

Material Safety Data Sheet
according to Regulation (EU) N° 1272/2008

Cod.
Rev.01
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GG_001
September 2022

KrioNext® R32

Section 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : R32 – KrioNext R32
SDS No. : GG_001
CAS Number : 75-10-5
Registration-No. : 01-2119471312-47

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : No further relevant information available.

1.3 Details of the supplier of the safety data sheet

Company identification : General Gas (Zhejiang) CO., LTD
Room 1802, West Tower, No. 1001, Jiangxi Road, Shangyu District, Shaoxing, Zhejiang, 312399
Phone ☎ 008613685862252
E-Mail ✉ carter.gu@generalgas-krionext.com

Section 2 Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flam. Gas : Flammable gas.
Gases under pressure : Contains gas under pressure; may explode if heated.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

Signal word (CLP) : Danger

Hazard statements (CLP) : H221 Flammable gas.

Precautionary statements (CLP)

: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 In case of leakage, eliminate all ignition sources. P410+P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

: **PBT:** Not PBT

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Section 3 Composition/information on ingredients

3.1 Substance : 75-10-5 Difluoromethane

3.2 EC number : 200-839-4

Section 4 First aid measures

4.1 Description of first aid measures

- After Inhalation : Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult a doctor if symptoms persist.
 In case of unconsciousness place patient stably in side position for transportation.
 In case of emergency to rescue the victims; be sure to wear supplied-air respirator (SAR) or self-contained breathing apparatus (SCBA).
 At high levels, cardiac arrhythmia may occur.
- After Skin contact : Immediately wash with water and soap and rinse thoroughly.
 In cases of frost bites, rinse with plenty of water. Do not remove clothing. Seek medical treatment in case of complaints or frostbite.
- After Eye contact : Rinse opened eye for several minutes under running water. Consult an ophthalmologist in case of complaints.
- After swallowing : Not applicable.

4.2 Most important symptoms and effects, both acute and delayed : Frost bites
 Prolonged skin contact may defat the skin and produce dermatitis.
 High concentrations cause asphyxiation. May cause an abnormal heart rhythm and prove suddenly fatal.

4.3 Indication of any immediate medical attention and special treatment needed : None.

Section 5 Fire-fighting measures

5.1 Extinguishing media

- Suitable extinguishing media : CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam
- For safety reasons unsuitable extinguishing agents: : Water with full jet

5.2 Special hazards arising from the substance or mixture

- Specific hazards : Formation of toxic gases is possible during heating or in case of fire. In case of fire, the following can be released,
 Hydrogen fluoride (HF)
 :

5.3 Advice for firefighters

- Specific methods : Move receptacle to a safe place immediately if possible. If not, spray water on the receptacles and surrounding equipment to cool.
 If receptacle catches fire: cool them with plenty of water.
 If fire extinguishing is impossible, protect the outskirts and burn it until materials disappear. If possible, close valves of receptacles to shut off the gas supply.

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Special protective equipment for fire fighters : Wear fully protective suit.
Wear self-contained respiratory protective device. Do not inhale explosion gases or combustion gases.

Section 6 Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures** : Wear appropriate protective devices (See Section 8 Exposure Controls/Personal Protection). Avoid contact with eyes and skin.
Do not inhale the product. Stay on the windward side.
Keep away from ignition sources.
Ensure adequate ventilation before entering the area. Keep out unauthorized persons. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
- 6.2 Environmental precautions** : Suppress gases/fumes/haze with water spray.
Do not allow to enter sewers/surface or ground water. Must not be emitted into the environment.
Inform authorities in case of gas release.
- 6.3 Methods and material for containment and cleaning up** : Allow to evaporate.
Ensure adequate ventilation.
Remove ignition sources immediately. Ground all equipment when the product leaks.
There is a danger of explosion. Prepare fire extinguisher in case of emergency..
- 6.4 Reference to other sections** : See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

