Salmo gairdneri: 450 mg/l (Method: OECD Guideline 203)

Aquatic invertebrates: Due to its composition, it must be considered as: Little harmful to dafnia

1,1,1-trifluoroethane: EC50/48 h/Daphnia magna: 300 mg/l (Method: OECD TG 202)

Pentafluoroethane: It can be considered comparable to a similar product whose experimental results are:

1,1,1,3,3-PENTAFLUOROBUTANE : EC50/48h/Daphnia magna > 200 mg/l (Method: OECD TG 202)

1,1,1,2-tetrafluoroethane EC50/48 h/Daphnia magna: 980 mg/l (Method: OECD TG 202)

Aquatic plants: Due to its composition, it must be considered as: Little harmful to algae

1,1,1-trifluoroethane: It can be considered comparable to a similar product whose experimental results

are: Pentafluoroethane: It can be considered comparable to a similar product whose experimental results

are: 1,1,1,3,3-PENTAFLUOROPROPANE : EC50r/72 h/Pseudokirchneriella subcapitata: > 118 mg/l (Method: OECD TG 201)

Microorganism: 1,1,1-trifluoroethane: It can be considered comparable to a similar product whose experimental results are: 1,1,1,2-tetrafluoroethane: EC10/6h/Pseudomonas putida > 730 mg/l

12.2. Persistence and degradability

Biodegradation (In water): All products and/or main components mentioned in section 3 and/or analogous substances/metabolites are not easily biodegradable.

1,1,1-trifluoroethane: It can be considered comparable to a similar product whose experimental results

are: 1,1,1,2-tetrafluoroethane: Not readily biodegradable: 3 % after 28 d (Method: OECD Guideline 301D)

Pentafluoroethane: Not readily biodegradable: 5 % after 28 d (Method: OECD Guideline 301 D)

Photodegradation (In air):

1,1,1-TRIFLUOROETHANE : Degradation by OH radicals: direct photolysis (Half-life time) : 9.600 d

1,1,1,2-TETRAFUOROETHANE: Degradation by OH radicals: direct photolysis (Half-life life): 9,7 y

12.3. Bioaccumulative potential

Bioaccumulation: No product and/or main component mentioned in section 3 and/or analogue substance/metabolite is expected to bioaccumulate.

1,1,1-TRIFLUOROETHANE: Partition coefficient n-octanol/water: log Kow : 1,06 , a 25 °C, (Results obtained on a similar product). (Method: OECD Guideline 107)



Pentafluoroethane: Partition coefficient n-octanol/water: log Kow : 1,48 , at 25 °C (Method: OECD Guideline 107)

1,1,1,2-TETRAFUOROETHANE: Partition coefficient n-octanol/water: log Kow: 1,06 , at 25 °C (Method: OECD Guideline 107)

12.4. Mobility in soil

Substance: 1,1,1,2-TETRAFUOROETHANE :

water: 0,07 % Air: 99,93 % (Method: Calculated Mackay, level I)

Vapor Pressure : 3,57 MPa, 70 °C 2,33 MPa, 50 °C 1,27 MPa, 25 °C

Adsorption / desorption:

Pentafluoroethane: log Koc: 1,3 - 1,7 (Method: Calculated)

1,1,1,2-TETRAFUOROETHANE: log Koc: 1,57 (Method: Calculated)

12.5. Results of PBT and vPvB assessment

Evaluation results PBT e vPvB : in accordance with Annex III of REACH, this substance does not contain any substance in compliance with PBT and vPvB criteria (<0.1% concentration).

12.6 Endocrine-disrupting properties

Assessment: the substance does not contain components with endocrine disrupting properties in accordance with article 57(f) of REACH or in compliance with EU Regulations 2017/2100 and 2018/605 (<0,1% concentration).

12.7 Other adverse effects

GWP: 3260

Global warming potential:

1,1,1-TRIFLUOROETHANE: 4.470 GWP (calculation horizon: 100 years)

Pentafluoroethane: 3.500 GWP (calculation horizon: 100 years)

1,1,1,2-TETRAFUOROETHANE: 1.430 GWP (calculation horizon: 100 years)

Ozone depleting Potenziale:

1,1,1-TRIFLUOROETHANE, ODP=0; (R-11 = 1)

PENTAFLUOROETHANE , ODP=0; (R-11 = 1)

1,1,1,2-TETRAFUOROETHANE ODP=0; (R-11 = 1)

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Recover if possible. In so doing, comply with the local and national regulations currently in force.

Destruction should be on licensed premises equipped to absorb and neutralize acid gases and other toxic processing products.

Avoid release to the environment

Avoid discharge to atmosphere.

Recovering according to the supplier's instructions.

SECTION 14. TRANSPORT INFORMATION

14.1. UN number

ADR/RID/IMDG/IATA - UN number: 3337

In case a substance is inside a refrigerating machine is applied the following n° ONU: 2857

14.2. UN proper shipping name:

ADR/RID/IMDG - Shipping name: REFRIGERANT GAS R404A

IATA-Technical name: REFRIGERANT GAS R404A

In case a substance is inside a refrigerating machine the shipping name will be: REFRIGERATING MACHINES containing non-flammable, no-toxic, gases or ammonia solutions (N° ONU 2672).



14.3. Transport hazard class(es)

ADR/RID-Class: 2

ADR-Label: 2.2

RID-Label: 2.2 (+13)

ADR/RID - Hazard identification number: 20

Classification code: 2A

IATA/IMDG - Class: 2.2

14.4. Packing Group

ADR- Packing Group: -

14.5. Environmental hazards: No

14.6. Special Precautions for User

ADR-Tunnel restriction code: C/E

Ensure there is adequate ventilation

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Compliance with applicable regulations.

Before transporting product containers :

- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

Avoid transport on vehicles where the load space is not separated from the driver's compartment.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable

SECTION 15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Reg. (CE) n. 1907/2006 (REACH), Reg. (CE) n. 1272/2008 (CLP), Reg. (UE) n. 2015/830, Reg. (UE) n. 2020/878.

Where applicable, refer to the following regulatory provisions :

Directive 2003/105/CE ('Activities linked to risks of serious accidents') and subsequent amendments.
1999/13/EC (VOC directive)

15.2. Chemical Safety Assessment: yes

SECTION 16. OTHER INFORMATION

Revised safety data sheet in accordance with commission regulation 878/2020.

Points that have changed since the previous version are highlighted with a vertical line in the body of this document.

Ensure operators understand the flammability hazard.

Users of breathing apparatus must be trained. Ensure operators understand the toxicity hazard.

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECHA: European chemical agency

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities



SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold
CCNL - Appendix 1. EIGA

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

Classification in accordance with calculation methods of regulation (EC) 1272/2008 CLP / (EC) 1999/45 DPD. The MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging..
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
LTE:	Long-term exposure.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STE:	Short-term exposure.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWATLV:	Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).