

SAFETY DATA SHEET according to Regulation 1907/2006



Product name: **Druckluft unbrennbar**
Creation date: **1.8.2019** · Revision: **2.8.2019** · Version: **1**

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

1.1. Product identifier

Product name

Druckluft unbrennbar

Name

(1E)-1,3,3,3-tetrafluoroprop-1-ene (EC: 471-480-0)

REACH Registration number

No information.

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

Relevant identified uses

Aerosol propellant gas.

Uses advised against

No information.

1.3. Details of the supplier of the safety data sheet

Supplier

WINKEL GmbH
Lisztstraße 1
53881 Euskirchen - Germany
Tel.: +49 2251 77 69 400-401
Fax: +49 2251 77 69 402
E-Mail: info@winkelgroup.de
Internet: www.winkelgroup.de

1.4. Emergency telephone number

Emergency

112

Supplier

+49 2251 77 69 400-401

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Aerosol 3; H229 Pressurised container: May burst if heated.

2.2 Label elements

2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]

Signal word: **Warning**

H229 Pressurised container: May burst if heated.

P102 Keep out of reach of children.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P251 Do not pierce or burn, even after use.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.

2.2.2. Contains:

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2.2.3. Special provisions

Special hazards are not known or expected.

2.3. Other hazards

Inhalation may cause central nervous system effects.

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Rapid evaporation of the liquid gas may cause frostbite.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Name	CAS EC Index	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Conc. Limits	REACH Registration No.
(1E)-1,3,3,3-tetrafluoroprop-1-ene	- 471-480-0 -	100	Press. Gas; H280		01-0000019758-54

3.2. Mixtures

For substances see 3.1.

SECTION 4. FIRST AID MEASURES

4.1. Description of first aid measures

General notes

When in doubt or if feeling unwell seek medical assistance. Show the safety data sheet and label to the physician. Person giving first aid should properly protect himself.

No action shall be taken involving any personal risk or without suitable training.

Following inhalation

Leave contaminated area - breathe fresh air. If symptoms develop and persist, seek medical attention.

Following skin contact

If frostbite occurs, flush with lukewarm water. DO NOT USE HOT WATER, contact doctor. Do not rub the frostbite. Cover it with a sterile gauze and seek medical advice.

Following eye contact

Immediately flush eyes with running water, keeping eyelids apart. Seek medical help.

Following ingestion

Not likely.

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

Inhalation

Excessive exposure to spray mist, fog, or vapours may cause respiratory irritation.

Coughing, sneezing, nasal discharge, labored breathing.

Skin contact

Rapid evaporation of the liquid may cause frostbite.

Eye contact

May cause frostbite.

Ingestion

Not likely.

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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

Water spray.
Fire extinguishing powder.
Foam.
Carbon dioxide (CO₂). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

Not available.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

In case of a fire toxic gases can be generated; do not inhale gases/smoke. In the event of fire the following can be generated:
carbon monoxide (CO), carbon dioxide (CO₂).
Hydrogen fluoride (HF).
Carbonyl halides.
Halogenated compounds.

5.3. Advice for firefighters

Protective actions

Exposure to the waste products may be dangerous to health. In case of fire or heating do not breathe fumes/vapours. In a fire or if heated, a pressure increase will occur and the container may burst. Cool the endangered containers with water spray. Vapors are heavier than air and may travel along ground. In enclosed areas: risk of suffocation! No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for firefighters

Firefighters should wear appropriate protective clothing for firefighters (including helmets, protective boots and gloves) (EN 469) and self-contained breathing apparatus (SCBA) with a full face-piece (EN 137).

Additional information

Prevent the release of extinguishing media into the environment. Contaminated extinguishing agents must be disposed of in accordance with the regulations; do not allow to reach the sewage system.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment

Use personal protective equipment (Section 8).

Emergency procedures

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Ensure adequate ventilation. Avoid skin contact with leaking liquid (danger of frostbite). Prevent access to unprotected personnel. Prevent access to unauthorised personnel. Avoid contact with skin and eyes. Do not breathe vapour or mist.

6.1.2. For emergency responders

Use personal protective equipment.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. The product evaporates readily.

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6.3. Methods and material for containment and cleaning up

6.3.1. For containment

Close the source of the release only if it is without risk.

6.3.2. For cleaning up

Do not direct water at spill or source of leak. Leave the product to evaporate. Collect the spray cans and hand them over to an authorized waste disposal contractor. Dispose in accordance with applicable regulations (see Section 13).

