

ACCORDING TO US CFR 1910.1200

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

### 1.1 Product identifier

Product Name	R-124
Trade Name	REFRIGERANT GAS R 124.
Synonym(s)	CHLOROTETRAFLUOROETHANE.
Chemical Name	2-Chloro-1,1,1,2-Tetrafluoroethane, Chlorotetrafluoroethane.
CAS No.	63938-10-3
EC No.	264-567-8

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

Identified Use(s)	Refrigerant.
Uses Advised Against	Not known.

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

Company Identification	Hudson Technologies Company
Address	PO Box 1541 One Blue Hill Plaza Pearl River, New York USA
Postal code	10965
Telephone	+1 (800) 953 2244
Fax	+1 (845) 512 6070
E-mail	<a href="mailto:information@hudsontech.com">information@hudsontech.com</a>

### 1.4 Emergency telephone number

Company	+1 (800) 501 4376
CHEMTREC (U.S.)	+1 (800) 424 9300
INTERNATIONAL	+1 (703) 527 3887

## 2. SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

US CFR 1910.1200	Gases under pressure; Press. Gas; Liquefied gas.
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## 2.2 Label elements

Product Name

2-Chloro-1,1,1,2-Tetrafluoroethane (R-124).

Hazard Pictogram(s)



GHS04



GHS07

Signal Word(s)

Warning.

Hazard Statement(s)

H280: CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.

H420: HARMS PUBLIC HEALTH AND THE ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSPHERE.

OSHA-H01: MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.

CGA-HG01: MAY CAUSE FROSTBITE.

Precautionary Statement(s)

P202: Do not handle until all safety precautions have been read and understood.

P262: Do not get in eyes, on skin, or on clothing.

P271+P403: Use and store only outdoors or in a well-ventilated place.

P302, P336, P315: IF ON SKIN: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

## 2.3 Other hazards

May cause asphyxiation when concentrations are sufficient to reduce oxygen below safe breathing levels.

May cause frost-bite.

Hazardous to the ozone layer.

## 2.4 Additional Information

CGA-PG05: Use a back flow preventive device in the piping.

CGA-PG06: Close valve after each use and when empty.

CGA-PG02: Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).

CGA-PG27: Read and follow the Safety Data Sheet (SDS) before use.

This SDS is available in languages other than English.

**3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

HAZARDOUS INGREDIENT(S)	Common Names	CAS No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Chlorotetrafluoroethane	R-124	63938-10-3	100	Press. Gas, Liquefied gas; H280	GHS04

**4. SECTION 4: FIRST AID MEASURES**

4.1 Description of first aid measures

Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, apply artificial respiration. Get medical attention.
Skin Contact	Flush skin with large amounts of water. Thaw frosted parts with lukewarm water. Do no rub affected area. If symptoms persist, obtain medical attention.
Eye Contact	Flush eyes with water for at least 15 minutes while holding eyelids open. If symptoms persist, obtain medical attention.
Ingestion	Unlikely route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: High concentrations: Headache, Dizziness, Confusion, Loss of coordination, Nausea, Unconsciousness.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to a physician: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

**5. SECTION 5: FIREFIGHTING MEASURES**

5.1 Extinguishing media

Suitable Extinguishing media As appropriate for surrounding fire.

Unsuitable extinguishing media None.

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

Contains gas under pressure; may explode if heated. The product should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment.

Decomposes in a fire giving off toxic fumes: Hydrofluoric acid, Carbonyl halides, Oxides of carbon.

#### 5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. If it is safe to do so, containers should be removed from fire area because they are likely to rupture under fire conditions.

### 6. SECTION 6: ACCIDENTAL RELEASE MEASURES

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

Ensure adequate ventilation. Stop leak if safe to do so. Wear appropriate personal protective equipment, avoid direct contact.

#### 6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses. Spills and releases may have to be reported to Federal and/or local authorities.

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

Allow small spillages to evaporate provided there is adequate ventilation. Ventilate area using forced ventilation, especially low or enclosed places where heavy vapours might collect.

#### 6.4 Reference to other sections

See Also Section 8, 13.

