



Safety Data Sheet

R-404A

www.advancedspecialtygases.com

Section 1: Product and Company Identification

Advanced Specialty Gases
135 Catron Dr. Reno, NV 89512
775-356-5500

Product Code: R-404A
Part Number: R-404A

Section 2: Hazards Identification



Warning

Hazard Classification:
Gases Under Pressure

Hazard Statements:
Contains gas under pressure; may explode if heated

Precautionary Statements

Storage:
Protect from sunlight.
Store in well-ventilated place.

Section 3: Composition/Information on Ingredients

CAS #
344-33-6, 420-46-2, 811-97-2

Chemical Substance	Chemical Family	Trade Names
Pentafluoroethane, 1,1,1-trifluoroethane, 1,1,1,2-tetrafluoroethane	Refrigerants	Pentafluoroethane, 1,1,1-trifluoroethane, 1,1,1,2-tetrafluoroethane

Section 4: First Aid Measures

Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Flush with water until all chemical is gone. Don't rub if evidence of frostbite. Get medical attention if symptoms persist.	Flush eyes with water for at least 15 minutes.	Unlikely because of physical properties.	Move to fresh air right away. If breathing stopped, give artificial respiration. Get medical attention.	Catecholamine drugs should be used with special caution and only in situations of emergency life support because of the possible disturbances of cardiac rhythm.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Choose type of media most appropriate for type of fire. (material itself is not flammable)	Not available	<ul style="list-style-type: none"> ▪ Not available ▪ Not available ▪ Not available ▪ Self-contained NIOSH-approved breathing apparatus, proper eye and skin protection

Section 6: Accidental Release Measures

Personal Precautions	Environmental Precautions	Methods for Containment
Wear recommended personal protective equipment. Evacuate the area.	Not available	Remove ignition sources and shut off leak, if without risk, and provide ventilation.

Methods for Cleanup	Other Information
Not available	Do not return until air has been tested and determined safe.

Section 7: Handling and Storage

Handling	Storage
Store cool, well-ventilated area of low fire risk and out of direct sunlight.	Avoid breathing vapors and liquid contact with eyes, skin, or clothing. Use caution with cylinders, don't expose them to open flame. Use only authorized cylinders. Follow all precautions of compressed gas cylinders.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines
*1000 pmm TWA (8hr)

Engineering Controls

No specific controls are needed.

Eye Protection	Skin Protection	Respiratory Protection
Wear safety glasses. Use goggles if possibility of liquid contact.	If possible contact with liquid, wear impervious boots and clothing.	Not available

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Gas at ambient temperatures	Clear, colorless liquid and vapor	Colorless	Not available	Liquid and vapor	Faint ethereal	Not available

Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Not applicable	Not applicable	Not applicable	<750 deg C	None	None

Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
-47.8 deg C	Not determined	182.9 psia at 70 deg F	3.43 (Air=1)	1.08 at 21.1 deg C	Unknown	Neutral	Not available	>1 COMPARED TO: CC14 = 1	Not available

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Not available	CHF2CF3, CH3CF3, CH2FCF3	Not available	Not available	100%	100%	Not available

Section 10: Stability and Reactivity

Stability	Conditions to Avoid	Incompatible Materials
The product is stable.	The product is stable.	Under specific conditions- freshly abraded alumina, surfaces. Chemically active metals: potassium, calcium, powdered aluminum, magnesium, and zinc

Hazardous Decomposition Products	Possibility of Hazardous Reactions
Halogens, halogen acids, and possibly carbonyl halides	Will not occur

Section 11: Toxicology Information

Acute Effects

Oral LD50	Dermal LD50	Inhalation
Not available	Not available	Low in acute toxicity in animals. If oxygen levels in air are reduced to 12-14% by displacement, asphyxiation, loss of coordination, increase pulse rate and deeper respiration will occur.

Eye Irritation	Skin Irritation	Sensitization
Liquid contact: severe irritation and frostbite.	Defatting action on tissue causes irritation. liquid contact cause frostbite.	May cause dizziness and loss of concentration with overexposure. At high levels, CNS depression and cardiac arrhythmia may result from exposure.

Chronic Effects

Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Not available	Not available	Not available	No data

Section 12: Ecological Information

Fate and Transport

Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Fish toxicity: not available Algal toxicity: not available Phyto toxicity: not available Other toxicity: not available	Not available	Not available	Not available

Section 13: Disposal Considerations

Comply with applicable federal, state and local disposal laws.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Refrigerant gas R 404A	UN3337	2.2	Not applicable	Not available	Not available	Not available	Not available

Canadian Transportation of Dangerous Goods

Shipping Name	UN Number	Class	Packing Group / Risk Group
Refrigerant gas R 404A	UN3337	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

CERCLA Sections	SARA 355.30	SARA 355.40
Not available	Not available	Not available

SARA 370.21

Acute	Chronic	Fire	Reactive	Sudden Release
Not available	Not available	Not available	Not available	Not available

SARA 372.65

Not available

OSHA Process Safety

Not available

State Regulations

CA Proposition 65

Not available

Canadian Regulations

WHMIS Classification

Not available

National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Listed	Not available	Not available

Section 16: Other Information

NFPA Rating
HEALTH- 2, FLAMMABILITY-1, REACTIVITY-0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard