

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

SECTION 1. IDENTIFICATION

Product name : Freon™ 409A (R-409A) refrigerant

SDS-Identcode : 130000050843

Manufacturer or supplier's details

Company name of supplier : The Chemours Company FC, LLC

Address : 1007 Market Street
Wilmington, DE 19899 United States of America (USA)

Telephone : 1-844-773-CHEM (outside the U.S. 1-302-773-1000)

Emergency telephone : Medical emergency: 1-866-595-1473 (outside the U.S. 1-302-773-2000) ; Transport emergency: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

Recommended use of the chemical and restrictions on use

Recommended use : Refrigerant

Restrictions on use : For professional users only.


SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Gases under pressure : Liquefied gas

Simple Asphyxiant

GHS label elements

Hazard pictograms : 

Signal Word : Warning

Hazard Statements : H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary Statements : **Storage:**
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Other hazards

Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Misuse or intentional inhalation abuse may cause death without warning symptoms, due to

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

cardiac effects.
Rapid evaporation of the product may cause frostbite.
Dangerous for the ozone layer.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Chlorodifluoromethane	75-45-6	60
1-Chloro-1,2,2,2-tetrafluoroethane	2837-89-0	25
1-Chloro-1,1-difluoroethane	75-68-3	15

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Thaw frosted parts with lukewarm water. Do not rub affected area.
Get medical attention immediately.

In case of eye contact : Get medical attention immediately.

If swallowed : Ingestion is not considered a potential route of exposure.

Most important symptoms and effects, both acute and delayed : May cause cardiac arrhythmia.
Other symptoms potentially related to misuse or inhalation abuse are
Cardiac sensitization
Anaesthetic effects
Light-headedness
Dizziness
confusion
Lack of coordination
Drowsiness
Unconsciousness
Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Protection of first-aiders : No special precautions are necessary for first aid responders.

Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

Suitable extinguishing media	: Not applicable Will not burn
Unsuitable extinguishing media	: Not applicable Will not burn
Specific hazards during fire fighting	: Exposure to combustion products may be a hazard to health. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.
Hazardous combustion products	: Carbon oxides Chlorine compounds Fluorine compounds
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Fight fire remotely due to the risk of explosion. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Evacuate personnel to safe areas. Avoid skin contact with leaking liquid (danger of frostbite). Ventilate the area. Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	: Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.
Methods and materials for containment and cleaning up	: Ventilate the area. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	: Use equipment rated for cylinder pressure. Use a backflow preventative device in piping. Close valve after each use and when empty.
Local/Total ventilation	: Use only with adequate ventilation.

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

- Advice on safe handling** : Avoid breathing gas.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Wear cold insulating gloves/ face shield/ eye protection.
Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point.
Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.
Prevent backflow into the gas tank.
Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems.
Close valve after each use and when empty. Do NOT change or force fit connections.
Prevent the intrusion of water into the gas tank.
Never attempt to lift cylinder by its cap.
Do not drag, slide or roll cylinders.
Use a suitable hand truck for cylinder movement.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage** : Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.
Separate full containers from empty containers.
Do not store near combustible materials.
Avoid area where salt or other corrosive materials are present.
Keep in properly labeled containers.
Keep in a cool, well-ventilated place.
Keep away from direct sunlight.
Store in accordance with the particular national regulations.
- Materials to avoid** : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit flammable gases
Explosives
Acutely toxic substances and mixtures
Substances and mixtures with chronic toxicity
- Recommended storage temperature** : < 52 °C
- Storage period** : > 10 y
- Further information on stor-** : The product has an indefinite shelf life when stored properly.

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

||| age stability

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Chlorodifluoromethane	75-45-6	TWA	1,000 ppm	ACGIH
		ST	1,250 ppm 4,375 mg/m ³	NIOSH REL
		TWA	1,000 ppm 3,500 mg/m ³	NIOSH REL
1-Chloro-1,2,2,2-tetrafluoroethane	2837-89-0	TWA	1,000 ppm	US WEEL
1-Chloro-1,1-difluoroethane	75-68-3	TWA	1,000 ppm	US WEEL

||| **Engineering measures** : Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

Personal protective equipment

||| **Respiratory protection** : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

||| **Hand protection**
Material : Heat resistant gloves

||| **Remarks** : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often!

||| **Eye protection** : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.
Face-shield

||| **Skin and body protection** : Skin should be washed after contact.

