

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Substance

Product Name: R-134a

Intended Use of the Product

Refrigerant

Name, Address, and Telephone of the Responsible Party

Company

ICOR International
10640 E 59th St.
Indianapolis, IN 46236
800-497-6805 (Monday-Friday, 7:30 am-4:30 pm ET)

Emergency Telephone Number

Emergency number : CHEMTREC 800-424-9300 (24 Hours/Day, 7 Days/Week)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Simple Asphyxiant
Liquefied Gas H280

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :



Signal Word (GHS-US) : Warning

Hazard Statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements (GHS-US) : P410+P403 - Protect from sunlight. Store in well-ventilated place.

Other Hazards

Other Hazards Not Contributing to the Classification:

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances: Substance

Name	Product identifier	% (w/w)	Classification (GHS-US)
1,1,1,2 - Tetrafluoroethane	811-97-2	100.00 %	Simple Asphyxiant Liquefied Gas, H280

Full text of H-phrases: see section 16

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SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact: Rinse immediately with plenty of lukewarm water. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms and Effects Both Acute and Delayed

General: Vapors are heavier than air and may cause asphyxia by reduction of the oxygen content.

Inhalation: May cause respiratory irritation.

Skin Contact: May cause skin irritation. Liquid contact may cause frostbite.

Eye Contact: May cause eye irritation.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: None known.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: R-134a is not flammable at ambient temperatures and atmospheric pressure. R-134a can become combustible with high concentrations of air at elevated pressure and/or temperature and in the presence of an ignition source. This substance can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). For example, do not mix R-134a with air under pressure for leak detection purposes.

Explosion Hazard: Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Halogenated hydrocarbons. Hydrogen Fluoride (HF).

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing vapors. Remove ignition sources.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Stop leak if safe to do so. Ventilate area. Ensure that oxygen content is > 19.5%

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Environmental Precautions

Avoid release to the environment.

Methods and Material for Containment and Cleaning Up

For Containment: Ventilate area. Gas evaporates quickly.

Methods for Cleaning Up: Isolate area until gas has dispersed. Avoid accumulation of vapors in confined areas.

Reference to Other Sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Ruptured cylinders may rocket.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Chlorine.

Storage Area: Store in a well-ventilated place. Protect from sunlight and do not expose to temperatures exceeding 50 °C .

Specific End Use(s)

Refrigerant.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters:

1,1,1,2-Tetrafluoroethane (HFC-134a) (811-97-2)		
AIHA WEEL	OEL 8 hr TWA	1000 ppm

EXPOSURE CONTROLS:

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective splash goggles. Gloves. Protective clothing.



Materials for Protective Clothing: Chemically resistant materials and fabrics. Where contact with liquid is likely, such as in a spill or leak, impervious boots and clothing should be worn.

Hand Protection: Impervious butyl rubber gloves.

Eye Protection: Chemical splash goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing. Skin contact with refrigerant may cause frostbite.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. For rescue and maintenance work in storage tanks use self-contained breathing apparatus.

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Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink or smoke during use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	:	Liquefied Gas
Appearance	:	Colorless
Odor	:	Slightly ethereal
Odor Threshold	:	Not available
pH	:	Neutral
Relative Evaporation Rate (butylacetate=1)	:	Not available
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	@ 1 atm. -26.07 °C (-14.9 °F)
Flash Point	:	Not available
Auto-ignition Temperature	:	> 750 °C (1382 °F)
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	@ 20 °C (68 °F) 82.91 psia @ 60 °C (140 °F) 243.92 psia
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Density	:	Liquid @ 1 atm. 85.94 lb/ft ³ Vapor @ 1 atm. 0.328 lb/ft ³
Specific Gravity	:	Not available
Solubility	:	Not available
Partition coefficient: n-octanol/water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	:	Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50 °C. Decomposes under high temperature. Can form a combustible mixture with air at pressures above atmospheric pressure.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. (Under specific conditions: e.g. very high temperatures and/or appropriate pressures) – Freshly abraded aluminum surfaces (may cause strong exothermic reaction). Chemically active metals: potassium, calcium, powdered aluminum, magnesium and zinc.