6.3.3. Other information

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6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. Protective measures

Measures to prevent fire

Ensure adequate ventilation. Pressurized container; protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not spray on a naked flame or incandescent material. Vapours and air form explosive mixtures.

Measures to prevent aerosol and dust generation

Use general or local exhaust ventilation to prevent inhaling vapours and aerosols.

Measures to protect the environment

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7.1.2. Advice on general occupational hygiene

Keep working clothes separately. Use good personal hygiene practices – wash hands at breaks and when done working with material. Do not eat, drink or smoke while working. Do not breathe vapours/mist. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1. Technical measures and storage conditions

Store in accordance with local regulations. Keep in tightly closed container. Keep in cool and well ventilated area. Protect from open fire, heat and direct sunlight. Storage temperature < 50°C. Keep away from oxidising substances. Keep away from food, drink and animal feeding stuffs.

7.2.2. Packaging materials

Store only in original container.

7.2.3. Requirements for storage rooms and vessels

Do not store in unlabelled containers.

7.2.4. Storage class

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7.2.5. Further information on storage conditions

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7.3. Specific end use(s)

Recommendations

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Industrial sector specific solutions

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational exposure limit values

No information.

8.1.2. Information on monitoring procedures

BS EN 14042:2003 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. BS EN 482:2012+A1:2015 Workplace exposure. General requirements for the performance of procedures for the measurement of chemical agents. BS EN 689:2018 Workplace exposure. Measurement of exposure by inhalation to chemical agents. Strategy for testing compliance with occupational exposure limit values.

8.1.3. DNEL/DMEL values

For components

Name	Type	Exposure route	Exposure frequency	Value	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Worker	inhalation	long term (systemic effects)	3902 mg/m ³	
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Consumer	inhalation	long term (systemic effects)	830 mg/m ³	

8.1.4. PNEC values

For components

Name	Exposure route	Value	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	fresh water	0,1 mg/L	

8.2. Exposure controls

8.2.1. Appropriate engineering control

Substance/mixture related measures to prevent exposure during identified uses

Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene practices – wash hands at breaks and when done working with material. Do not eat, drink or smoke while working. Avoid contact with eyes and skin. Do not breathe vapours/aerosols. Keep away from foodstuffs, beverages and feed.

Technical measures to prevent exposure

Provide good ventilation and local exhaust in areas with increased concentration.

8.2.2. Personal protective equipment

Eye and face protection

Safety goggles (EN 166).

Hand protection

When working with a liquid phase use gloves (EN 511:2006) - danger of frostbite. Check protective gloves prior to each use for their proper condition. At the first signs of wear and tear, change the gloves immediately.

Skin protection

Cotton protective clothing and shoes that cover the entire foot (EN ISO 20345).

Respiratory protection

In case of insufficient ventilation wear suitable respiratory protection. Wear suitable protective breathing mask (EN 136) with filter A2-P2 (EN 14387). For dust/gas/ vapor concentrations above the applicable filter limit, in case of oxygen concentrations below 17% or in vague conditions, autonomous self-contained breathing apparatus should be used, according to standard EN 137, EN 138.

Thermal hazards

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8.2.3. Environmental exposure controls

Substance/mixture related measures to prevent exposure

Adopt good working practices, avoiding release of the product in the environment.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

- Physical state:	liquid; aerosol
- Colour:	colourless
- Odour:	characteristic, ether like

Important health, safety and environmental information

- pH	Neutral
- Melting point/freezing point	No information.
- Initial boiling point/boiling range	-19 °C
- Flash point	No information.
- Evaporation rate	No information.
- Flammability (solid, gas)	No information.
- Explosion limits (vol%)	No information.
- Vapour pressure	4271 hPa at 20 °C 11152 hPa at 54,4 °C
- Vapour density	4 (Air = 1)
- Density	No information.
- Solubility	Water: 0,373 g/l
- Partition coefficient	Log Pow: 1,6
- Auto-ignition temperature	368 °C
- Decomposition temperature	No information.
- Viscosity	No information.
- Explosive properties	No information.
- Oxidising properties	No information.

9.2. Other information

- Weight organic solvents	0 g/l (VOC) 0 % (VOC)
- Remarks:	

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

Stable under recommended transport or storage conditions. Stable under normal conditions.