### 7. SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Provide sufficient ventilation. Avoid breathing gas. Avoid contact with skin and eyes. Wear protective gloves/protective clothing/eye protection/face protection. Do not drag, roll, slide or drop cylinders. Use a suitable hand truck design for cylinder movement. Never

attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object into valve cap openings. Doing so may damage valve causing a leak to occur. Secure cylinders in an upright position at all times, close all valves when not in use. Keep closed even when empty. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Protect from sunlight. Store in a well-ventilated place.

Storage temperature

<125°F (52°C)

Storage life

Stable under normal conditions.

Incompatible materials

Potassium, Calcium, Powdered Aluminium, Magnesium and Zinc.

7.3 Specific end use(s)

Refrigerant.

**8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

8.1 Control parameters

Occupational Exposure Limits (By analogy with similar materials)

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
1-chloro-1,2,2,2-tetrafluoroethane	2837-89-0	1000				AIHA

Remark

Workplace Environmental Exposure Level (AIHA)

8.2 Exposure controls

Appropriate engineering controls Ensure adequate ventilation.

Personal protection equipment



Eye Protection

Wear eye/face protection.



Skin protection

Wear suitable gloves.



Respiratory protection type A may be appropriate.

Where engineering controls are not fitted or inadequate wear suitable respiratory protective equipment. A suitable mask with filter

Thermal hazards Not applicable.

**9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

9.1 Information on basic physical and chemical properties

Appearance	Gas. Color: Colorless.
Odor	Ether-like.
Odor threshold	Not established.
pH	Neutral.
Melting point/freezing point	-326°F (-199°C)
Initial boiling point and boiling range	-12°F (-11°C) @ 760 mm Hg
Flash Point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	61 psia @ 77°F (25°C)
Vapor density	6.882 g/l
Density	1.364 g/cm <sup>3</sup> @ 77°F (25°C)
Relative density	Not available.
Solubility(ies)	Solubility (Water): 1.71 WT% @ 75°F (24°C) Solubility (Other): Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature (°C)	Not available.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
9.2 Other information	
Percent Volatile (%)	100%

**10. SECTION 10: STABILITY AND REACTIVITY**

10.1 Reactivity

Stable under normal conditions.

**10.2 Chemical Stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

No hazardous reactions known if used for its intended purpose.

**10.4 Conditions to avoid**

Keep away from heat and direct sunlight.

**10.5 Incompatible materials**

Potassium, Calcium, Powdered Aluminium, Magnesium and Zinc.

**10.6 Hazardous decomposition product(s)**

Halogens, halogen acids and possibly carbonyl halides.

**11. SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects**

Acute toxicity - Ingestion Low acute toxicity.

Acute toxicity - Skin Contact Low acute toxicity.

Acute toxicity - Inhalation Low acute toxicity.

Effects and Symptoms: High concentrations: Headache, Dizziness, Confusion, Loss of coordination, Nausea, Unconsciousness.

Skin corrosion/irritation Contact with rapidly expanding gas may cause burns or frostbite.

Serious eye damage/irritation Contact with rapidly expanding gas may cause burns or frostbite.

Skin sensitization data Not classified.

Respiratory sensitization data Not classified.

Germ cell mutagenicity There is no evidence of mutagenic potential.

Carcinogenicity No evidence of carcinogenicity.

Reproductive toxicity Not classified.

Lactation Not classified.

STOT - single exposure None anticipated.

STOT - repeated exposure None anticipated.

Aspiration hazard Not classified.

**11.2 Other information**

Not known.

**12. SECTION 12: ECOLOGICAL INFORMATION**

12.1 Toxicity

Toxicity - Aquatic invertebrates Low toxicity to invertebrates.

Toxicity - Fish Low toxicity to fish.

Toxicity - Algae Low toxicity to algae.

Toxicity - Sediment Not classified.

Compartment

Toxicity - Terrestrial Not classified.

Compartment

12.2. Persistence and Degradation

Not readily biodegradable.

12.3. Bioaccumulative potential

The substance has low potential for bioaccumulation.

12.4. Mobility in soil

Not applicable.

12.5 Other adverse effects

Hazardous to the ozone layer.

