

R32

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SECTION 1. IDENTIFICATION

Product identifier used on the label

: **R32**

Other means of identification : Not available

Recommended use of the chemical and restrictions on use

: Synthetic/Analytical chemistry
Restrictions on use Keep out of reach of children.

Chemical family : Hydrocarbon gases

Name, address, and telephone number
of the supplier:

A-GAS

333 Arvin Avenue
Stoney Creek, ON, Canada
L8E 2M6

Supplier's Telephone # : (+1) 905-622-2477

24 Hr. Emergency Tel # : (+1) 801-629-0667

Name, address, and telephone number
of the manufacturer:

Refer to supplier

SECTION 2. HAZARDS IDENTIFICATION

Classification of the chemical

Gas-colourless

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) and Canadian WHMIS regulations (Hazardous Products Regulations) .

Flammable gas - Category 1

Gas Under Pressure

Label elements

Hazard pictogram(s)



Signal Word

Danger

Hazard statement(s)

Extremely flammable gas
Contains gas under pressure, may explode if heated.

Precautionary statement(s)

Keep out of reach of children.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Leaking gas fire: do not extinguish, unless leak can be stopped safely.
In case of leakage, eliminate all ignition sources.
Protect from sunlight and store in well-ventilated place.

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Other hazards

Other hazards which do not result in classification:

Simple asphyxiant - this product does not contain oxygen and may cause asphyxia in confined spaces. If product is sprayed directly onto the skin or into the eyes, symptoms of frostbite may be experienced.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure gas.

<u>Chemical name</u>	<u>Common name and synonyms</u>	<u>CAS #</u>	<u>Concentration (% by weight)</u>
Difluoromethane [or] refrigerant gas R32	Methylene fluoride	75-10-5	80.0 - 100.0

SECTION 4. FIRST-AID MEASURES

Description of first aid measures

- Ingestion* : Not an expected route of entry.
- Inhalation* : IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTRE or doctor if you feel unwell. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration.
- Skin contact* : IF ON SKIN: Gently wash with plenty of soap and water. Treat for frostbite if necessary by gently warming affected area. Get medical attention if symptoms occur.
- Eye contact* : If in eyes: Rinse cautiously with water for several minutes. Treat for frostbite if necessary by gently warming affected area. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

- : In extremely high concentrations, product may act as an asphyxiant and cause increased breathing and pulse rates, fatigue and unconsciousness. As asphyxiation progresses, nausea, vomiting, prostration and loss of consciousness may result, eventually leading to convulsions, coma and death. Contact with liquid or refrigerated gas can cause cold burns and frostbite. Symptoms of frostbite may include numbness, prickling and itching. Symptoms of more severe frostbite include a burning sensation, stiffness of the affected area, blistering, tissue death and gangrene.

Indication of any immediate medical attention and special treatment needed

- : Provide general supportive measures and treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

- Suitable extinguishing media* : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

- Unsuitable extinguishing media* : None known.

Special hazards arising from the substance or mixture / Conditions of flammability

- : Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50 °C. Pressurized container: may burst if heated. Vapours are heavier than air and may spread along floors. May displace oxygen in breathing air and lead to suffocation and death, particularly in confined spaces.

Flammability classification (OSHA 29 CFR 1910.106)

- : Flammable gas

Hazardous combustion products

- : Carbon oxides.; Hydrogen fluoride; Carbonyl fluoride

Special protective equipment and precautions for firefighters

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Protective equipment for fire-fighters

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Do not enter without wearing specialized protective equipment suitable for the situation. Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full-body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.

Special fire-fighting procedures

- : Evacuate personnel to safe areas. Avoid inhaling gas. If feasible, stop the flow of gas. Move containers from fire area if safe to do so. Shield personnel to protect from venting or rupturing containers. Cool closed containers exposed to fire with water spray. Stay away from ends of cylinders and withdraw immediately in case of rising sounds or discolouration of containers.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- : Restrict access to area until completion of clean-up. Keep all other personnel upwind and away from the spill/release. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions : Not applicable

Methods and material for containment and cleaning up

- : Isolate the area until all gas has dispersed. Ventilate area of release. Do not enter confined spaces unless adequately ventilated. Eliminate all ignition sources.

