Safety data sheet
1,1,1,2-Tetrafluoroethane (R 134a)

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name
1,1,1,2-Tetrafluoroethane (R 134a)
Trade name
Koudemiddel R-134a

EC No (from EINECS):
CAS No: 811-97-2
Index-Nr.
Chemical formula CF3CH2F
REACH Registration number:
Not available.
Known uses
Not known.
Company identification
Linde (Thailand) Public Company Limited 15th Floor, Bangna Tower A, 2/3 Moo 14, Bangna-Trad KM.6.5 Road, Bangkaew, Bangplee, Samutprakarn 10540 Phone (66) 2338-6100 Fax (66) 2312-0126
E-Mail Address csc.lg.th@linde.com
Emergency phone numbers (24h): Linde Customer Service Center Call 1384

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification acc. to Regulation (EC) No 1272/2008/EC (CLP/GHS)
Press. Gas (Liquefied gas) - Contains gas under pressure; may explode if heated.

Classification acc. to Directive 67/548/EEC & 1999/45/EC:
Proposed by the industry
RAs
Asphyxiant in high concentrations.
Risk advice to man and the environment
Liquefied gas.
Contact with liquid may cause cold burns/frost bite.
Label Elements

- Labelling Pictograms

- Signal word
Warning

- Hazard Statements

H280	Contains gas under pressure; may explode if heated.
EIGA-As	Asphyxiant in high concentrations.

- Precautionary Statements

Precautionary Statement Prevention
None.

Precautionary Statement Reaction
None.

Precautionary Statement Storage

P403	Store in a well-ventilated place.

Precautionary Statement Disposal
None.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation: Substance.
Components/Impurities
1,1,1,2-Tetrafluoroethane (R 134a)
CAS No: 811-97-2
Index-Nr.:
REACH Registration number:
Not available.
Contains no other components or impurities which will influence the classification of the product.

4 FIRST AID MEASURES

Inhalation
In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Skin/eye contact
For liquid spillage - flush with water for at least 15 minutes Obtain medical assistance.
Ingestion
Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards
Exposure to fire may cause containers to rupture/explode. Non flammable.
Hazardous combustion products
If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition:
Hydrogen fluoride.
Suitable extinguishing media
All known extinguishants can be used.
Specific methods
If possible, stop flow of product. Move container away or cool with water from a protected position.
Special protective equipment for fire fighters
Use self-contained breathing apparatus and chemically protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions
Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.
Environmental precautions
Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.
Clean up methods
Ventilate area.

7 HANDLING AND STORAGE

Handling
Suck back of water into the container must be prevented. Do not allow back feed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and

temperature. Contact your gas supplier if in doubt. Refer to supplier's handling instructions.

Storage

Secure cylinders to prevent them falling. Keep container below 50°C in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value

Value type	value	Note
Public limit value TGG-8h (NL)	1.000 ppm	

Personal protection

Ensure adequate ventilation. Do not smoke while handling product. Carry working gloves and protection shoes while handling gas cylinders.

9 PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance/Colour: Colourless gas.
Odour: Ethereal

Important information on environment, health and safety

Molecular weight: 102 g/mol
Melting point: -101 °C
Boiling point: -26 °C
Critical temperature: 100,6 °C
Flammability range: Non flammable.
Relative density, gas: Heavier than air.
Vapour Pressure 20 °C: 5,7 bar
Solubility mg/l water: 1930 mg/l

Other data

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity

May react violently with alkaline-earth and alkali metals.

11 TOXICOLOGICAL INFORMATION

Acute toxicity

No known toxicological effects from this product.

12 ECOLOGICAL INFORMATION

General

No known ecological damage caused by this product.

13 DISPOSAL CONSIDERATIONS

General

Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.

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14 TRANSPORT INFORMATION

ADR/RID

Class	2	Classification Code	2A

UN number and proper shipping name

UN 3159 1,1,1,2-Tetrafluoroethane

UN 3159 1,1,1,2-Tetrafluoroethane

Labels	2.2	Hazard number	20

IMDG

Class	2.2

UN number and proper shipping name

UN 3159 1,1,1,2-Tetrafluoroethane

Labels	2.2
Packing Instruction	P200
EmS	FC,SV

IATA

Class	2.2

UN number and proper shipping name

UN 3159 1,1,1,2-Tetrafluoroethane

Labels	2.2
Packing Instruction	P200

Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. 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. Before transporting product containers ensure that they are firmly secured. Ensure that the cylinder valve is closed and not leaking. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

15 REGULATORY INFORMATION

Further national regulations

- Publication series of Dangerous Goods: PGS 15 - Storage of packed dangerous goods (published by the Ministry of Housing, Spatial Planning and Environment (VROM)).
- Working conditions Catalogue AI-18 (Laboratory) and AI-31 (Dangerous Substances) (published by SDU Publishing business).
- Ministry for Social Affairs and Employment: Regulation 4.6-1 - Prevention of accidents on the account of storage, use and transport of pressure receptacles.

This substance or preparation above certain volume may have to be included in a SEVESO II submission or any other applicable national regulation.

16 OTHER INFORMATION

Ensure all national/local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Advice

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.

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