**13. SECTION 13: DISPOSAL CONSIDERATIONS**

13.1 Waste treatment methods

Containers must not be punctured or destroyed by burning, even when empty. Refer to manufacturer/supplier for information on recovery/recycling.

13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

**14. SECTION 14: TRANSPORT INFORMATION**

14.1 UN number

UN No. 1021

14.2 UN proper shipping name

UN proper shipping name 1-CHLORO-1,2,2,2-TETRAFLUOROETHANE  
OR REFRIGERANT GAS R 124.

14.3 Transport hazard class(es)

ADR/RID Class 2.2

IMDG Class 2.2

IMDG EMS Not available.



ICAO/IATA

Excepted Quantities	E1
Passenger and Cargo Aircraft	
Limited Quantities Packing	
Instructions	
Cargo Aircraft Limited Quantities	
Max net Qty	
Special Provisions	Not applicable.
Emergency Response	2L
Guidebook (ERG) Code	
ADR Classification Code	2A
ADR HIN	20
ADR Transport Category	3
Tunnel Restriction Code	C/E
Emergency Action Code	2TE
Advice on Additional Personal	Not applicable.
Protection (APP)	
14.4 Packing group	
Packing group	Not applicable.
Labels	2.2



Special Provisions	Not applicable.
Limited Quantities	120 m
Excepted Quantities	E1
Mixed Packing Instructions for	P200
Packages	
Special Packing Provisions for	Not applicable.
Packages	

Mixed Packing Instructions for	MP9
Packages	

14.5 Environmental hazards



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Environmental hazards Not classified as a Marine Pollutant.

14.6 Special precautions for user

Special precautions for user Not known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Packing Instructions for Portable (M) T50

Tanks

Special Provisions for Portable Not applicable.

Tanks

Tank Code for Tanks PxBN(M)

Special Provisions for Tanks TA4 TT9

Vehicle for Tank Carriage AT

Special Provisions for Carriage - Not applicable.

Packages

Special Provisions for Carriage - Not applicable.

Bulk

Special Provisions for Carriage - CV9 CV10 CV36

Loading, Unloading and Handling

Special Provisions for Carriage - Not applicable.

Operation

**15. SECTION 15: REGULATORY INFORMATION**

15.1 Federal

Toxic and hazardous substances Not listed.

(29 CFR 1910; Subpart Z )

National emission standards for Not listed.

hazardous air pollutants (40 CFR

61.01)

Title III Consolidated List of Lists Chlorotetrafluoroethane (CAS No. 63938-10-3).

TSCA (Toxic Substance Control Not listed.

Act)

Sara 313 Toxic Chemicals Chlorotetrafluoroethane (CAS No. 63938-10-3).

CAA 602 - Ozone Depleting Chlorotetrafluoroethane (CAS No. 63938-10-3) – Class II ODS

Substances (ODS)

15.2 State

State Right to Know Lists            Listed in: New Jersey  
 Proposition 65 (California)        Not listed.

15.3 Other

OSPAR List of Chemicals for        Not listed.  
 Priority Action  
 NTP (National Toxicology            Not listed.  
 Program)  
 OSHA                                        Not listed.  
 (List of Highly Hazardous  
 Chemicals, Toxics and  
 Reactives)  
 IARC (International Agency for    Not listed.  
 Research on Cancer)

**16. SECTION 16: OTHER INFORMATION**

The following sections contain    1-16  
 revisions or new statements:

NFPA		HMIS	
Health	2	Health	1
Fire	1	Flammability	0
Instability	0	Physical hazards	1

LEGEND:

Hazard Pictogram(s)



GHS04



GHS07



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Hazard Statement(s) H280: Contains gas under pressure; may explode if heated.  
Precautionary Statement(s) P410+P403: Protect from sunlight. Store in a well-ventilated place.

Additional Information required by Federal Standard 313 Rev. E:

Contract or Solicitation Number: SPE4A6-16-D-0226  
Prime Contractor: Hudson Technologies, Inc.  
Prime Contractor CAGE: 7DSQ0

National Stock Number (NSN): 6830013918236  
Specification Reference:

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