

Pentafluoroethane	206-557-8	354-33-6	44	Compressed gas H280
1,1,1,2-Tetrafluoroethane	212-377-0	811-97-2	4	Liq. Gas (H280)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General advice

Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Administer oxygen if breathing is difficult. Get medical advice/attention if you feel unwell.

#### Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.

#### Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

#### Ingestion

Not an expected route of exposure. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person.

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

No information available.

### 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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

No information available.

### 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating and toxic gases and vapors, such as gaseous hydrogen fluoride and fluorophosgene.

### 5.3. Advice for firefighters

Evacuate personnel to safe areas. Move containers from fire area if you can do it without risk. Cool drums with water spray. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Stay upwind. Ensure adequate ventilation, especially in confined areas.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

Local authorities should be advised if significant spillages cannot be contained. Prevent entry into waterways, sewers, basements or confined areas.

### 6.3. Methods and material for containment and cleaning up

Allow substance to evaporate. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

### 6.4. Reference to other sections

See Section 7 for more information  
See section 8 for more information  
See section 13 for more information

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation, especially in confined areas. Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use personal protection recommended in Section 8.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition. Storage temperature: <50 °C. Keep locked up and out of reach of children. Keep only in original container. Keep away from food, drink and animal feeding stuffs. Store in accordance with local regulations.

### 7.3. Specific end use(s)

Apart from the uses mentioned in SECTION 1.2 no other specific uses are stipulated.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Chemical Name	Australia	Austria	Belgium	Denmark	European Union
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	1000 ppm 4240 mg/m <sup>3</sup>	STEL 4000 ppm STEL 16800 mg/m <sup>3</sup> TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-	-	-

Chemical Name	Latvia	France	Finland	Germany	Italy
Ethane, 1,1,1-trifluoro- (CAS #: 420-46-2)	TWA: 3000 mg/m <sup>3</sup> TWA: 2 ppm TWA: 20 mg/m <sup>3</sup>	-	-	-	-
Pentafluoroethane (CAS #: 354-33-6)	TWA: 2 ppm TWA: 20 mg/m <sup>3</sup>	-	-	-	-
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)		-	-	STEL 8000 ppm STEL 33600 mg/m <sup>3</sup> TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	-	-	-	TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-

Chemical Name	Norway	United Kingdom	ACGIH TLV	OSHA PEL	NIOSH IDLH
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	-	TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-	-	-

### Derived No Effect Level (DNEL)

No information available

**Predicted No Effect Concentration (PNEC)**

No information available

**8.2. Exposure controls****Engineering Controls**

Ensure adequate ventilation, especially in confined areas. Showers. Eyewash stations. Remove all sources of ignition.

**Personal protective equipment**

Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand Protection	Wear protective gloves.
Skin and body protection	Suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.

**Environmental exposure controls**

Do not allow into any sewer, on the ground or into any body of water

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Appearance	Gas
Color	Colorless
Odor	Slight odor
Odor Threshold	Not determined
pH	Neutral
Melting point/freezing point	-111.3 °C (Ethane, 1,1,1-trifluoro-)
Boiling point / boiling range	-46.5 °C
Flash point	Not determined
Evaporation rate	Not determined
Flammability (gas)	Not flammable
Flammability Limit in Air	7.1 - 16.1% (Ethane, 1,1,1-trifluoro-)
Vapor Pressure	1241 kPa (25 °C)
Vapor density	3.43
Density	1.05 g/cm <sup>3</sup>
Relative density	1.05
Bulk density	Not determined
Specific gravity	Not determined
Water solubility	Slightly soluble in water
Partition coefficient (LogPow)	2.11
Autoignition temperature	< 750 °C
Decomposition temperature	Decomposition when heated
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Risk of explosion in contact with: oxidizing agents. The substance forms an explosive mixture with air.
Oxidizing properties	Not determined

**9.2. Other information**

No information available

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

Stable under recommended storage conditions.

**10.2. Chemical stability**

Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

Risk of explosion in contact with: oxidizing agents.  
The substance forms an explosive mixture with air.

**10.4. Conditions to avoid**

Heat, flames and sparks. Strong heating. Incompatible materials. Compressed air.

**10.5. Incompatible materials**

Strong oxidizers, alkali metals, alkaline earth metals, aluminum, copper. Flammable and combustible materials.

**10.6. Hazardous decomposition products**

Carbon monoxide, carbon dioxide, hydrogen fluoride.

