SAFETY DATA SHEET

Nonflammable Liquefied Gas Mixture: 1,1,1-Trichlorotrifluoroethane / 1, 2-Dichlorohexafluoropropane / 1,2-Difluorotetrachloroethane / 2, 2-Difluorotetrachloroethane / 2,3-Dichlorooctafluorobutane / R113-Trichlorotrifluoroethane / R114-Dichlorotetrafluoroethane / R114A-Dichlorotetrafluoroethane / R115-Chloropentafluoroethane / R12-Dichlorodifluoromethane / R122-Trichlorodifluoroethane / R123-Dichlorotrifluoroethane / R124-Chlorotetrafluoroethane / R22-Chlorodifluoromethane

Section 1. Identification

GHS product identifier : Nonflammable Liquefied Gas Mixture: 1,1,1-Trichlorotrifluoroethane / 1, 2-Dichlorohexafluoropropane / 1,2-Difluorotetrachloroethane / 2, 2-Difluorotetrachloroethane / 2,3-Dichlorooctafluorobutane / R113-Trichlorotrifluoroethane / R114-Dichlorotetrafluoroethane / R114A-Dichlorotetrafluoroethane / R115-Chloropentafluoroethane / R12-Dichlorodifluoromethane / R122-Trichlorodifluoroethane / R123-Dichlorotrifluoroethane / R124-Chlorotetrafluoroethane / R22-Chlorodifluoromethane

Other means of identification : Not available.

Product type : Liquefied gas

Product use : Synthetic/Analytical chemistry.

SDS # : 022866

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Liquefied gas
HAZARDOUS TO THE OZONE LAYER - Category 1

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.
Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.

Prevention : Not applicable.

Section 2. Hazards identification

Response : Not applicable.

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

Disposal : Refer to manufacturer or supplier for information on recovery or recycling.

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

Product code : 022866

Ingredient name	%	CAS number
1,1-dichloro-1,2,2,2-tetrafluoroethane	99	374-07-2
trichlorotrifluoroethane	0.0001 - 0.0999	354-58-5
1,2-dichloro-1,1,2,3,3,3-hexafluoropropane	0.0001 - 0.0999	661-97-2
tetrachloro-1,2-difluoroethane	0.0001 - 0.0999	76-12-0
1,1,1,2-tetrachloro-2,2-difluoroethane	0.0001 - 0.0999	76-11-9
2,3-dichlorooctafluorobutane	0.0001 - 0.0999	355-20-4
1,1,2-Trichlorotrifluoroethane	0.0001 - 0.0999	76-13-1
1,2-dichlorotetrafluoroethane	0.0001 - 0.0999	76-14-2
chloropentafluoroethane	0.0001 - 0.0999	76-15-3
1,2,2-trichloro-1,1-difluoroethane	0.0001 - 0.0999	354-21-2
Ethane, 2,2-dichloro-1,1,1-trifluoro-	0.0001 - 0.0999	306-83-2
1-Chloro-1,2,2,2-Tetrafluoroethane	0.0001 - 0.0999	2837-89-0
chlorodifluoromethane	0.0001 - 0.0999	75-45-6
Methane, dichlorodifluoro-	0.0001 - 0.0999	75-71-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
Avoid release to the environment. Refer to special instructions/safety data sheet. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
1,1-dichloro-1,2,2,2-tetrafluoroethane	None.
trichlorotrifluoroethane	None.
1,2-dichloro-1,1,2,3,3,3-hexafluoropropane	None.
tetrachloro-1,2-difluoroethane	**ACGIH TLV (United States, 3/2017).** TWA: 50 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 500 ppm 8 hours. TWA: 4170 mg/m³ 8 hours. **NIOSH REL (United States, 10/2016).** TWA: 500 ppm 10 hours. TWA: 4170 mg/m³ 10 hours. **OSHA PEL (United States, 6/2016).** TWA: 500 ppm 8 hours. TWA: 4170 mg/m³ 8 hours.
1,1,1,2-tetrachloro-2,2-difluoroethane	**ACGIH TLV (United States, 3/2017).** TWA: 100 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 500 ppm 8 hours. TWA: 4170 mg/m³ 8 hours. **NIOSH REL (United States, 10/2016).** TWA: 500 ppm 10 hours. TWA: 4170 mg/m³ 10 hours. **OSHA PEL (United States, 6/2016).** TWA: 500 ppm 8 hours. TWA: 4170 mg/m³ 8 hours.
2,3-dichlorooctafluorobutane	None.
1,1,2-Trichlorotrifluoroethane	**ACGIH TLV (United States, 3/2017).** TWA: 1000 ppm 8 hours. TWA: 7670 mg/m³ 8 hours. STEL: 1250 ppm 15 minutes. STEL: 9590 mg/m³ 15 minutes. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1000 ppm 8 hours. TWA: 7600 mg/m³ 8 hours. STEL: 1250 ppm 15 minutes. STEL: 9500 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2016).** TWA: 1000 ppm 10 hours. TWA: 7600 mg/m³ 10 hours. STEL: 1250 ppm 15 minutes. STEL: 9500 mg/m³ 15 minutes. **OSHA PEL (United States, 6/2016).** TWA: 1000 ppm 8 hours. TWA: 7600 mg/m³ 8 hours.
1,2-dichlorotetrafluoroethane	**ACGIH TLV (United States, 3/2017).** TWA: 6990 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 10/2016).** TWA: 7000 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 6/2016).** TWA: 7000 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 7000 mg/m³ 8 hours.