Special spill response procedures

- : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the National Response Center in the United States (phone: 1-800-424-8802).
US CERCLA Reportable quantity (RQ): None reported.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling

- : Keep out of reach of children. Avoid skin or eye contact. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure adequate ventilation, especially in confined areas. Always keep container in upright position.

Conditions for safe storage : Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect from sunlight and do not expose to temperatures exceeding 50 °C/122 °F. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel.

Incompatible materials : Alkali or Alkaline earth metals; Powdered metals; Metal salts

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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:				
<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
Difluoromethane [or] refrigerant gas R 32	Not available	Not available	Not available	Not available

Exposure controls

Ventilation and engineering measures

: General room ventilation is normally adequate. Ensure adequate ventilation, especially in confined areas.

Respiratory protection : Not required under normal conditions of handling.

Skin protection : If contact with the material may occur, wear cold insulating gloves.

Eye / face protection : If contact is likely, safety glasses with side shields are recommended.

Other protective equipment : No additional information.

General hygiene considerations

: Avoid inhaling gas. Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State : Gas
Colour : colourless
Odour : Odourless
Odour threshold : Not available
pH : Not applicable
Melting Point/Freezing point : -136°C (-212.8°F)

Initial boiling point and boiling range
 : -51.6°C (-60.9°F)

Flash point : Not applicable.
Flashpoint (Method) : Not applicable
Evaporation rate (BuAe = 1) : Not applicable
Flammability : Flammable gas
Lower explosion or flammability limit (% by vol.)
 : Not available

Upper explosion or flammability limit (% by vol.)
 : 100%

Oxidizing properties : Not applicable
Explosive properties : Not explosive.
Vapour pressure : 205 (psig)
Relative vapour density : Not available
Relative density / Specific gravity

: 1.0428

Solubility in water : moderately soluble

Other solubility(ies) : Not available

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Partition coefficient: n-octanol/water or Coefficient of water/oil distribution

: 0.75

Auto-ignition temperature : Not available

Decomposition temperature : Not applicable

Viscosity : Not available

Particle characteristics : Not applicable.

Volatiles (% by weight) : Not applicable

Volatile organic Compounds (VOC's)

: Not applicable

Absolute pressure of container

: Not available

Flame projection length : Not applicable

Other physical/chemical comments

: No additional information.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not normally reactive.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions

: No dangerous reaction known under conditions of normal use. Hazardous polymerization does not occur.

Conditions to avoid : High temperatures. Contact with incompatible materials. Ensure adequate ventilation, especially in confined areas. Direct sunlight.

Incompatible materials : Strong oxidizers.

Hazardous decomposition products

: Hydrocarbons.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation : YES

Routes of entry skin & eye : YES

Routes of entry Ingestion : NO

Routes of exposure skin absorption

: NO

Potential Health Effects:

Signs and symptoms of short-term (acute) exposure

Sign and symptoms Inhalation

: In extremely high concentrations, product may act as an asphyxiant and cause increased breathing and pulse rates, fatigue and unconsciousness. As asphyxiation progresses, nausea, vomiting, prostration and loss of consciousness may result, eventually leading to convulsions, coma and death.

Sign and symptoms ingestion

: Not an expected route of entry under normal conditions of use. (gas)

Sign and symptoms skin

: None expected, when used as intended. Contact with liquid or refrigerated gas can cause cold burns and frostbite. Symptoms of frostbite may include numbness, pricking and itching. Symptoms of more severe frostbite include a burning sensation, stiffness of the affected area, blistering, tissue death and gangrene.

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Sign and symptoms eyes : None expected, when used as intended. Spraying directly into the eyes may cause frostbite, damage to the cornea resulting in permanent eye injury. Symptoms of frostbite may include numbness, prickling and itching.

Potential Chronic Health Effects

: None reported.

Mutagenicity

: Not expected to be mutagenic in humans.

Carcinogenicity

: No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

: Not expected to have other reproductive effects.

Sensitization to material

: Not expected to be a skin or respiratory sensitizer.

Specific target organ effects

: The substance or mixture is not classified as specific target organ toxicant, single exposure.
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Medical conditions aggravated by overexposure

: Not applicable

Synergistic materials

: Not applicable

Toxicological data

: There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

<u>Chemical name</u>	<u>LC₅₀(4hr)</u>	<u>LD₅₀</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Difluoromethane [or] refrigerant gas R 32	1890 g/m ³ 4 h	Not available	Not available

Other important toxicological hazards

: Not applicable

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

: No information available. Measured ecotoxicity data are not available for the aquatic toxicity endpoints for these gases. These chemicals are gases at standard temperature and pressure and are expected to partition primarily to air, therefore aquatic toxicity tests may not be relevant.

Ecotoxicity data:

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Fish</u>		
		<u>LC50 / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Difluoromethane [or] refrigerant gas R 32	75-10-5	Not available	Not available	Not available

<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Daphnia</u>		
		<u>EC50 / 48h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Difluoromethane [or] refrigerant gas R 32	75-10-5	Not available	Not available	Not available

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<u>Ingredients</u>	<u>CAS #</u>	<u>Toxicity to Algae</u>		
		<u>EC50 / 96h or 72h</u>	<u>NOEC / 96h or 72h</u>	<u>M Factor</u>
Difluoromethane [or] refrigerant gas R 32	75-10-5	Not available	Not available	Not available

Persistence and degradability

: No information available.

Bioaccumulation potential

: No information available.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Difluoromethane [or] refrigerant gas R 32 (CAS 75-10-5)	Not applicable	Not applicable

Mobility in soil

: No information available.

Other Adverse Environmental effects

: No information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Handling for Disposal

: Handle in accordance with good industrial hygiene and safety practice. See Section 7 (Handling and Storage) for further details. Allow to safely dissipate into atmosphere. Do not puncture or incinerate containers.

Methods of Disposal

: Return to vendor with cylinder valve tightly closed and valve cap in place. Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

: If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.




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SECTION 14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
TDG	UN3252	REFRIGERANT GAS R 32	2.1	none	
TDG Additional information	Consult TDG regulations for further information.				
IMDG	UN3252	DIFLUOROMETHANE; or REFRIGERANT GAS R 32	2.1	none	
IMDG Additional information	Consult the IMDG regulations for exceptions.				
ICAO/IATA	UN3252	Refrigerant gas R 32 or Difluoromethane	2.1	none	
ICAO/IATA Additional information	Refer to ICAO/IATA Packing Instruction 200. ICAO / IATA cargo aircraft only				

Special precautions for user : Keep away from heat and open flames. - No smoking. Appropriate advice on safety must accompany the package.

Environmental hazards : This substance does not meet the criteria for an environmentally hazardous substance according to the IMDG Code. See ECOLOGICAL INFORMATION, Section 12.

SECTION 15 - REGULATORY INFORMATION

US Federal Information:

Components listed below are present on the following U.S. Federal chemical lists:

<u>Ingredients</u>	CAS #	TSCA Inventory	CERCLA Reportable Quantity(RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de Minimis Concentration
Difluoromethane [or] refrigerant gas R 32	75-10-5	Yes	Not available	Not available	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Flammable gas Gas Under Pressure .

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

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Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Difluoromethane [or] refrigerant gas R 32	75-10-5	No	Not available	No	No	No	No	No	No

Canadian Information:

All components of this product are on the Canadian DSL list.

International Information:

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Difluoromethane [or] refrigerant gas R 32	75-10-5	200-839-4	Present	Present	(2)-3705	97-3-4	Present	HSR001023

SECTION 16. OTHER INFORMATION

Legend

- : ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Services
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
- CFR: Code of Federal Regulations
- DOT: Department of Transportation
- EPA: Environmental Protection Agency
- IARC: International Agency for Research on Cancer
- LC: Lethal Concentration
- LD: Lethal Dose
- N/Ap: Not Applicable
- N/Av: Not Available
- NIOSH: National Institute of Occupational Safety and Health
- NTP: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible exposure limit
- SARA: Superfund Amendments and Reauthorization Act
- STEL: Short Term Exposure Limit
- TDG: Canadian Transportation of Dangerous Goods Act & Regulations
- TLV: Threshold Limit Values
- TWA: Time Weighted Average

References

- : 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices
- 2. ECHA - European Chemical Agency
- 3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases
- 4. Safety Data Sheets from manufacturer.
- 5. US EPA Title III List of Lists
- 6. California Proposition 65 List
- 7. OECD - The Global Portal to Information on Chemical Substances - eChemPortal

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Other special considerations for handling

: Provide adequate information, instruction and training for operators.

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