Section 7 Handling and storage

- 7.1 Precautions for safe handling**
Safe use of the product : Stay on the windward side when working outdoors.
Waste air is to be released into the atmosphere only via suitable separators. Ensure good ventilation/exhaustion at the workplace.
Inhaling large quantities may cause cardiac arrhythmia or asphyxiation or both. Handle with care. Avoid jolting, friction and impact.
Keep away from naked flame or metal heated over 300 - 400 °C to prevent thermal decomposition that may form toxic gases.
Be careful of leakage when attaching/detaching receptacles. Do not inhale the gas. Do not handle until all safety precautions have been read and understood. Avoid release of product into atmosphere.
- Information about fire - and explosion protection : Do not spray onto a naked flame or any incandescent material.
Keep ignition sources away - Do not smoke. Protect against electrostatic charges.
Use only in explosion protected area.
Keep respiratory protective device available.
Use flame proof electric/lighting devices and ventilation equipment. Use explosion-proof apparatus / fittings and spark-proof tools.
Pressurised container: protect from sunlight and do not expose to temperatures exceeding 40 °C, i.e. electric lights. Do not pierce or burn, even after use.

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Vapours are heavier than air and may spread along floors.

- 7.2 Conditions for safe storage, including any incompatibilities** : Store only in unopened original receptacles. Store in a cool and dry location. Store away from flammable substances. Store away from oxidising agents. See section 10 for information on incompatible materials. Store in cool, dry conditions in well sealed receptacle. Protect from humidity and water. Protect from heat and direct sunlight. Store in a cool place. Heat will increase pressure and may lead to the receptacle bursting. Keep at temperature not exceeding 40 °C. Store locked up.
- 7.3 Specific end use(s)** : None.

Section 8 Exposure controls/personal protection

8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:		
CAS: 75-10-5 Difluoromethane		
AIHA	WEEL-TWA 1,000ppm	
· DNELs:		
CAS: 75-10-5 Difluoromethane		
Inhalative	DNEL - worker	7035 mg/m ³ (long-term exposure) (systemic effects)
	DNEL - consumer	750 mg/m ³ (long-term exposure) (systemic effects)
· PNECs:		
CAS: 75-10-5 Difluoromethane		
PNEC	0.142 mg/l (fresh water)	
	1.42 mg/l (intermittent release)	
PNEC	0.534 mg/kg dw (fresh water sediment)	

- 8.2 Exposure controls**
- 8.2.1 Appropriate engineering controls** : Wash hands before breaks and at the end of work. Keep away from foodstuffs, beverages and feed. Do not eat or drink while working. Do not inhale gases / fumes / aerosols. Avoid skin contact with the liquefied material.
- 8.2.2 Individual protection measures, e.g. personal protective equipment** :
- Eye/face protection : Tightly sealed goggles
- Hand protection : Protective gloves. Protective gloves complying with EN 511:2006. Strong material gloves. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- Other : Protective work clothing

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- Respiratory protection : Suitable respiratory protective device recommended.
Wear self-contained breathing apparatus in confined spaces, in cases where the oxygen level is depleted, or in case of significant emissions.
- Thermal hazards : None necessary.
- 8.2.3 Environmental exposure controls** : None necessary.

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Colour : Colourless.
- Odour : Odourless
- Melting point/freezing point : -136°C (1013 Hpa)
- Boiling point or initial boiling point and boiling range : -51,6°C (1013 Hpa)
- Fundamental burning velocity : 6.7 cm/s
- Lower and upper explosion limit :
- Lower explosive limit: 13% Vol %
- Upper explosive limit : 29.9 Vol %
- Flash point : Not applicable.
- pH : Neutral
- Vapour pressure [25°C] : 1701 kPa
- Density and/or relative density :
- Density at 25 °C : 0.959 g/cm
- Relative density at 25 °C : 0.0021 (calculated)
- Solubility :
- Water at 25 °C : 1680 mg/l
- Partition coefficient n-octanol/water (log value) at 25 °C : 0.21 (OECD 107)
- 1701 kPa

9.2 Other information

- Other data : Compressed liquefied gas

Section 10 Stability and reactivity

- 10.1 Reactivity** : Risk of violent reaction.
Risk of explosion if heated under confinement.
- 10.2 Chemical stability** : No decomposition if used and stored according to specifications.
- 10.3 Possibility of hazardous reactions** : Strong oxidizers, alkali metals and alkaline earth metals may cause fires or explosions.
Danger of receptacles bursting because of high vapour pressure when heated.
- 10.4 Conditions to avoid** : Keep away from heat, sparks, flame, high temperature.
- 10.5 Incompatible materials** : Alkali or alkaline earth metals - powdered Al, Zn, Mg, etc. Oxidizing agents
- 10.6 Hazardous decomposition products** : Poisonous gases/vapours Hydrogen fluoride Fluorophosgene

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Section 11 Toxicological information

11.1 Information on toxicological effects

Acute toxicity :

· LD/LC50 values relevant for classification:		
CAS: 75-10-5 Difluoromethane		
Inhalative	LC50/4h	1107000 mg/m ³ (Rat) (OECD 403)

Skin corrosion/irritation : No further information available.
 Serious eye damage/irritation : No further information available.
 Respiratory or skin sensitisation : No further information available.
 Germ cell mutagenicity : Ames Assay – Negative
 In vitro tests did not show mutagenic effects. Chromosomal Aberration Study in vivo - Negative In vivo tests did not show mutagenic effects.

