

SAFETY DATA SHEET

Version : 1.0
Product Name : Solchem ® 134a

Issue Date : 14-Nov-2014
Revision date : 14-Nov-2014

Solchem ® 134a

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

1.1. Product Identifier

Product Name : Solchem® HFC-134a
CAS No : 811-97-2
EC No : 212-377-0

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

Recommended Use Refrigerant
Foaming agent
Aerosol
Uses advised against No Information available

1.3. Company Address

Address : DAICHEM TRADING SDN. BHD.
NO. 2, Jalan TPK 2/3, Seksyen 2,
Taman Perindustrial Kinrara,
47100. Puchong.
Selangor. Malaysia.
Tel. : +603-8075 9118
Fax : +603-8075 9843

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)

Classification according to Directive 67/548/EEC or 1999/45/EC
Not classified

2.2. Label elements

Symbols/Pictograms



Signal word Warning
Hazard Statements Not applicable
Precautionary Statements H280 - Contains gas under pressure; may explode if heated
P410 + P403 - Protect from sunlight. Store in a well-ventilated place

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2.3. Other hazards

No information available

SECTION 3 : Composition/information on ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%	Classification according to Directive 67/548/EEC or 1999/45/EC	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,1,1,2-Tetrafluoroethane	212-377-0	811-97-2	≥99.5	Not classified	Liq. Gas (H280)

SECTION 4 : FIRST-AID MEASURES

4.1. Description of first aid measures

General advice

In case of accident or unwell, 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. Get medical advice/attention if you feel unwell.

Skin Contact

Wash with plenty of water. Clothing frozen to the skin should be thawed before being removed. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. 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. Do NOT induce vomiting. Rinse mouth. Get medical attention.

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

Symptoms may include tightness in the chest, flushing, headache, nausea, vomiting, respiratory depression, weakness, irregular heartbeat, abdominal pain, convulsions, and shock

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

Treat symptomatically.

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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 toxic/corrosive gases and vapors.
Hydrogen fluoride.

5.3. Advice for firefighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

SECTION 6 : Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas.

Avoid contact with skin, eyes or clothing.

Ensure adequate ventilation, especially in confined areas.

Remove all sources of ignition.

Do not touch damaged packages or spilled material.

Stop leak if you can do it without risk.

6.2. Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas.

6.3. Methods and material for containment and cleaning up

Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

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.

Avoid contact with skin, eyes or clothing.

Ensure adequate ventilation, especially in confined areas.

Remove all sources of ignition.

Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Protect from sunlight.

Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

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

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SECTION 8 : Exposure controls / personal protection

8.1. Control parameters

Chemical Name	Austria	United Kingdom	Switzerland	Spain	Germany
1,1,1,2-Tetrafluoroethane 811-97-2	STEL 4000 ppm STEL 16800 mg/m ³ TWA: 1000 ppm TWA: 4200 mg/m ³	TWA: 1000 ppm TWA: 4200 mg/m ³	TWA: 1000 ppm TWA: 4200 mg/m ³	-	STEL 8000 ppm STEL 33600 mg/m ³ TWA: 1000 ppm TWA: 4200 mg/m ³

Derived No Effect Level (DNEL)

Inhalation Worker - inhalative, long-term – systemic 13936 mg/m³
Consumer - inhalative, long-term – systemic mg/m³

Predicted No Effect Concentration (PNEC)

Fresh Water 0.1 mg/L
Sea Water 0.01 mg/L
Freshwater sediment 0.75 mg/kg sediment dw
Impact on Sewage Treatment 73 mg/L

8.2. Exposure controls

Engineering Controls

Ensure adequate ventilation, especially in confined areas.

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 Liquefied gas
Color colorless
Odor Slight
Odor Threshold No information available
pH 7.0
Melting point/freezing point -101 - 103°C at 1013 hPa
Boiling point / boiling range -26.1°C at 1013 hPa
Flash point No information available
Evaporation rate CL4 = 1 (Greater than 1)
Flammability (solid, gas) Not flammable
Flammability Limit in Air Not flammable
Vapor Pressure 5.74 Bar
Vapor density 3.52 (25°C air=1)
Density 1.21 g/cm³ (25°C-liquid density)
Relative density No information available
Bulk density No information available
Specific gravity No information available

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Water solubility 1 g/L (25°C pH=7)
Partition coefficient Log Pow = 1.06 (25°C)
Autoignition temperature >743°C (1atm)
Decomposition temperature No information available
Kinematic viscosity No information available
Dynamic viscosity No information available
Explosive properties Not an explosive
Oxidizing properties Not applicable

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 normal conditions. Hazardous polymerization does not occur.

10.3. Possibility of hazardous reactions

None under normal processing.

10.4. Conditions to avoid

Extremes of temperature and direct sunlight. Heat, flames and sparks.

10.5. Incompatible materials

Alkali metal alloys. Finely powdered metals.

10.6. Hazardous decomposition products

Thermal decomposition can lead to release of toxic/corrosive gases and vapors. Hydrogen fluoride.

SECTION 11 : Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
1,1,1,2-Tetrafluoroethane	-	-	1500000 mg/m ³ /4h (Rat)

Skin corrosion/irritation

Non-irritating to the skin.

Serious eye damage/eye irritation

No eye irritation.

Sensitization

No sensitization responses were observed.

Germ cell mutagenicity

Not classified.

Carcinogenicity

Not classified

Reproductive toxicity

Not classified

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STOT - single exposure

Not classified.

STOT - repeated exposure

Not classified.

Aspiration hazard

Not classified.

SECTION 12 : Ecological information

12.1. Toxicity

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
1,1,1,2-Tetrafluoroethane	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

Not readily biodegradable.

12.3. Bioaccumulative potential

Material does not bioaccumulate.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

12.6. Other adverse effects

No information available.

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

Empty containers should be taken for local recycling, recovery or waste disposal.

SECTION 14 : Transport information

14.1. UN Number

UN 3159

14.2. Proper shipping name

1,1,1,2-Tetrafluoroethane

14.3. Hazard Class

2.2

14.4. Packing Group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions

No information available

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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

SECTION 15 : Regulatory information

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

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	EINECS/ ELINCS	ENCS	IECSC	KECL	PICCS	AICS
1,1,1,2-Tetrafluoroethane 811-97-2 (99.5)	X	X	X	X	X	X	X	X

"-" Not Listed

"X" Listed

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance

SECTION 16 : OTHER INFORMATION

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

Issue Date : 13-Mar-2014
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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

H280 - Contains gas under pressure; may explode if heated

Full text of R-phrases referred to under sections 2 and 3

Not classified

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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 -----