Section 8. Exposure controls/personal protection

	TWA: 1000 ppm 8 hours.
chloropentafluoroethane	**ACGIH TLV (United States, 3/2017).** TWA: 1000 ppm 8 hours. TWA: 6320 mg/m³ 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1000 ppm 8 hours. TWA: 6320 mg/m³ 8 hours. **NIOSH REL (United States, 10/2016).** TWA: 1000 ppm 10 hours. TWA: 6320 mg/m³ 10 hours.
1,2,2-trichloro-1,1-difluoroethane	None.
Ethane, 2,2-dichloro-1,1,1-trifluoro-	**AIHA WEEL (United States, 10/2011).** TWA: 50 ppm 8 hours.
1-Chloro-1,2,2,2-Tetrafluoroethane	**AIHA WEEL (United States, 10/2011).** TWA: 1000 ppm 8 hours.
chlorodifluoromethane	**ACGIH TLV (United States, 3/2017).** TWA: 3540 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 10/2016).** STEL: 4375 mg/m³ 15 minutes. STEL: 1250 ppm 15 minutes. TWA: 3500 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 3500 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.
Methane, dichlorodifluoro-	**ACGIH TLV (United States, 3/2017).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 10/2016).** TWA: 4950 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 6/2016).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards : If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Liquefied gas]

Color : Not available.

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Melting point : -56.6°C (-69.9°F) This is based on data for the following ingredient: 1,1-dichloro-1,2,2, 2-tetrafluoroethane.

Boiling point : Not available.

Critical temperature : Not available.

Flash point : Closed cup: -22°C (-7.6°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Gas Density (lb/ft ^{3}) : Not available.

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Section 9. Physical and chemical properties

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
trichlorotrifluoroethane	LC50 Inhalation Gas.	Rat	65000 ppm	1 hours
tetrachloro-1,2-difluoroethane	LC50 Inhalation Vapor	Rat	125000 mg/m³	4 hours
1,1,1,2-tetrachloro-2, 2-difluoroethane	LC50 Inhalation Vapor	Rat	125000 mg/m³	4 hours
	LD50 Oral	Rat	>8 g/kg	-
1,1,2-Trichlorotrifluoroethane	LC50 Inhalation Gas.	Rat	155540 ppm	1 hours
	LC50 Inhalation Gas.	Rat	38000 ppm	4 hours
	LD50 Oral	Rat	43 g/kg	-
chloropentafluoroethane	LC50 Inhalation Vapor	Rat	4880 g/m³	4 hours
1,2,2-trichloro-1, 1-difluoroethane	LD50 Oral	Rat	3286 mg/kg	-
Ethane, 2,2-dichloro-1,1, 1-trifluoro-	LC50 Inhalation Gas.	Rat	32000 ppm	4 hours
1-Chloro-1,2,2, 2-Tetrafluoroethane	LC50 Inhalation Gas.	Rat	600000 ppm	1 hours

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
tetrachloro-1,2-difluoroethane	Eyes - Mild irritant	Guinea pig	-	0.333333333 minutes 100 milligrams	-
	Skin - Mild irritant	Guinea pig	-	24 hours 100 Percent	-
1,1,2-Trichlorotrifluoroethane	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

