

Safety Data Sheet

R404A

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product name: REFRIGERANT R404A

1.2. Intended Use of the Product: Refrigerant.

1.3. Details of the supplier of the safety data sheet

Company:

ICOOL USA Incorporated

1638 Thompson Rd, Hartselle, AL 35640

Tel: 256-754-5507 Fax: 256-754-5511

1.4. Emergency telephone number

FOR MORE INFORMATION CALL:

(Monday-Friday, 8:00am-5:00pm)

1-256-754-5507

IN CASE OF EMERGENCY CALL:

CHEMTREC: 1-800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance of Mixture

Classification of the Substance of Mixture

Classification (GHS-US)

Simple Asphyxiant

Liquefied Gas: H280

2.2. 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 a well-ventilated place

2.3. Other Hazards

Other Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Liquid contact with eyes or skin may cause frostbite.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances: Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
1,1,1-TRIFLUOROETHANE (R143a)	(CAS No) 420-46-2	52	Simple Asphyxiant Liquefied gas, H280
PENTAFLUOROETHANE (R125)	(CAS No) 354-33-6	44	Simple Asphyxiant Liquefied gas, H280
1,1,1,2-TETRAFLUOROETHANE (R134a)	(CAS No) 811-97-2	4	Simple Asphyxiant Liquefied gas, H280

SECTION 4: FIRST AID MEASURES

4.1. 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 from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

Skin contact: Take off all contaminated clothing immediately if not stuck to the skin. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred call a physician.

Eye contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Ingestion: Do not induce vomiting. Rinse mouth. Immediately call a poison center or doctor/physician.

4.2. 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

5.1. Extinguishing Media

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

Unsuitable Extinguishing Media: None known.

5.2. Special Hazards Arising from the Substance or Mixture

Fire Hazard: R404A is not flammable at ambient temperatures and atmospheric pressure. R404A 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 R404A 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.

5.3. 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).

5.4. Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

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

6.2. For Non-Emergency Personnel

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

Emergency Procedures: Evacuate unnecessary personnel.

6.3. 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%

6.4. Environmental Precautions

Environmental Precautions: Should not be released into the atmosphere.

6.5. Methods and material for containment and cleaning up

For Containment: Ventilate area. Gas evaporates quickly.

Methods for Clean-up: Isolate area until gas has dispersed. Avoid accumulation of vapors in confined areas.

6.6. Reference to other Sections: Refer to Section 8 of SDS.

SECTION 7: HANDLING AND STORAGE

7.1. 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.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Storage conditions: Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Keep at temperature not exceeding 50°C. Keep cylinders tightly closed in a dry, cool and well-ventilated place.

Suitable packaging: Store in original cylinder only. Protect from contamination.

Storage temperature: Less than 50°C

7.3. Specific end use(s)

Refrigerant.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control Parameters

1,1,1,2-TRIFLUOROETHANE (R143a) (420-46-2)		
AIHA WEEL	OEL 8 hr TWA	1000ppm
PENTAFLUOROETHAN (R125) (354-33-6)		
AIHA WEEL	OEL 8 hr TWA	1000ppm
1,1,1,2-TETRAFLUOROETHANE (R134a) (811-97-2)		
AIHA WEEL	OEL 8 hr TWA	1000ppm

8.2. Exposure Controls

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

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

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Impervious butyl rubber gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Control: 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

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Liquefied gas under pressure.
Appearance	:	Colorless
Odor	:	Slightly Ethereal
Odor Threshold	:	Not available
pH	:	Neutral

Evaporation Rate	:	>1 Compared To:CCL ₄ = 1
% Volatiles	:	100
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	-47.8°C (-54.0°F)
Flash Point	:	n/a Non-flammable
Auto-ignition Temperature	:	>750 °C
Decomposition Temperature:	:	>250 °C
Flammability (solid, gas)	:	Non-flammable
Lower Flammable Limit	:	n/a Non-flammable
Upper Flammable Limit	:	n/a Non-flammable
Vapor pressure	:	182.9psia at 70° F 370.9psia at 129.9° F
Vapor Density	:	3.43lbm/ft ³ at 70° F
Density - Liquid	:	1.05g/cm ³ at 70° F
Specific Gravity	:	1.05

SECTION 10. STABILITY AND REACTIVITY

10.1. **Reactivity:** Stable under recommended storage and transport conditions.