Hazardous Decomposition Products: Halogenated hydrocarbons. Hydrogen Fluoride (HF)

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

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Skin Corrosion/Irritation: Not classified Serious **Eye Damage/Irritation:** Not classified **Respiratory or Skin Sensitization:** Not classified
Germ Cell Mutagenicity: Not classified **Teratogenicity:** Not available
Carcinogenicity: Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: May cause respiratory irritation.
Symptoms/Injuries After Skin Contact: May cause skin irritation. Liquid contact may cause frostbite.
Symptoms/Injuries After Eye Contact: May cause eye irritation.
Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.
Chronic Symptoms: None expected under normal conditions of use.

Information on Toxicological Effects - Ingredient(s)

1,1,1,2-Tetrafluoroethane (HFC-134a) (811-97-2)

LC50 Inhalation Rat	1500 g/m ³ (Exposure time: 4 h)
ATE US (vapors)	1,500.00 mg/l/4h
ATE US (dust, mist)	1,500.00 mg/l/4h

IMMEDIATE (ACUTE) EFFECTS:

HFC-134a: LC50 : 4hr. (rat) - > 500,000 ppm / Cardiac Sensitization threshold (dog) > 80,000 ppm

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

HFC-134a: Teratogenic NOEL (rat and rabbit) – 40,000 ppm
Sub chronic inhalation (rat) NOEL – 50,000 ppm / Chronic NOEL – 10,000 ppm

CARCINOGENICITY: None of the ingredients of this product are listed on the NTP, IARC, or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: Not classified

Aquatic Toxicity:

Accumulation in aquatic organisms is unlikely due to its gaseous state at ambient temperatures and atmospheric pressure.

Persistence and Degradability: Not available

Mobility in Soil: Not available

Other Adverse Effects:

This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling. This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations. This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling. Contact a certified reclaimer for recovery/reclamation of this product.

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Ecology – Waste Materials: Avoid release to the environment. Recover, reclaim or recycle.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : 1,1,1,2-Tetrafluoroethane
Hazard Class : 2.2
Identification Number : UN3159
Label Codes : 2.2
ERG Number : 126



14.2 In Accordance with IMDG

Proper Shipping Name : 1,1,1,2-Tetrafluoroethane
Hazard Class : 2.2
Identification Number : UN3159
Label Codes : 2.2
EmS-No. (Fire) : F-C
EmS-No. (Spillage) : S-V



14.3 In Accordance with IATA

Proper Shipping Name : 1,1,1,2-Tetrafluoroethane
Identification Number : UN3159
Hazard Class : 2.2
Label Codes : 2.2
ERG Code (IATA) : 2L



14.4 In Accordance with TDG

Proper Shipping Name : 1,1,1,2-Tetrafluoroethane
Hazard Class : 2.2
Identification Number : UN3159
Label Codes : 2.2



SECTION 15: REGULATORY INFORMATION

US Federal Regulations

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U.S. Toxic Substances Control Act (TSCA) –All components listed on TSCA Inventory	
SARA Section 302 Title III/CERCLA – No component of this product is subject to the reporting requirements of SARA III Section 302.	
SARA Section 313 Hazard Classes - No component of this product is subject to the reporting requirements of SARA III Section 313.	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard
R-134a	
EPA Clean Air Act	This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82

US State Regulations

California Proposition 65 – This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproduction harm.

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Canadian Regulations

R-134a - Act (CEPA). Domestic Substances List (DSL): All components of this product are on the Canadian DSL.

WHMIS Classification | Class A - Compressed Gas



SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

CURRENT ISSUE DATE: March, 2015

PREVIOUS ISSUE DATE: August, 2007

OTHER INFORMATION: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

HMIS Classification: HMIS Classification: Health – 1, Flammability – 1, Reactivity – 0
NFPA Classification: Health – 2, Flammability – 1, Reactivity – 0

Regulatory Standards:

1. OSHA regulations for compressed gases: 29 CFR 1910.101
2. DOT classification per 49 CFR 172.101

Toxicity information per PAFT Testing

GHS Full Text Phrases:

H280	Contains gas under pressure; may explode if heated
Liquefied gas	Gases under pressure Liquefied gas
Simple Asphyxiant	Simple Asphyxiant

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS