

# SAFETY DATA SHEET (SDS)

GHS and OSHA 29 CFR §1910.1200 (eCFR) compliant

UN3337



Revision: 0  
ISSUE DATE: May 29, 2015

**R-404A REFRIGERATED, Liquefied Gas**  
1,1,1-Trifluoroethane 52%, Pentafluoroethane 44%, 1,1,1,2-Tetrafluoroethane 4%  
**R-404A**

**STOODY INDUSTRIAL AND WELDING SUPPLY, INC.**  
3316 National Ave., San Diego, Ca. 92113  
Phone: 619-234-6750

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**PHONE NUMBERS**  
Product Information: 619-234-6750

**24-hour Emergency Response**  
**Professional Emergency Resource Services**  
**800-633-8253**

**MILITARY EMERGENCY RESPONSE**  
**800-851-8061**

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NSN

6830-01-392-0959

6830-01-392-0960

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**SUPPLIER INFORMATION:**

Safety and handling equipment, gas cylinders and refills, personal protection equipment, fire extinguishers, cylinder services, respirators, etc. are available at Stody Industrial and Welding Supply, Inc. Our main location is at 3316 National Avenue, (near the 32<sup>nd</sup> Street Naval Base) in San Diego California 92113. Call 1-619-234-6750 or visit our web site, [stodyind.com](http://stodyind.com) for more information.

**DISCLAIMER:** The information contained herein is accurate to the best of our knowledge. Stody Industry and Welding Supply Inc., does not assume any responsibility or liability for user's reliance or consequences of reliance on the information provided in this SDS. **Stody industrial and Welding Supply, Inc. makes no warranty or guarantee of any kind, expressed or implied, concerning the safe use of this material in your process or in combination with other substances.**

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# SAFETY DATA SHEET (SDS)

GHS and OSHA 29 CFR §1910.1200 (eCFR) compliant



## R-404A REFRIGERATED, Liquefied Gas

### 1 IDENTIFICATION

**1(a) Product identifier used on label:**

R-404A Refrigerant

**1(b) Other means of identification:** 1,1,1-Trifluoroethane 52%, Pentafluoroethane 44%, 1,1,1,2-Tetrafluoroethane 4%

**1(c) Recommended use of the chemical and restrictions on use:**

**Recommended use;** Professional use refrigeration purposes only

**Restrictions on use;** See Sections 15 & 16

**1(d) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party**

Responsible Party:

STOODY INDUSTRIAL AND WELDING SUPPLY, INC  
3316 National Avenue, San Diego, CA 92113  
619-234-6750

**1(e) Emergency phone number**

Professional Emergency Resource Services: 800-633-8253


Military Emergency Resource: 800-851-8061

### 2 HAZARD(S) IDENTIFICATION

**2(a) Classification of chemical in accordance with paragraph (d) of §1910.1200**

Nonflammable Gas

**2(b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200**

Signal Word	Hazard Statement(s)	Symbol(s)	Precautionary Statements
<b>Warning</b>	<b>May displace oxygen and cause rapid suffocation.</b> (H281) Contains refrigerated gas; may cause cryogenic burns or injury.	 Refrigerated Liquefied Gas	(P282) Wear cold insulating gloves / face shield / eye protection. (P315) Get immediate medical advice / attention (P336) Thaw frosted parts with lukewarm water. Do not rub affected area. (P403) Store in a well-ventilated place.

**2(c) Describe any hazard not otherwise classified that have been identified during the classification process**

Contains gas under pressure; may explode if heated. Large amount of potential energy resulting from compression of the gas makes the cylinder a potential rocket or fragmentation bomb.

The gas is heavier than air and may accumulate in low ceiling spaces causing deficiency of oxygen.

**2(d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration = 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consist of ingredient(s) of unknown acute toxicity is required.**

This product consists of < 1% concentration of unknown acute toxicity.

### 3 COMPOSITION / INFORMATION ON INGREDIENTS

3(a) Chemical name (Components)	3(b) Common name (Components)	3(c) CAS Number and other unique identifiers		
		CAS Number	Component Percent	Other / Identifiers
1,1,1-Trifluoroethane	HFC-143a	420-46-2	52%	R-143
Pentafluoroethane	HFC-125	354-33-6	44%	R-125
1,1,1,2-Tetrafluoroethane	HFC-134a	811-97-2	4%	R-134

Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR pat 372.