10.2. **Chemical Stability:** Stable under normal conditions.

10.3. **Possibility of Hazardous Reactions:** Hazardous reactions will not occur.

10.4. **Conditions to Avoid:** Heat, hot surfaces, flames. The product is not flammable in air under ambient conditioned of temperature and pressure. When pressurized with air or oxygen, the mixture may become flammable or reactive under certain conditions.

10.5. **Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Potassium, calcium, powdered metals, finely divided aluminum, magnesium, zinc.

10.6. **Hazardous decomposition products:** In case of fires hazardous decomposition may occur Halogenated hydrocarbons. Hydrogen Fluoride (HF). Carbon monoxide and carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute oral toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/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.

11.2. Information on Toxicological Effects - Ingredient(s)

Immediate (Acute) Effects:

1,1,1-Trifluoroethane (HFC---143a): LC50/rat: > 540,000 ppm
Cardiac Sensitization threshold >250,000ppm

Pentafluoroethane (R125): LC50/rat: > 800,000 ppm
Cardiac Sensitization threshold >100,000ppm

1,1,1,2-Tetrafluoroethane (R134a): LC50/rat: 500,000 ppm
Cardiac Sensitization threshold >80,000ppm

11.3. Delayed (Subchronic and Chronic) Effects:

R143a: Teratogenic NOEL (rat and rabbit) - 50,000ppm
Sub chronic inhalation (rat) NOEL - >50,000ppm

R125: Teratogenic NOEL (rat and rabbit) - 50,000ppm
Sub chronic inhalation (rat) NOEL - >50,000ppm / Chronic NOEL - 10,000ppm

R134a: Teratogenic NOEL (rat and rabbit) - 40,000ppm
Sub chronic inhalation (rat) NOEL - >50,000ppm / Chronic NOEL - 10,000ppm

11.4. 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: No data 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.

Ecology - Waste Materials: Recovery Operations: Consult the manufacturer or supplier for information regarding recovery and recycling of the product. If recovery is not possible, incinerate at a licensed installation.

Disposal of packaging: Avoid release to the environment. Recover, reclaim or recycle.

SECTION 14. TRANSPORT INFORMATION

14.1. In Accordance with DOT

Proper Shipping Name: Refrigerant gas R404A

Hazard Class: 2.2

Identification Number: UN3337

Label Codes: 2.2

ERG Number: 126



14.2. In Accordance with IMDG

Proper Shipping Name: Refrigerant gas R404A

Hazard Class: 2.2

Identification Number: UN3337

Label Codes: 2.2

EmS-No. (Fire): F-C

EmS-No. (Spillage): S-V



14.3. In Accordance with IATA

Proper Shipping Name: Refrigerant gas R404A

Hazard Class: 2.2

Identification Number: UN3337

Label Codes: 2.2

ERG Code (IATA): 2L



14.4. In Accordance with TDG

Proper Shipping Name: Refrigerant gas R404A



Hazard Class: 2.2
 Identification Number: UN3337
 Label Codes: 2.2

SECTION 15. REGULATORY INFORMATION

15.1. US Federal Regulations

R404A	
US Toxic Substances Control Act (TSCA): All components listed on TSCA Inventory	
SARA Section 302 Title III/CERCLA: No component of this subject to the reporting requirements of SARA III Section 302.	
SARA Section 313 Title III/CERCLA: No component of this subject to the reporting requirements of SARA III Section 313.	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard
R404A	
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

15.2. 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.

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

CURRENT ISSUE DATE: January, 2017

PREVIOUS ISSUE DATE:

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
 ANSI/ASHRAE 34 Safety Group - A1
 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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