10.2. Chemical stability

Product is stable under normal conditions of use, recommended handling and storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Do not expose to sunlight or temperatures above 50 ° C. High pressure.

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10.5. Incompatible materials

Alkali metal.

10.6. Hazardous decomposition products

Hazardous combustion products, see Section 5 of the safety data sheet.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

(a) Acute toxicity

Name	Exposure route	Type	Species	Time	Value	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	inhalation	LC ₀	rat	4 h	> 207000 ppm	OECD 403	

(b) Skin corrosion/irritation

Name	Species	Time	Result	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	rabbit		Non-irritant.	OECD 404	

(c) Serious eye damage/irritation

No information.

(d) Respiratory or skin sensitisation

Name	Exposure route	Species	Time	Result	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	-	human		Non sensitising.		

(e) (Germ cell) mutagenicity

Name	Type	Species	Time	Result	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	in-vitro mutagenicity	Human (lymphocytes)		Negative.	OECD 473	Chromosome aberration assay
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)				Negative.	Ames test	
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	in-vivo mutagenicity	mouse		Negative.	OECD 474	inhalation

(f) Carcinogenicity

No information.

(g) Reproductive toxicity

Name	Reproductive toxicity type	Type	Species	Time	Value	Result	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Reproductive toxicity	NOEL	rat		> 20000 ppm		OECD 416	2-generation study, inhalation
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Reproductive toxicity	NOEL (F1)	rat		> 20000 ppm		OECD 416	2-generation study, inhalation
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Reproductive toxicity	NOEC	rat		15000 ppm		OECD 414	Inhalation
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Reproductive toxicity	NOAEC	rat		15000 ppm		OECD 414	Inhalation

Summary of evaluation of the CMR properties

No information.

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No information.

(i) STOT-repeated exposure

Name	Exposure route	Type	Species	Time	Organ	Value	Result	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Repeated dose toxicity	NOEL	rat	90 days		5000 ppm		OECD 413	inhalation

(j) Aspiration hazard

No information.

SECTION 12. ECOLOGICAL INFORMATION**12.1. Toxicity**12.1.1. Acute (short-term) toxicity**For components**

Substance (CAS Nr.)	Type	Value	Exposure time	Species	Organism	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	LC ₀	> 117 mg/L	96 h	fish	<i>Cyprinus carpio</i>	OECD 203	static test
	NOEC	> 170 mg/L	72 h	algae		OECD 201	Growth rate
	NOEC	> 170 mg/L	72 h	algae		OECD 201	Biomass
	EC ₅₀	> 160 mg/L	48 h	crustacea	<i>Daphnia magna</i>	OECD 202	static test

12.1.2. Chronic (long-term) toxicity

No information.

12.2. Persistence and degradability12.2.1. Abiotic degradation, physical- and photo-chemical elimination

No information.

12.2.2. Biodegradation**For components**

Substance (CAS Nr.)	Type	Rate	Time	Evaluation	Method	Remark
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	aerobic			not readily biodegradable		

12.3. Bioaccumulative potential12.3.1. Partition coefficient**For product**

Media	Value	Temperature	pH	Concentration	Method
Log Pow	1,6				

For components

Substance (CAS Nr.)	Media	Value	Temperature	pH	Concentration	Method
(1E)-1,3,3,3-tetrafluoroprop-1-ene (-)	Octanol-water (log Pow)	1,6				

12.3.2. Bioconcentration factor (BCF)

No information.

12.4. Mobility in soil12.4.1. Known or predicted distribution to environmental compartments

No information.

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12.4.2. Surface tension

No information.

12.4.3. Adsorption/Desorption

No information.

12.5. Results of PBT and vPvB assessment

No evaluation.

12.6. Other adverse effects

No information.

12.7. Additional information

For product

Product is not classified as dangerous for environment.

Handle in accordance with good working practices so that the product is not released into the environment.

For components

Substance: **(1E)-1,3,3,3-tetrafluorprop-1-ene**

Bioaccumulation is not expected (log Pow <4).

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

13.1.1. Product / Packaging disposal

Waste chemical

Dispose of in accordance with applicable waste disposal regulation. Disposal must be made according to official regulations: deliver it to authorised collector/remover/transformer of hazardous waste.

Packaging

Dispose of in accordance with applicable waste disposal regulation. Deliver completely emptied containers to approved waste disposal authorities.