**3(d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.**

Classification contributing impurities or stabilizing additives, if applicable, are identified in Section 15 of this SDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

# SDS – R-404A– Refrigerated Liquefied Gas

## 4 FIRST-AID MEASURES

4(a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion:

ROUTES OF EXPOSURE (OVER EXPOSURE) (yes or no)			
INHALATION: Yes*	SKIN: Yes	EYE CONTACT: Yes	INGESTION: No
<b>Short Term Effects:</b> Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headache, dizziness, indigestion, nausea, and possible death. <b>Long Term Effects:</b> None identified	<b>Short Term Effects:</b> Temporary tingling, numbness, coldness drying skin. Liquid contact may cause frostbite. <b>Long Term Effects:</b> None identified	<b>Short Term Effects:</b> Irritation, tearing, blurred vision. Liquid contact may cause frostbite. <b>Long Term Effects:</b> (frostbite) None identified	<b>Short Term Effects:</b> None identified <b>Long Term Effects:</b> None identified

\* Intentional misuse or deliberate inhalation may cause death without warning. Inhalation of high concentrations of vapor is very harmful, may cause heart irregularities, unconsciousness, death. Vapor reduces available oxygen and is heavier than air, liquid contact can cause frostbite.

**IF UNCONSCIOUS PLACE IN RECOVERY POSITION AND SEEK MEDICAL ADVICE. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.**

**Inhalation:** If high concentrations are inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. Do not give epinephrine. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should only be used with special caution in situations of emergency life support.

**Skin contact:** Flush skin with water for at least 15 minutes after excessive contact. Seek medical assistance if irritation is present. Wash contaminated clothing before reuse. Treat for frostbite if necessary by gently warming affected area.

**Eye contact:** Hold eyelids apart and flush eyes with cool water for 15 minutes and obtain immediate medical attention.

**Ingestion:** Unlikely route of exposure.

## 5 FIRE-FIGHTING MEASURES

5(a) Suitable (and unsuitable) extinguishing media

All known extinguishants can be used. Use extinguishing media appropriate for surrounding fire. Combat fire from a sheltered position. Keep cylinder cool by spraying with water.

5(b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).

- Pressure in a container can build up due to heat and it may violently rupture if pressure relief devices should fail to function.
- May decompose on contact with flame or extremely hot metal, giving off irritating or toxic fumes (or gases). See Section 10.
- NIOSH approved self-contained breathing apparatus (SCBA) may be required if cylinders rupture or contents are released under fire conditions for protection against toxic decomposition vapors.

Damaged cylinders should only be handled only specialists.

## 6 ACCIDENTAL RELEASE MEASURES

6(a) Personal precautions, protective equipment, emergency procedures.

Stop leak if possible without personal risk. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

Ventilate enclosed area or move leaking container to a well-ventilated area. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

6(b) Method and materials for containment and cleaning up.

Ventilate area using forced air particularly low or enclosed areas where heavy vapor could collect and displace oxygen. .

Wear chemical protection suit including self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

## 7 HANDLING AND STORAGE

7(a) Precautions for safe handling.

Never rely on the color of the cylinder for identification. (Colors may vary with suppliers.)

Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this product could occur without any significant warning symptoms. Avoid breathing mist or vapors. Avoid contact with eyes or skin.

**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no unusual warning properties associated with a release or leakage of refrigerant gases. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

Continued on next page

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**7 HANDLING AND STORAGE (Continued from page 2)**

**7(b) Conditions for safe storage, including any incompatibilities.**

R-404A should not be mixed with air above atmospheric pressure for leak testing or any other purpose.