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

Protective measures : Wear cold insulating gloves/ face shield/ eye protection.

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquefied gas

Color : clear, colorless

Odor : slight, ether-like

Odor Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling range : -34.4 °C

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : Will not burn

Upper explosion limit / Upper flammability limit : Upper flammability limit
Method: ASTM E681
None.

Lower explosion limit / Lower flammability limit : Lower flammability limit
Method: ASTM E681
None.

Vapor pressure : 8,070 hPa (25 °C)
15,300 hPa (50 °C)

Relative vapor density : 3.4

Relative density : 1.22 (25 °C)

Density : 1.22 g/cm³ (25 °C)
(as liquid)

Solubility(ies)

Water solubility : slightly soluble

Partition coefficient: n- : Not applicable

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

|| octanol/water

|| Autoignition temperature : No data available

|| Decomposition temperature : No data available

|| Viscosity

|| Viscosity, kinematic : Not applicable

|| Explosive properties : Not explosive

|| Oxidizing properties : The substance or mixture is not classified as oxidizing.

|| Particle size : Not applicable

SECTION 10. STABILITY AND REACTIVITY

|| Reactivity : Not classified as a reactivity hazard.

|| Chemical stability : Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

|| Possibility of hazardous reactions : Can react with strong oxidizing agents.

|| Conditions to avoid : Heat, flames and sparks.

|| Incompatible materials : Oxidizing agents

|| Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

|| Inhalation

|| Skin contact

|| Eye contact

Acute toxicity

|| Not classified based on available information.

Ingredients:

|| Chlorodifluoromethane:

|| Acute inhalation toxicity : LC50 (Mouse): > 150000 ppm
Exposure time: 4 h
Test atmosphere: gas

|| Lowest observed adverse effect concentration (Dog): 50000 ppm
Test atmosphere: gas
Symptoms: Cardiac sensitization

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

No observed adverse effect concentration (Dog): 25000 ppm
Test atmosphere: gas
Symptoms: Cardiac sensitization

Cardiac sensitisation threshold limit (Dog): 175,000 mg/m³
Test atmosphere: gas
Symptoms: Cardiac sensitization

1-Chloro-1,2,2,2-tetrafluoroethane:

Acute inhalation toxicity : LC50 (Rat): > 230000 ppm
Exposure time: 4 h
Test atmosphere: gas

Lowest observed adverse effect concentration (Dog): 25000 ppm
Test atmosphere: gas
Symptoms: Cardiac sensitization

No observed adverse effect concentration (Dog): 10000 ppm
Test atmosphere: gas
Symptoms: Cardiac sensitization

Cardiac sensitisation threshold limit (Dog): 140,000 mg/m³
Test atmosphere: gas
Symptoms: Cardiac sensitization

1-Chloro-1,1-difluoroethane:

Acute inhalation toxicity : LC50 (Rat): > 400000 ppm
Exposure time: 6 h
Test atmosphere: gas

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Ingredients:

Chlorodifluoromethane:

Routes of exposure: Skin contact
Species: Not tested on animals
Result: negative

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

1-Chloro-1,2,2,2-tetrafluoroethane:

Routes of exposure: Skin contact
Species: Not tested on animals
Result: negative

Species: Not tested on animals
Result: negative

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

Chlorodifluoromethane:

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

1-Chloro-1,2,2,2-tetrafluoroethane:

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

1-Chloro-1,1-difluoroethane:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Rat
Application Route: inhalation (gas)
Result: negative

Carcinogenicity

Not classified based on available information.

Ingredients:

Chlorodifluoromethane:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

1-Chloro-1,2,2,2-tetrafluoroethane:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

1-Chloro-1,1-difluoroethane:

Species: Rat
Application Route: inhalation (gas)
Exposure time: 104 weeks
Result: negative

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Ingredients:

Chlorodifluoromethane:

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

1-Chloro-1,1-difluoroethane:

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (gas)
Result: negative

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Ingredients:

Chlorodifluoromethane:

Assessment: No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

1-Chloro-1,2,2,2-tetrafluoroethane:

Assessment: No significant health effects observed in animals at concentrations of 250 ppmV/6h/d or less.