13.1.2. Waste treatment-relevant information

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13.1.3. Sewage disposal-relevant information

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13.1.4. Other disposal recommendations

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SECTION 14. TRANSPORT INFORMATION

14.1. UN number

UN 1950

14.2. UN proper shipping name

AEROSOLS

14.3. Transport hazard class(es)

2

14.4. Packing group

Not applicable.



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14.5. Environmental hazards

NO.

14.6. Special precautions for user

Limited quantities

1 L

Tunnel restriction code

(E)

IMDG Ems

F-D, S-U

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

Goods may not be carried in bulk in bulk containers, containers or vehicles.

SECTION 15. REGULATORY INFORMATION

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

- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (including last amendment Commission Regulation (EU) 2015/830)
- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

15.1.1. Information according 2004/42/EC about limitation of emissions of volatile organic compounds (VOC-guideline)

Not applicable.

15.2. Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16. OTHER INFORMATION

Indication of changes

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Abbreviations and acronyms

ATE - Acute Toxicity Estimate
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CEN - European Committee for Standardisation
C&L - Classification and Labelling
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CAS# - Chemical Abstracts Service number
CMR - Carcinogen, Mutagen, or Reproductive Toxicant
CSA - Chemical Safety Assessment
CSR - Chemical Safety Report
DMEL - Derived Minimal Effect Level
DNEL - Derived No Effect Level
DPD - Dangerous Preparations Directive 1999/45/EC
DSD - Dangerous Substances Directive 67/548/EEC
DU - Downstream User
EC - European Community
ECHA - European Chemicals Agency
EC-Number - EINECS and ELINCS Number (see also EINECS and ELINCS)
EEA - European Economic Area (EU + Iceland, Liechtenstein and Norway)
EEC - European Economic Community
EINECS - European Inventory of Existing Commercial Substances

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ELINCS - European List of notified Chemical Substances
EN - European Standard
EQS - Environmental Quality Standard
EU - European Union
Euphrac - European Phrase Catalogue
EWC - European Waste Catalogue (replaced by LoW – see below)
GES - Generic Exposure Scenario
GHS - Globally Harmonized System
IATA - International Air Transport Association
ICAO-TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG - International Maritime Dangerous Goods
IMSBC - International Maritime Solid Bulk Cargoes
IT - Information Technology
IUCLID - International Uniform Chemical Information Database
IUPAC - International Union for Pure Applied Chemistry
JRC - Joint Research Centre
Kow - octanol-water partition coefficient
LC₅₀ - Lethal Concentration to 50 % of a test population
LD₅₀ - Lethal Dose to 50% of a test population (Median Lethal Dose)
LE - Legal Entity
LoW - List of Wastes (see <http://ec.europa.eu/environment/waste/framework/list.htm>)
LR - Lead Registrant
M/I - Manufacturer / Importer
MS - Member States
MSDS - Material Safety Data Sheet
OC - Operational Conditions
OECD - Organization for Economic Co-operation and Development
OEL - Occupational Exposure Limit
OJ - Official Journal
OR - Only Representative
OSHA - European Agency for Safety and Health at work
PBT - Persistent, Bioaccumulative and Toxic substance
PEC - Predicted Effect Concentration
PNEC(s) - Predicted No Effect Concentration(s)
PPE - Personal Protection Equipment
(Q)SAR - Qualitative Structure Activity Relationship
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP - REACH Implementation Project
RMM - Risk Management Measure
SCBA - Self-Contained Breathing Apparatus
SDS - Safety data sheet
SIEF - Substance Information Exchange Forum
SME - Small and Medium sized Enterprises
STOT - Specific Target Organ Toxicity
(STOT) RE - Repeated Exposure
(STOT) SE - Single Exposure
SVHC - Substances of Very High Concern
UN - United Nations
vPvB - Very Persistent and Very Bioaccumulative

Key literature references and sources for data

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List of relevant H phrases

H280 Contains gas under pressure; may explode if heated.

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The information of this SDS is based on the present state of our knowledge and meets the requirements of EU and national laws. The user's working conditions however, are beyond our knowledge and control. The product is not to be used for purposes other than those specified under Section 1 without a written permission. It remains the responsibility of the user to ensure that the necessary steps are taken to meet the laws and regulations. Handling of the product may only be done by people above 18 years of age, who are satisfactorily informed of how to do the work, the hazardous properties and necessary safety precautions. The information given in this SDS is to describe the product only in terms of health and safety requirements and should not, therefore, be construed as guaranteeing specific properties.