Conditions for safe storage	Incompatibilities
<ol style="list-style-type: none"> <li>1. Store and use with adequate ventilation.</li> <li>2. Subsurface storage should be avoided</li> <li>3. Avoid breathing vapors and liquid contact with eyes, skin or clothing.</li> <li>4. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over.</li> <li>5. Protect cylinders from physical damage; do not drag, roll, slide or drop.</li> <li>6. Full cylinders should be segregated from empty cylinders.</li> <li>7. Do not allow storage area temperature to exceed 125°F (52°C).</li> <li>8. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.</li> <li>9. Use a suitable hand truck for cylinder movement.</li> <li>10. Never attempt to lift a cylinder by its valve protection cap.</li> <li>11. Keep cylinders and their valves free from oil and grease.</li> <li>12. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur.</li> <li>13. Close valve tightly after use and when empty.</li> </ol>	<p>See section 10</p>

Specific requirements are listed in NFPA 50A. Cylinder storage locations should be well-protected, well-ventilated, dry, and separated from combustible and reducing materials. Cylinders should never knowingly be allowed to reach a temperature exceeding 125°F (52°C)

**8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**8(a) OSHA permissible exposure limit (PEL), American Conference of Governments Industrial Hygienists (ACGIH) Threshold Limits Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.**

PEL TWA = None; TLV TWA = None

**8(b) Appropriate engineering controls.**

Natural or mechanical air circulation is needed to maintain a safe working environment. Oxygen detectors should be used when asphyxiating gases may be released

**8(c) Individual protection measures, such as personal protective equipment.**

Wear cold insulating gloves / face shield / eye protection (chemical splash goggles) use as needed.

**9 PHYSICAL and CHEMICAL PROPERTIES**

<b>a) Appearance (physical state, color, etc.)</b>	Colorless liquid and vapor
<b>b) Odor</b>	Ether like (slight)
<b>c) Odor threshold</b>	Not available
<b>d) pH</b>	Not available
<b>e) Melting point/freezing point</b>	Not available
<b>f) Initial boiling point</b>	-46.2° C (-51.2° F)
<b>g) Flash point</b>	Does not flash
<b>h) Evaporation rate</b>	> 1 (carbon tetrachloride = 1.0)
<b>i) Flammability (solid, gas)</b>	No applicable
<b>j) Upper/lower flammability or explosive limits</b>	Nonflammable gas
<b>k) Vapor pressure</b>	12,546 hPa at 25 °C (77 °F)
<b>l) Vapor density (Air = 1)</b>	3.4 @ 25° C (77° F)
<b>m) Relative density (Air = 1)</b>	1.05 @ 25° C (77° F)
<b>n) Solubility(ies) Water</b>	Not available
<b>o) Partition coefficient: n-octanol/water</b>	No data available
<b>p) Auto-ignition temperature</b>	No data available
<b>q) Decomposition temperature</b>	No data available
<b>r) Viscosity</b>	No data available
<b>s) Molecular Weight</b>	120

**10 STABILITY and REACTIVITY****10(a) Reactivity**

Stable under normal temperature and pressure. May cause strong exothermic reaction when exposed to freshly abraded aluminum surfaces at very high temperatures or high pressure.

**10(b) Chemical stability**

Stable at normal temperatures and storage conditions. Not combustible

**10(c) Possibility of hazardous reactions**

See Para. 10(a) and 10(d)

**10(d) Conditions to avoid (e.g., static discharge, shock, or vibration)**

Avoid open flames and high temperatures, vapors may yield toxic and irritating decomposition products. See Para. 10(f)

**10(e) Incompatible materials**

Incompatible with alkali or alkaline earth metals - powdered Al, Zinc, Beryllium for example.

**10(f) Hazardous decomposition products**

Decomposition products are hazardous. This material can be decomposed by high temperatures forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

**11 TOXICOLOGICAL INFORMATION**

*Description of the various toxicological (health) effects and available data used to identify those effects, including:*

**11(a) Information on likely routes of exposure (inhalation, ingestion, skin and eye contact);**

No known toxicological effects from this product in normal use.

**11(b) Symptoms related to the physical, chemical and toxicological characteristics;**

None known. Not classified as a human carcinogen.

**11(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure;**

See Para 4(a)

**11(d) Numerical measures of toxicity (such as acute toxicity estimates)**

Not available

**11(e) Whether the hazardous chemical is listed in the International Toxicology Program (NTP) Report on Carcinogenic (latest edition) or has been found to be a potential carcinogenic in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.**

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

**12 ECOLOGICAL INFORMATION****12(a) Ecotoxicity (aquatic and terrestrial, where available)**

No Information Available

**12(b) Persistence and degradability**

No Information Available

**12(c) Bioaccumulative potential**

No Information Available

**12(d) Mobility in soil**

No Information Available

**12(e) Other adverse effects (such as hazardous to the ozone layer)**

This product is a Class II ozone depleting chemicals (40 CFR Part 82). This product is not listed as a marine pollutant by DOT (49 CFR Part 171).

