

000000009907

Version 2.6

Revision Date 02/08/2019

Print Date 03/01/2023

SECTION 1. IDENTIFICATION

Product name : Genetron® 32

Number : 000000009907

Product Use Description : Refrigerant

Manufacturer or supplier's details : Honeywell International Inc.
115 Tabor Road
Morris Plains, NJ 07950-2546

For more information call : 800-522-8001
+1-973-455-6300

(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : Medical: 1-800-498-5701 or +1-303-389-1414
: **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : Liquefied gas

Color : colourless

Odor : slight sweet ether-like

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Classification of the substance or mixture

Classification of the substance or mixture : Flammable gases, Category 1
Gases under pressure, Liquefied gas
Simple Asphyxiant

GHS Label elements, including precautionary statements

Symbol(s) :



Signal word : Danger

Hazard statements : Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements : **Prevention:**
Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Response:
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.

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

Hazards not otherwise classified : May cause frostbite.
May cause cardiac arrhythmia.

Carcinogenicity

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

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : CH₂F₂
Chemical nature : Substance

Chemical name	CAS-No.	Concentration
Difluoromethane	75-10-5	100.00 %

SECTION 4. FIRST AID MEASURES

General advice : First aider needs to protect himself. Move out of dangerous area. Take off all contaminated clothing immediately.

Inhalation : Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Use oxygen as required, provided a qualified operator is present. Call a physician. Do not give drugs from adrenaline-ephedrine group.

Skin contact : After contact with skin, wash immediately with plenty of water. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. If symptoms persist, call a physician.

Eye contact : Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Ingestion : Unlikely route of exposure. As this product is a gas, refer to the inhalation section. Do not induce vomiting without medical advice. Call a physician immediately.

Notes to physician

Indication of immediate medical attention and : Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used

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special treatment needed, if necessary

with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions. Treat frost-bitten areas as needed.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Specific hazards during firefighting : Contents under pressure.
Flammable.
Flash back possible over considerable distance.
Container may rupture on heating.
Cool closed containers exposed to fire with water spray.
Do not allow run-off from fire fighting to enter drains or water courses.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Rapid evaporation of the liquid may cause frostbite.
Fire may cause evolution of:
Hydrogen fluoride
Carbon oxides
Halogenated compounds
Carbonyl halides
- Special protective equipment for firefighters : In the event of fire and/or explosion do not breathe fumes.
Wear self-contained breathing apparatus and protective suit.
No unprotected exposed skin areas.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Wear personal protective equipment. Unprotected persons must be kept away.

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Remove all sources of ignition.
Avoid skin contact with leaking liquid (danger of frostbite).
Ventilate the area.
After release, disperses into the air.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Avoid accumulation of vapours in low areas.
Unprotected personnel should not return until air has been tested and determined safe.
Ensure that the oxygen content is $\geq 19.5\%$.

Environmental precautions : Prevent further leakage or spillage if safe to do so.
The product evaporates readily.

Methods and materials for containment and cleaning up : Ventilate the area.

SECTION 7. HANDLING AND STORAGE**Handling**

Precautions for safe handling : Handle with care.
Avoid inhalation of vapour or mist.
Do not get in eyes, on skin, or on clothing.
Wear personal protective equipment.
Use only in well-ventilated areas.
Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50 °C.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Follow all standard safety precautions for handling and use of compressed gas cylinders.
Protect cylinders from physical damage.
Do not puncture or drop cylinders, expose them to open flame or excessive heat.
Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material.
Do not remove screw cap until immediately ready for use.
Always replace cap after use.

Advice on protection against fire and explosion : Vapours may form explosive mixture with air.
Container hazardous when empty.

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Keep product and empty container away from heat and sources of ignition.
 The heavy vapours can overcome a considerable distance up to the source of ignition.
 Take measures to prevent the build up of electrostatic charge. Electrical equipment should be protected to the appropriate standard.

Storage

Conditions for safe storage, including any incompatibilities : Keep containers tightly closed in a dry, cool and well-ventilated place.
 Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.
 Keep away from heat and sources of ignition.
 Protect cylinders from physical damage.
 Store away from incompatible substances.
 Storage rooms must be properly ventilated.
 Ensure adequate ventilation, especially in confined areas.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Do not breathe vapour.
 Avoid contact with skin, eyes and clothing.
 Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : General room ventilation is adequate for storage and handling.
 Perform filling operations only at stations with exhaust ventilation facilities.

Eye protection : Do not wear contact lenses.
 Wear as appropriate:
 Safety glasses with side-shields
 If splashes are likely to occur, wear:
 Goggles or face shield, giving complete protection to eyes

Hand protection : Leather gloves
 In case of contact through splashing:

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Protective gloves
Neoprene gloves
Polyvinyl alcohol or nitrile- butyl-rubber gloves

Skin and body protection : Avoid skin contact with leaking liquid (danger of frostbite).
Wear cold insulating gloves/ face shield/ eye protection.

Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
Wear a positive-pressure supplied-air respirator.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
Ensure adequate ventilation, especially in confined areas.
Avoid contact with skin, eyes and clothing.
Remove and wash contaminated clothing before re-use.
Keep working clothes separately.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Difluoromethane	75-10-5	TWA : Time weighted average	2,200 mg/m ³ (1,000 ppm)	2007	WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide

Difluoromethane	75-10-5	TWA : Time weighted average	(1,000 ppm)	1994	Honeywell:Limit established by Honeywell International Inc.
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Liquefied gas

SAFETY DATA SHEET

Honeywell

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Color : colourless

Odor : slight sweet ether-like

pH : Note: neutral

Melting point/freezing point : -136 °C

Boiling point/boiling range : -51.7 °C

Flash point : Note: Not applicable

lower flammability limit : 13 %(V)

upper flammability limit : 33.4 %(V)

Vapor pressure : 15,189 hPa
at 21.1 °C(70.0 °F)
34,804 hPa
at 54.4 °C(129.9 °F)

Vapor density : 1.8 Note: (Air = 1.0)

Density : 1.002 g/cm³ at 26.7 °C

Water solubility : Note: insoluble

Partition coefficient: n-octanol/water : log Pow: 0.21

Ignition temperature : > 750 °C

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Decomposition temperature : > 250 °C
Note: Decomposition temperature, To avoid thermal decomposition, do not overheat.

Molecular weight : 52 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Hazardous polymerisation does not occur.

Conditions to avoid : Protect from heat/overheating.
Decomposes under high temperature.
Contains gas under pressure; may explode if heated.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep away from direct sunlight.
Some risk may be expected of corrosive and toxic decomposition products.

Incompatible materials : Potassium
Calcium
Finely divided metal powders such as aluminum, magnesium, or zinc.

Hazardous decomposition products : Halogenated compounds
Hydrogen fluoride
Carbonyl halides
Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

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- Acute inhalation toxicity : LC50: > 520000 ppm
Exposure time: 4 h
Species: Rat
- Sensitisation : Cardiac sensitization
Species: dogs
Note: No-observed-effect level >350 000 ppm
- Repeated dose toxicity : Species: Rat
Application Route: Inhalation
Exposure time: 90 d
NOEL: 50000 ppm
Note: Subchronic toxicity
- Genotoxicity in vitro : Test Method: Ames test
Result: negative
Method: OECD Test Guideline 471
- : Test Method: In vitro gene mutation study in mammalian cells
Cell type: Human lymphocytes
Result: negative
Method: OECD Test Guideline 473
- : Test Method: Chromosome aberration test in vitro
Result: negative
Method: OECD Test Guideline 473
- Genotoxicity in vivo : Test Method: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Method: OECD Test Guideline 474
Result: negative
- Teratogenicity : Species: Rat
Dose: NOEL - 50,000 ppm
Note: Did not show teratogenic effects in animal experiments.
- : Species: Rabbit
Dose: NOEL - 50,000 ppm

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Note: Did not show teratogenic effects in animal experiments.

SECTION 12. ECOLOGICAL INFORMATION**Elimination information (persistence and degradability)**

Biodegradability : Value: 5 %
Method: OECD 301 D

Further information on ecology

Additional ecological information : This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82. This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

Note : This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

SECTION 14. TRANSPORT INFORMATION

DOT	UN/ID No.	: UN 3252
	Proper shipping name	: Difluoromethane
	Class	2.1
	Packing group	
	Hazard Labels	2.1

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IATA	UN/ID No.	: UN 3252
	Description of the goods	: Difluoromethane
	Class	: 2.1
	Hazard Labels	: 2.1
	Packing instruction (cargo aircraft)	: 200
IMDG	UN/ID No.	: UN 3252
	Description of the goods	: Difluoromethane
	Class	: 2.1
	Hazard Labels	: 2.1
	EmS Number	: F-D, S-U
Marine pollutant	: no	

SECTION 15. REGULATORY INFORMATION**Inventories**

US. Toxic Substances Control Act	: On TSCA Inventory
Australia. Industrial Chemical (Notification and Assessment) Act	: On the inventory, or in compliance with the inventory
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	: All components of this product are on the Canadian DSL
Japan. Kashin-Hou Law List	: On the inventory, or in compliance with the inventory
Korea. Existing Chemicals Inventory (KECI)	: On the inventory, or in compliance with the inventory
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	: On the inventory, or in compliance with the inventory
China. Inventory of Existing	: On the inventory, or in compliance with the inventory

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Chemical Substances

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

SARA 313 Components : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Sudden Release of Pressure Hazard

California Prop. 65 :  **WARNING:** This product can expose you to chemicals, listed below, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Dichloromethane	75-09-2
Chloromethane	74-87-3

Massachusetts RTK : Dichloromethane 75-09-2

Pennsylvania RTK : Difluoromethane 75-10-5

WHMIS Classification : A: Compressed Gas
B1: Flammable gas
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 1	2
Flammability	: 4	4
Physical Hazard	: 0	
Instability	:	0

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Previous Issue Date: 08/08/2018

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group