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Ethane, 1,1,1-trifluoro- (CAS #: 420-46-2)	-	-	LC0 > 591000 ppm 4 h (Rat)
Pentafluoroethane (CAS #: 354-33-6)	-	-	2910 g/m <sup>3</sup> 4h ( Rat ) > 800000 ppm 4h (Rat)
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	-	-	1500000 mg/m <sup>3</sup> /4h (Rat)

**Skin corrosion/irritation**

Slight irritated to the skin. Skin contact may cause frostbite.

**Serious eye damage/eye irritation**

Slight irritated to the eyes. Eye contact may cause symptom similar to frostbite.

**Sensitization**

Breathing difficulties caused by hypoxia in local area.

**Germ cell mutagenicity**

No information available.

**Carcinogenicity**

No information available.

**Reproductive toxicity**

No information available.

**STOT - single exposure**

No information available

**STOT - repeated exposure**

No information available

**Aspiration hazard**

No information available.

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

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
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Ethane, 1,1,1-trifluoro- (CAS #: 420-46-2)	71 mg/l	109 mg/l	115 mg/l
Pentafluoroethane (CAS #: 354-33-6)	142 mg/L 96h other: green algae	560 mg/L 24h Oncorhynchus mykiss 450 mg/L 48 72 96h Oncorhynchus mykiss	> 200 mg/L 48h Daphnia magna
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	142 mg/L/96h (green algae)(weight of evidence)	450 mg/L/96h (Oncorhynchus mykiss)	980 mg/L/48h (Daphnia magna)

**12.2. Persistence and degradability**

No information available.

**12.3. Bioaccumulative potential**

No information available.

**12.4. Mobility in soil**

No information available

**12.5. Results of PBT and vPvB assessment**

PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

**12.6. Other adverse effects**

Stable in the lower atmosphere. GWP = 3.7843.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Waste from residues/unused products Disposal should be in accordance with applicable regional, national and local laws and regulations.  
Contaminated packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

**SECTION 14: Transport information**

14.1 UN Number	3337
14.2 Proper shipping name	REFRIGERANT GAS R 404A
14.3 Hazard Class	2.2
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions	No information available
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**  
European Union

Component	EINECS/ELINCS	SVHC candidates	RESTRICTIONS - REACH TITLE VII
Ethane, 1,1,1-trifluoro-420-46-2 ( 52% )	X	-	-

Pentafluoroethane 354-33-6 ( 44% )	X	-	-
1,1,1,2-Tetrafluoroethane 811-97-2 ( 4% )	X	-	-

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

#### International Inventories

Component	TSCA	DSL/NDSL	ENCS	IECSC	KECL	PICCS	AICS
Ethane, 1,1,1-trifluoro- 420-46-2 ( 52% )	X	X	X	X	X	X	X
Pentafluoroethane 354-33-6 ( 44% )	X	X	X	X	X	X	X
1,1,1,2-Tetrafluoroethane 811-97-2 ( 4% )	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

#### 15.2. Chemical safety assessment

No information available

### SECTION 16: Other information

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Issue Date 10-Oct-2020  
Revision date 10-Oct-2020  
Revision Note Not applicable

#### Key or legend to abbreviations and acronyms used in the safety data sheet

**TWA** - TWA (time-weighted average)

**STEL** - STEL (Short Term Exposure Limit)

**Ceiling** - Maximum limit value

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

#### Full text of H-Statements referred to under section 3

H220 - Extremely flammable gas

H280 - Contains gas under pressure; may explode if heated

#### Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

----- End of Safety Data Sheet -----

# SAFETY DATA SHEET

Regulation (EC) No 1907/2006 (REACH), Annex II  
(COMMISSION REGULATION (EU) No 453/2010)

Version 1  
Product Name HP62, R404a

Issue Date 10-Oct-2020  
Revision date 10-Oct-2020

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

### 1.1. Product identifier

Product Name HP62, R404a  
Chemical Name 1,1,1-Trifluoroethane pentafluoroethane and 1,1,1,2-tetrafluoroethane mixtures  
REACH registration number No information available

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

Recommended Use Used as refrigerant, temperature controller media and air propellant intermediates.  
Uses advised against No information available

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

Supplier  
Address  
Postal Code  
Phone  
FAX  
E-mail

### 1.4. Emergency telephone number

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]  
Gases under pressure Liquefied gas - (H280)

### 2.2. Label elements

Symbols/Pictograms



Signal word Warning  
Hazard Statements H280 - Contains gas under pressure; may explode if heated  
Precautionary Statements P410 + P403 - Protect from sunlight. Store in a well-ventilated place

### 2.3. Other hazards

No information available.

## SECTION 3: Composition/information on ingredients

### 3.1 Mixture

Chemical Name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ethane, 1,1,1-trifluoro-	206-996-5	420-46-2	52	Flam. Gas 1 H220 Liq. Gas H280