Carcinogenicity : No further information available.
 Toxic for reproduction : Fertility :
 Toxic for reproduction : unborn child :
 STOT-single exposure : No further information available.
 STOT-repeated exposure :

· STOT-repeated exposure		
CAS: 75-10-5 Difluoromethane		
Inhalative	NOAEC	105000 mg/m ³ (Rat) (OECD 413)

Aspiration hazard : No further information available.

Section 12 Ecological information

12.1 Toxicity

EC50 48h - Daphnia magna [mg/l] : 652 mg/l (Daphnia) (QSAR)
 EC50 96h - Algae [mg/l] : 142 mg/l (Alga) (QSAR)
 LC50 96 h - Fish [mg/l] : 1507 mg/l (Fish) (QSAR)

12.2 Persistence and degradability

Assessment : Not easily biodegradable 5% / 28 days (OECD 301D)

12.3 Bioaccumulative potential

Assessment : Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.

12.4 Mobility in soil

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· 12.4 Mobility in soil:	
CAS: 75-10-5 Difluoromethane	
Henry's law constant	295 Pa·m ³ /mol (air) (25 °C)
log Koc	0.17 (soil)

12.5 Results of PBT and vPvB assessment

Assessment : PBT: According to the results of its assessment, this substance is not PBT.
vPvB: According to the results of its assessment, this substance is not vPvB.

12.6 Other adverse effects

General notes : Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Ozone depleting potential (ODP): 0
Global warming potential (GWP): 675 Reference value for carbon dioxide: GWP = 1
[Source: Regulation (EU) No 517/2014 on fluorinated greenhouse gases]

Section 13 Disposal considerations

13.1 Waste treatment methods : Disposal must be made according to EU, national and local regulations.

Section 14 Transport information

14.1 UN number

UN-No. : UN3252

14.2 UN proper shipping name

Transport by road/rail (ADR/RID) : DIFLUOROMETHANE (REFRIGERANT GAS R 32)

14.3 Transport hazard class(es)



Transport by road/rail (ADR/RID)

Class : 2.
Classification code : 2F
Hazard identification number : 20.

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.2

14.4 Packing group

Transport by road/rail (ADR/RID) : Not applicable
Transport by air (ICAO-TI / IATA-DGR) : Not applicable
Transport by sea (IMDG) : Not applicable

14.5 Environmental hazards

Transport by road/rail (ADR/RID) : None.
Transport by air (ICAO-TI / IATA-DGR) : None.

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Transport by sea (IMDG) : None.

14.6 Special precautions for user
Packing Instruction(s) : Warning; gases; 23

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

Section 15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

Restrictions on use : The substance is classified and labelled according to the CLP regulation.

National regulations

National legislation : No further information available.

Water hazard class (WGK) : Water hazard class 1 (Assessment by list): slightly hazardous for water.

Kenn-Nr. : 256

15.2 Chemical safety assessment : A CSA does not need to be carried out for this product.

Section 16 Other information

- Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.
- Training advice : The hazard of asphyxiation is often overlooked and must be stressed during operator training.
- Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

Full text of H- and EUH-phrases

Press. Gas (Liq.)	Gases under pressure : Liquefied gas
H280	Contains gas under pressure; may explode if heated

This Safety Data Sheet has been compiled in accordance with the applicable European Directives and is applicable to all countries that have translated the Directives within their national legislation. The information contained in this sheet is based on the knowledge available to us at the date of the last version. The user must ensure the suitability and completeness of the information in relation to the specific use of the product. You should not interpret this document as a guarantee for any specific property of the product. Because the use of the product does not fall under our direct control, it is the user's duty to observe the laws and regulations in force regarding hygiene and safety under its own responsibility. They are not responsible for improper use.

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