

Safety Data Sheet

Part Number 327056

Section 1. Substance Identity and Company Contact Information

Product Name	R-404A	Product Part Number(s)	01-R404GAS and 01-R404KIT
Trade Name	R-404A	Unit Size	103 liters - 3.6 Cu. Ft. - 1,000 psig
Company	OI Analytical, P.O. Box 9010, College Station, TX 77842-9010, Phone: (979) 690-1711, Fax: (979) 690-0440		
Emergency No. 1-800-424-9300 (Chemtrec). Use only in the event of chemical emergencies involving spills, leaks, fire, exposure, or accidents involving chemicals.			

Section 2. Hazards Identification

Pictogram(s)



Signal Word	Warning	
GHS Classification	Physical, Gases under Pressure, Compressed Gas	
Hazard Statement(s)	No data available	
Precautionary Statement(s)	Store in a well ventilated place. Protect from sunlight. Do not expose to temperature exceeding 50 °C / 122 °F.	
Target Organ(s)	Central nervous system	
Potential Health Effects	Eye:	Contact with rapidly expanding gas near the point of release may cause frostbite.
	Skin:	Prolonged or repeated contact of R-404A may tend to dry and defat skin causing irritation and dermatitis. Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering.
	Ingestion:	Not anticipated. Product is a gas at normal conditions.
	Inhalation:	High concentrations of R-404A vapors may cause cardiac arrhythmia.
Chronic Effects/ Carcinogenicity	IARC:	No
	NTP:	No
	OSHA:	No
Teratology (Birth Defects) Information	No	
Reproductive Information	No	
NFPA Ratings	Health:	0
	Flammability:	0
	Reactivity:	0

HMIS Rating	Health:	0
	Flammability:	0
	Reactivity:	3
	Protective Equipment:	No data available

Section 3. Chemical Composition and Data on Components

Ingredient	CAS No.	Percent	Hazard Data	
			ACGIH TLV	OSHA PEL
Pentafluoroethane	354-33-6	44	None	None
1, 1, 1-Trifluoroethane	420-46-2	52	None	None
1, 1, 1, 2-Tetrafluoroethane	811-97-2	4	None	None

Section 4. First Aid Measures

General Advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If Inhaled	PROMPT REMOVAL FROM THE CONTAMINATED AREA AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.
In Case of Skin Contact	Rinse skin thoroughly with water. For skin, immerse skin in lukewarm water. DO NOT USE HOT WATER. For frostbite or persistent irritation, seek medical attention.
In Case of Eye Contact	Flush eyes with water for 15 minutes. If irritation persists or frostbite occurs, seek medical attention.
If Swallowed	None required. Product is a gas at normal temperatures and conditions.
Indication of Any Immediate Medical Attention and Special Treatment Needed	No data available.

Section 5. Fire-fighting Measures

General Information	If possible, stop the flow of gas supply. Use water spray to cool adjacent cylinders and areas. Fire fighters should wear a full-facepiece NIOSH/MSHA approved self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout gear.
Suitable Extinguishing Media	None required. Use as appropriate for surrounding materials.
Special Hazards Arising from the Substance or mixture	No data available
Advice for Firefighters	No data available
Flash Point	None
Autoignition Temperature	No data available
Further Information	No data available

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures	Evacuate all personnel from affected area. Use appropriate protective equipment.
Environmental Precautions	No data available
Methods and Materials for Containment and Cleaning	If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or valve, contact the appropriate emergency telephone number listed in section 1.
Reference to Other Sections	For disposal, see Section 13.

Section 7. Handling and Storage

Precautions for Safe Handling	Use only in well-ventilated areas. Valve protection caps must remain in place unless the cylinder is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure (<3000 PSIG) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow into the cylinder. Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid from in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.
Conditions for Safe Storage, Including any Incompatibilities	Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125 degrees F (52 degrees C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Post "NO SMOKING OR OPEN FLAMES" sign in the storage or use area.
Specific End Use(s)	Apart from the uses mentioned in Section 1, no other specific uses are stipulated.

Section 8. Exposure Controls and Personal Protection

Components with Workplace Control Parameters	Contains no substances with occupational exposure limit values.
Appropriate Engineering Controls	Local exhaust ventilation as necessary to limit exposure below the acceptable exposure limits.
Eye/Face Protection	Safety spectacles with unperforated sideshields
Skin Protection	Gloves
Body Protection	Safety shoes
Respiratory Protection	Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.
Control of Environmental Exposure	No data available

Section 9. Physical and Chemical Properties

Appearance	Form: Gas; Color: Colorless
Odor	Faint sweetish odor
Odor Threshold	No data available
pH	No data available
Melting Point/Freezing Point	No data available
Initial Boiling Point and Boiling Range	No data available
Flash Point	No data available
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability or Explosive Limits	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Relative Density	No data available
Water Solubility	Slightly soluble
Partition Coefficient : n-octanol/water	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No data available
Oxidizing Properties	No data available
Other Safety Information	No data available

Section 10. Stability and Reactivity

Reactivity	No data available
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	Hydrofluoric acid and possibly carbonyl fluoride
Conditions to Avoid	No data available
Incompatible Materials	Incompatible with active metals, alkali or alkaline earth metals such as powdered aluminum or zinc.

Section 11. Toxicological Information

Routes of Exposure	<i>On the skin:</i>	Irritant effect
	<i>On the eye:</i>	Irritant effect
	<i>Inhalation:</i>	Acute exposure to moderate to high doses of R-404A can cause headaches, nausea, and irritation of the eyes and respiratory tract.
	<i>Ingestion:</i>	No data available
Respiratory or Skin Sensitization	No sensitizing effects known	
Signs and Symptoms of Overexposure	No data available	
Toxicity Data	<i>Oral rat LD 50</i>	No data available

Section 12. Ecological Information

General Notes	Product does not contain any Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate. This product contains small amounts of Pentafluoroethane (HFC-125), 1, 1, 1-Trifluoroethane (HFC-143a), and 1, 1, 1, 2-Tetrafluoroethane (HFC-134a) greenhouse gases which may contribute to global warming.
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Section 13. Disposal Considerations

Product	Do not attempt to dispose of waste or unused quantities in returnable cylinders.
Contaminated Packaging	Return in the shipping container, properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place to NorLab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations.

Section 14. Transport Information

DOT Shipping Name	Compressed Gas, N.O.S. (Pentafluoroethane, Air)
UN Proper Shipping Name	Compressed gas, n.o.s.
DOT Hazard Class	2.2
Packing Group	No data available
UN Number	UN1956
Hazardous Ingredients	No data available
DOT Label	No data available
DOT Placard	No data available
IMDG Shipping Name	No data available
UN Number	UN1956
Class	No data available
Packing Group	No data available
IATA Shipping Name	No data available
Technical Shipping Name	No data available
IATA Hazard Class	No data available
UN Number	UN1956
Hazardous Ingredients	No data available
IATA Label	No data available
IATA Placard	No data available

Section 15. Regulatory Information

OSHA Status	No data available
TSCA Status	No data available
CERCLA Reportable Quantity	No data available
SARA Title III	This product contains no toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.
RCRA Status	No
California Proposition 65	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
Chemical Weapons Convention	No
TSCA 12 (b)	Yes
SARA 311/312	Acute: Yes Chronic: No Fire: No Pressure: Yes Reactivity: No
Australian Hazchem Code	None allocated
Poison Schedule	None allocated
WHMIS	No data available

Section 16. Other Information

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For R&D use only. Not for drug, household, or other uses.

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