Section 11. Toxicological information

1,2,2-trichloro-1, 1-difluoroethane	Skin - Mild irritant	Rabbit	-	4 hours 500 microliters	-
	Skin - Severe irritant	Rabbit	-	4 hours 500 microliters	-
Ethane, 2,2-dichloro-1,1, 1-trifluoro-	Eyes - Mild irritant	Rabbit	-	100 microliters	-
	Eyes - Moderate irritant	Rabbit	-	0.1 Mililiters	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
chlorodifluoromethane	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
1,1,1,2-tetrachloro-2,2-difluoroethane	Category 3	Not applicable.	Respiratory tract irritation
2,3-dichlorooctafluorobutane	Category 3	Not applicable.	Respiratory tract irritation
Ethane, 2,2-dichloro-1,1,1-trifluoro-	Category 2	Not determined	central nervous system (CNS), heart and liver

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Ethane, 2,2-dichloro-1,1,1-trifluoro-	Category 2	Not determined	liver

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
chloropentafluoroethane	Chronic LC50 Inhalation Vapor	Rat	9760 ppm	1 hours

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
trichlorotrifluoroethane	4.6	-	high
tetrachloro-1,2-difluoroethane	-	36 to 106	low
1,1,1,2-tetrachloro-2, 2-difluoroethane	3.41	-	low
1,1,2-Trichlorotrifluoroethane	3.16	50.12	low
1,2-dichlorotetrafluoroethane	2.82	-	low
Ethane, 2,2-dichloro-1,1, 1-trifluoro-	2.17	-	low
chlorodifluoromethane	1.11 to 1.16	-	low

Section 12. Ecological information

Methane, dichlorodifluoro-	2.16	6.17	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN3163	UN3163	UN3163	UN3163	UN3163
UN proper shipping name	Liquefied Gas, N. O.S.(R114A-Dichlorotetrafluoroethane, 1,1,1-Trichlorotrifluoroethane)	Liquefied Gas, N. O.S.(R114A-Dichlorotetrafluoroethane, 1,1,1-Trichlorotrifluoroethane)	Liquefied Gas, N. O.S.(R114A-Dichlorotetrafluoroethane, 1,1,1-Trichlorotrifluoroethane)	Liquefied Gas, N. O.S.(R114A-Dichlorotetrafluoroethane, 1,1,1-Trichlorotrifluoroethane)	Liquefied Gas, N. O.S.(R114A-Dichlorotetrafluoroethane, 1,1,1-Trichlorotrifluoroethane)
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Ship Index Forbidden
Passenger Carrying Road or Rail Index Forbidden

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 14. Transport information

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 5(a)2 final significant new use rules**: 1,2,2-trichloro-1,1-difluoroethane

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Listed

Clean Air Act Section 602 Class II Substances : Listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : None of the components are listed.

New York : The following components are listed: Dichlorotetrafluoroethane

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Ingredient name	Status
HCFC 124	Annex C, Group I

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Section 15. Regulatory information

Canada : Not determined.

China : Not determined.

Europe : All components are listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

Thailand : Not determined.

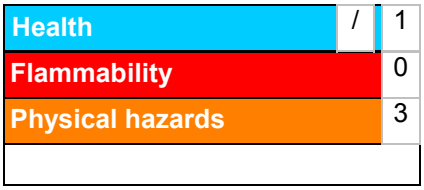
Turkey : Not determined.

United States : Not determined.

Viet Nam : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
GASES UNDER PRESSURE - Liquefied gas HAZARDOUS TO THE OZONE LAYER - Category 1	Expert judgment Calculation method

History

Date of printing : 4/27/2018

Section 16. Other information

Date of issue/Date of revision : 4/27/2018

Date of previous issue : 6/28/2017

Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Other special considerations : WARNING: CONTAINS HCFC-22, CFC-115, CFC-12, HCFC-124, CFC-114, HCFC-123, CFC-216BA, CFC-113, CFC-113A, HCFC-122, CFC-112, CFC-112A, AND CFC-114A, SUBSTANCES THAT HARM THE PUBLIC HEALTH AND ENVIRONMENT BY DESTROYING OZONE IN THE UPPER ATMOSPHERE.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.