

### Section 1: Product and Company Identification

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

**IN CASE OF EMERGENCY CALL CHEMTREC: 1-800-424-9300**

Product Code: REFRIGERANT GAS, R404A

### 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

<b>CAS #</b>
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"> <li>▪ Not available</li> <li>▪ Not available</li> <li>▪ Not available</li> <li>▪ Self-contained NIOSH-approved breathing apparatus, proper eye and skin protection</li> </ul>

## 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 and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125F (52C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.	Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier.

## 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 alumni, 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	May cause dizziness and loss of concentration with overexposure. At high levels, CNS depression and cardiac arrhythmia may result from exposure. 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.	No health hazards classified.

### 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

The ingredients in this product do not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### Canadian Regulations

#### WHMIS Classification

Not available

### National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDL)

Listed	Not available	Not available
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## Section 16: Other Information

<b>NFPA Rating</b>
HEALTH- 2, FLAMMABILITY-1, REACTIVITY-0

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