



Safety Data Sheet

Calibration Gas Mixture: R449A

Section 1. Identification

Product identifier used on the label: Calibration Gas Mixture, R449A
 Other means of identification: Part # RBxxL-R449A/xxxx
 Product use: Calibration Standard
 Supplier's details: Calibration Technologies, Inc.
 920 N Trade Winds Parkway Columbia, MO 65201 1-866-394-5861
 1-800-535-5053

Emergency telephone:

Section 2. Hazards Identification

Classification: Compressed Gas

GHS label Elements

Signal word: Warning
 Hazard statements: Compressed gas under pressure. May explode if heated
 Hazard pictograms:



Storage: Protect from sunlight. Store in a well ventilated place
 Precautionary statement: Use valve rated for cylinder pressure.

Section 3. Composition/Information on ingredients

Substance/mixture: Mixture

Ingredient name	%	CAS number
Nitrogen	78.86-79.06	7727-37-9
Oxygen	20.84-20.89	7782-44-7
2,3,3,3 - Tetrafluoropropene	.0125-.075	754-12-1
Difluoromethane	.0125-.075	75-10-5
Pentafluoroethane	.0125-.075	354-33-6
1,1,1,2 - tetrafluoroethane	.0125-.075	811-97-2

Section 4. First-aid measures

Description of necessary measures subdivided below:

Inhalation: Immediately remove victim to fresh air.
 Eye Contact: Immediately flush with copious amounts of water for 15 minutes.
 Skin Contact: N/Ap
 Ingestion: N/Ap
 Most important symptoms/effects: N/Ap
 Immediate attention/special treatment needed: N/Ap

Section 5. Fire-fighting measures

Suitable extinguishing media: All
 Unsuitable extinguishing media: None
 Specific hazards arising from the chemical: N/Ap
 Special protective equipment/precautions for fire-fighters: Contains gas under pressure. If heated , pressure will increase and cylinder may burst.

Section 6. Accidental release measures

Personal precautions, protective equipment, emergency procedures: Ventilate area, shut off valve, and remove from heat.
 Methods and materials for containment/cleaning up: N/Ap

Section 7. Handling and storage

Precautions for safe handling: Use valve rated for cylinder pressure. Avoid breathing gas. Avoid contact with eyes
 Conditions for safe storage, including any incompatibilities: Store in well ventilated area. Protect from elevated temperatures.

Section 8. Exposure controls/Personal protection

Control parameters/Occupation exposure limits:	Ingredient name	Exposure limits
	Tetrafluoroethane	AIHA WEEL TWA: 1000ppm 8 hours
	Difluoromethne	AIHA WEEL TWA: 1000ppm 8 hours
	Pentafluoroethane	AIHA WEEL TWA: 1000ppm 8 hours
	Tetrafluoropropene	AIHA WEEL TWA: 500ppm 8 hours

Eye/Face protection: Safety glasses
 Skin protection: N/Ap

Respiratory Protection: Avoid breathing gas
 Other protective equipment: N/Ap

Section 9. Physical and chemical properties

Appearance (physical state, color, etc): Colorless
 Odor: Slightly pungent
 Odor threshold: N/Ap
 pH: N/Ap
 Melting point/freezing point: N/Ap
 Initial boiling point and boiling range: N/Ap
 Flash Point: N/Ap
 Evaporation rate: N/Ap
 Flammability (solid, gas): Not Flammable
 Upper/lower flammability or explosive limits: N/Ap
 Vapor pressure: N/Ap
 Vapor density: 1
 Relative density: N/Ap
 Solubility (ies): N/Ap
 Partition coefficient: n-octanol/water: N/Ap
 Auto-ignition temperature: N/Ap
 Decomposition temperature: N/Ap
 Viscosity: N/Ap

Section 10. Stability and reactivity

Reactivity: N/Ap
 Chemical stability: Stable
 Possibility of hazardous reactions: N/Ap
 Conditions to avoid: N/Ap
 Incompatible materials: N/Ap
 Hazardous decomposition products: N/Ap

Section 11. Toxicological information

Lethal concentration (LC50): >567,000ppm (R134a ingredient), Rat 4hrs
 >800,000ppm (R125 ingredient), Rat 4 hrs
 >405,000ppm (R1234yf ingredient), Rat 4 hrs
 520,000 ppm (R32ingredient), Rat 4 hrs
 Lethal dose 50 (LD50): N/Ap
 Teratogenicity: N/Ap
 Reproductive effects: N/Ap
 Mutagenicity: N/Ap

Section 12. Ecological information

No adverse ecological effects are expected.

Section 13. Disposal considerations

Waste disposal method: Non-refillable cylinder. Allow gas to vent slowly to atmosphere in an unconfined area until completely empty. Dispose of empty cylinder normally.

Section 14. Transport information

UN Number: 1956
 UN proper shipping name: Compressed gases, n.o.s
 Transport hazard class: 2.2 (nonflammable)
 Identification number: UN1956
 Packing group: II
 Environmental hazards: N/Ap
 Transport in bulk: N/Ap
 Special precautions: Must be shipped as Hazardous Materials.

Section 15. Regulatory information

Safety, health and environmental regulations
 specific for the product in question: N/Ap

Section 16. Other information

Date of preparation/last revision: 2/19/2019