

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-401B
Synonym(s)	REFRIGERANT GAS MIX.
CAS No.	Mixture.
EC No.	Mixture.

### 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. Ozone 1; Harms public health and the environment by destroying ozone in the upper atmosphere.
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Where engineering controls are not fitted or inadequate wear suitable respiratory protective equipment. A suitable mask with filter Respiratory protection type A may be appropriate.

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	Not applicable.
Initial boiling point and boiling range	-30.3°F (-34.6°C)
Flash Point	Not applicable.
Evaporation rate	>1 (CCl4=1.0)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Vapor pressure	118.8 psia @ 77°F (25°C)
Vapor density	3.2 @ 77°F (25°C) (Air = 1)
Density (g/ml)	Not available.
Relative density	Not available.
Solubility(ies)	Solubility (Water): 0.1 WT% @ 77°F (25°C) Solubility (Other): Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not applicable.
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

Strong oxidizing agents, Chlorine, 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.

Chlorodifluoromethane:

LC50 (6h) (mouse): >150,000 ppm

Skin corrosion/irritation Liquid contact can cause severe irritation and frostbite.

Serious eye damage/irritation Liquid contact can cause severe irritation and 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.  
Chlorodifluoromethane:  
EC50 (48 hour) (Daphnia magna): 433mg/l

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

The product is not biodegradable.

Chlorodifluoromethane: Not readily biodegradable.

### 12.3. Bioaccumulative potential

The product has low potential for bioaccumulation.

Chlorodifluoromethane: Log Kow < 4

### 12.4. Mobility in soil

Not applicable.

### 12.5 Other adverse effects

Harms public health and the environment by destroying ozone in the upper atmosphere.

## 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.

R-401B is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

**14. SECTION 14: TRANSPORT INFORMATION**

14.1 UN number

UN No. 3163

14.2 UN proper shipping name

UN proper shipping name LIQUEFIED GAS, N.O.S. (CHLORODIFLUOROMETHANE, 2-CHLORO- 1,1,1,2-TETRAFLUOROETHANE).

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 274

Limited Quantities 120 m

Excepted Quantities E1

Mixed Packing Instructions for Packages P200

Packages

Special Packing Provisions for Packages Not applicable.

Packages

Mixed Packing Instructions for Packages MP9

Packages

14.5 Environmental hazards

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 Tanks Not applicable.

Tanks

Tank Code for Tanks PxBN(M)

Special Provisions for Tanks TA4 TT9

Vehicle for Tank Carriage AT

Special Provisions for Carriage - Packages Not applicable.

Packages

Special Provisions for Carriage - Bulk Not applicable.

Bulk

Special Provisions for Carriage - Loading, Unloading and Handling CV9 CV10 CV36

Loading, Unloading and Handling

Special Provisions for Carriage - Operation Not applicable.

Operation



## 15. SECTION 15: REGULATORY INFORMATION

### 15.1 Federal

Toxic and hazardous substances All chemicals are not listed.

(29 CFR 1910; Subpart Z )

National emission standards for All chemicals are not listed.

hazardous air pollutants (40 CFR

61.01)

Title III Consolidated List of Lists All chemicals listed.

TSCA (Toxic Substance Control All chemicals listed, except: Chlorotetrafluoroethane (CAS No.

Act) 63938-10-3).

SARA 313 Toxic Chemicals Chlorodifluoromethane (CAS No. 75-45-6).

CAA 602 - Ozone Depleting Chlorodifluoromethane (CAS No. 75-45-6) – Class II ODS.

Substances (ODS)

### 15.2 State

State Right to Know Lists

Chlorodifluoromethane (CAS No. 75-45-6)

Listed in: New Jersey, Minnesota, Pennsylvania, Rhode Island

Chlorotetrafluoroethane (CAS No. 63938-10-3)

Listed in: New Jersey

1,1-difluoroethane (CAS No. 75-37-6)

Listed in: New Jersey

Proposition 65 (California)

All chemicals are not listed.

15.3 Other

OSPAR List of Chemicals for All chemicals are not listed.

Priority Action

NTP (National Toxicology Program) All chemicals are not listed.

OSHA All chemicals are not listed.

(List of Highly Hazardous Chemicals, Toxics and Reactives)

IARC (International Agency for Research on Cancer) Chlorodifluoromethane (CAS No. 75-45-6).

**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

Hazard Statement(s)



GHS07

H280: Contains gas under pressure; may explode if heated.

H420: Harms public health and the environment by destroying



SAFETY DATA SHEET

20-Sep-2017

Precautionary Statement(s)      ozone in the upper atmosphere.  
EUH059: Hazardous to the ozone layer.  
P410+P403: Protect from sunlight. Store in a well-ventilated place.  
P502: Refer to manufacturer for information on recovery/recycling.

Additional Information required by Federal Standard 313 Rev. E:

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

National Stock Number (NSN):      6830013913109  
Specification Reference:

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