**13 DISPOSAL CONSIDERATIONS****13(a) Description of waste residue and information on their safe handling and method of disposal, including the disposal of any contaminated packaging.**

Recover, reclaim or recycle subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

Do not attempt to dispose of cylinder or its contents. Return cylinder(s) and unused contents to the supplier for appropriate disposition, of both cylinder and contents, in accordance with appropriate Federal, State, local regulation.

**14 TRANSPORTATION INFORMATION**

- 14(a) **UN number:** UN3337
- 14(b) **UN proper shipping name:** Liquefied Gas, N.O.S. (1,1,1-Trifluoroethane, Pentafluoroethane, 1,1,1,2-Tetrafluoroethane)
- 14(d) **Packing group, if applicable:** Not Applicable
- 14(e) **Environmental hazards (e.g.,) Marine pollutant (yes/No):** No
- 14(f) **Transport in bulk (according to Annex II of MARPOL 73/78 and IBC Code):** Does not apply
- 14(g) **Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside of their premises:**  
 Cylinders should be properly separated from non-compatible gas cylinders and transported in a upright, secure position, in a well ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards and should be discouraged.

**15 REGULATORY INFORMATION**

- 15(a) **Safety, health and environmental regulations specific for the product in question.**  
 User(s) of this product are solely responsible for regulatory compliance on a federal, state, and local level.  
U.S. FEDERAL REGULATIONS:  
 EPA - ENVIRONMENTAL PROTECTION AGENCY  
 40 CFR PART 68, Risk Management for Chemical Accidental Release, does not list components as regulated substances.  
 CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (40 CFR Parts 117 and 302):  
 Reportable Quantity (RQ): No reportable quantities  
 SARA: Superfund Amendment and Reauthorization Act  
 SECTION 302/304: Requires emergency planning on threshold planning quantities (TPQ) and release reporting based on reportable quantities (RQ) of EPA's extremely hazardous substances (40 CFR Part 355).  
 Extremely Hazardous Substances: None  
 Threshold Planning Quantity (TPQ): None  
 SECTIONS 311/312: Require submission of (material) safety data sheets (SDSs) and chemical inventory reporting with identification of EPA defined hazard classes (40 CFR Part 370). The hazard classes for this product are:  
 1,1,1-trifluoroethane  

1,1,1-trifluoroethane;	
ACUTE HEALTH (Immediate): Yes	CHRONIC HEALTH (Delayed): No
PRESSURE: Yes	REACTIVITY: No
FIRE: No	

 SECTION 313 Regulated Chemicals: None  
 TSCA: Toxic Substance Control Act: On the inventory, or in compliance with the inventory.  
 OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:  
 29 CFR 1910.119, Appendix A, does not list this product as a highly hazardous chemical.  
 HCFC-22 and HCFC-124 are listed as Class II ozone depleting chemicals (40 CFR Part 82). (See Para. 16(b)  
 Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR Part 173.301 (b)).  
 FDA – FOOD AND DRUG ADMINISTRATION: None  
 CALIFORNIA PROPOSITION 65 (Safe Drinking Water and Toxic Enforcement Act of 1986): product components, not listed.  
 CANADIAN REGULATIONS:  
 WHIMS Classification; Class A - Compressed Gas

**16 OTHER INFORMATION, Including date of preparation or last revision**

**16(a) OTHER INFORMATION:**

**NFPA RATINGS:**

**HEALTH-Blue: = 2    FLAMMABILITY-Red: = 1    INSTABILITY-Yellow: = 0    SPECIAL HAZARDS\*-White: =**

*LEGEND: 0-4 – 0-least hazardous; 4-most hazardous*

*\*OX (Oxidizers), W (Water reactives), SA (Simple Asphyxiants), (blank if no special hazard)*

**16(b) ADDITIONAL INFORMATION:**

R-404A also contains Pentafluoroethane, 1,1,1-trifluoroethane, and tetrafluoroethane greenhouse gases which may contribute to global warming. Do not vent to atmosphere.

**SUPPLIER INFORMATION:**

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**ISSUE DATE: May 29, 2015**

Information Sources: Data is compiled from a variety of sources, including publicly available documents, internal data and other sources.

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