Repeated dose toxicity

Ingredients:

Chlorodifluoromethane:

Species: Mouse
NOAEL: 10000 ppm
LOAEL: 50000 ppm
Application Route: inhalation (gas)
Exposure time: 581 d
Remarks: No significant adverse effects were reported

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

1-Chloro-1,2,2,2-tetrafluoroethane:

Species: Rat
NOAEL: 5000 ppm
LOAEL: 15000 ppm
Application Route: inhalation (gas)
Exposure time: 90 d
Method: OECD Test Guideline 413
Remarks: No significant adverse effects were reported

1-Chloro-1,1-difluoroethane:

Species: Rat
NOAEL: > 20000 ppm
Application Route: inhalation (gas)
Exposure time: 104 Weeks

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Chlorodifluoromethane:

Toxicity to fish : LC50 (Zebrafish): 777 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 433 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (algae): 250 mg/l
Exposure time: 96 h

1-Chloro-1,2,2,2-tetrafluoroethane:

Ecotoxicology Assessment

Acute aquatic toxicity : No toxicity at the limit of solubility.

Chronic aquatic toxicity : No toxicity at the limit of solubility.

1-Chloro-1,1-difluoroethane:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 220 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 160 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): 96.6 mg/l

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

Exposure time: 96 h
Remarks: Based on data from similar materials

Persistence and degradability

Ingredients:

Chlorodifluoromethane:

Biodegradability : Result: Not readily biodegradable.

1-Chloro-1,1-difluoroethane:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 5.6 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Bioaccumulative potential

Ingredients:

1-Chloro-1,2,2,2-tetrafluoroethane:

Partition coefficient: n-octanol/water : log Pow: 1.67

Mobility in soil

No data available

Other adverse effects

Ingredients:

Chlorodifluoromethane:

Ozone-Depletion Potential : 0.055
Where a range of ODPs is indicated, the highest value in that range shall be used for the purposes of the Protocol. The ODPs listed as a single value have been determined from calculations based on laboratory measurements. Those listed as a range are based on estimates and are less certain. The range pertains to an isomeric group. The upper value is the estimate of the ODP of the isomer with the highest ODP, and the lower value is the estimate of the ODP of the isomer with the lowest ODP.
Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer (Update: 2006-10-01)
Group: Annex C - Group I: HCFCs (consumption and production)

0.055
Includes all isomers of the substance, regardless of whether the isomer is explicitly listed on its own.
Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class II Substances (Update: 2014-10-28)

Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
 Date of first issue: 02/27/2017

1-Chloro-1,2,2,2-tetrafluoroethane:

Ozone-Depletion Potential : 0.022

Where a range of ODPs is indicated, the highest value in that range shall be used for the purposes of the Protocol. The ODPs listed as a single value have been determined from calculations based on laboratory measurements. Those listed as a range are based on estimates and are less certain. The range pertains to an isomeric group. The upper value is the estimate of the ODP of the isomer with the highest ODP, and the lower value is the estimate of the ODP of the isomer with the lowest ODP.

Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer (Update: 2006-10-01)

Group: Annex C - Group I: HCFCs (consumption and production)

0.022

Includes all isomers of the substance, regardless of whether the isomer is explicitly listed on its own.

Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class II Substances (Update: 2007-07-01)

Additional ecological information : No data available

1-Chloro-1,1-difluoroethane:

Ozone-Depletion Potential : 0.065

Where a range of ODPs is indicated, the highest value in that range shall be used for the purposes of the Protocol. The ODPs listed as a single value have been determined from calculations based on laboratory measurements. Those listed as a range are based on estimates and are less certain. The range pertains to an isomeric group. The upper value is the estimate of the ODP of the isomer with the highest ODP, and the lower value is the estimate of the ODP of the isomer with the lowest ODP.

Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer (Update: 2006-10-01)

Group: Annex C - Group I: HCFCs (consumption and production)

0.065

Includes all isomers of the substance, regardless of whether the isomer is explicitly listed on its own.

Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class II Substances (Update: 2014-10-28)

0.008 - 0.07

Includes all isomers of the substance, regardless of whether

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

the isomer is explicitly listed on its own.
Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class II Substances (Update: 2014-10-28)

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Dispose of in accordance with local regulations.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty pressure vessels should be returned to the supplier.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

- UN number : UN 3163
- Proper shipping name : LIQUEFIED GAS, N.O.S.
(Chlorodifluoromethane, 1-Chloro-1,2,2,2-tetrafluoroethane)
- Class : 2.2
- Packing group : Not assigned by regulation
- Labels : 2.2

IATA-DGR

- UN/ID No. : UN 3163
- Proper shipping name : Liquefied gas, n.o.s.
(Chlorodifluoromethane, 1-Chloro-1,2,2,2-tetrafluoroethane)
- Class : 2.2
- Packing group : Not assigned by regulation
- Labels : Non-flammable, non-toxic Gas
- Packing instruction (cargo aircraft) : 200
- Packing instruction (passenger aircraft) : 200

IMDG-Code

- UN number : UN 3163
- Proper shipping name : LIQUEFIED GAS, N.O.S.
(Chlorodifluoromethane, 1-Chloro-1,2,2,2-tetrafluoroethane)
- Class : 2.2
- Packing group : Not assigned by regulation
- Labels : 2.2
- EmS Code : F-C, S-V
- Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not applicable for product as supplied.

Domestic regulation

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

49 CFR

UN/ID/NA number : UN 3163
Proper shipping name : Liquefied gas, n.o.s.
(Chlorodifluoromethane, 1-Chloro-1,2,2,2-tetrafluoroethane)
|| Class : 2.2
Packing group : Not assigned by regulation
|| Labels : NON-FLAMMABLE GAS
|| ERG Code : 126
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

|| This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

|| This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

|| This material does not contain any components with a section 302 EHS TPQ.

|| SARA 311/312 Hazards : Gases under pressure
Simple Asphyxiant

|| SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Chlorodifluoromethane	75-45-6	60 %
1-Chloro-1,2,2,2-tetrafluoroethane	2837-89-0	25 %
1-Chloro-1,1-difluoroethane	75-68-3	15 %

US State Regulations

Pennsylvania Right To Know

|| Chlorodifluoromethane 75-45-6
1-Chloro-1,2,2,2-tetrafluoroethane 2837-89-0
1-Chloro-1,1-difluoroethane 75-68-3

California Prop. 65

|| This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

California List of Hazardous Substances

|| Chlorodifluoromethane 75-45-6

California Permissible Exposure Limits for Chemical Contaminants

|| Chlorodifluoromethane 75-45-6

International Regulations

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

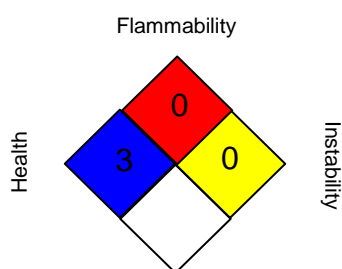
Version 3.0 Revision Date: 11/20/2017 SDS Number: 1336379-00031 Date of last issue: 02/28/2017
Date of first issue: 02/27/2017

Montreal Protocol (Ozone Depleting Substances) : Chlorodifluoromethane
1-Chloro-1,2,2,2-tetrafluoroethane
1-Chloro-1,1-difluoroethane

SECTION 16. OTHER INFORMATION

Further information

NFPA:



Special hazard.

HMIS® IV:

HEALTH	/	0
FLAMMABILITY		0
PHYSICAL HAZARD		3

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Freon™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.

Chemours™ and the Chemours Logo are trademarks of The Chemours Company.

Before use read Chemours safety information.

For further information contact the local Chemours office or nominated distributors.

All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA : 8-hour, time-weighted average
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
US WEEL / TWA : 8-hr TWA

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized Sys-

SAFETY DATA SHEET



Freon™ 409A (R-409A) refrigerant

Version	Revision Date:	SDS Number:	Date of last issue: 02/28/2017
3.0	11/20/2017	1336379-00031	Date of first issue: 02/27/2017

tem; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 11/20/2017

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8