Design Report of Safety Data Sheet

正本/ORIGINAL

★**Product Name:**	Difluoromethane（R32）
★**Applicant:**	Taixing Meilan New Materials Co.. Ltd
Supplier:	Taixing Meilan New Materials Co.. Ltd
★**Composition of the product：**	Difluoromethane(CAS: 75-10-5)：≥ 99.9%
Warranty of Design:	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Tenth revised edition
★**Information materials:**	HGBZ2403P3N《Application》、P095552《Declaration of consistency of components of the sample submitted for inspection》

Design Result of SDS please see next page.

Designer: **Auditor:** **Approver:**

常州合规思远产品安全技术服务有限公司

Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.

报告专用章

Notes: This SDS is valid before the implementation of the eleventh revised edition GHS.

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Safety Data Sheet

Difluoromethane (R32)

Version：V2.0.0.1
Report No.：HGBZ2403P3N2
Creation Date：2024/03/05
Revision Date：-

*According to GHS (Tenth Revised Edition)

1 Identification

Product identifier

Product Name	Difluoromethane (R32)
CAS No.	75-10-5
EC No.	200-839-4
Molecular Formula	CH_2F_2

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier

Applicant Name	Taixing Meilan New Materials Co.. Ltd
Applicant Address	No.3, Zhabei Road, Taixing Economic Development Zone, Jiangsu, China
Applicant Post Code	225400
Applicant Telephone	0523-86602888
Applicant Fax	0523-86602888
Applicant E-mail	13961040299@139. com
Supplier Name	Taixing Meilan New Materials Co.. Ltd
Supplier Address	No.3, Zhabei Road, Taixing Economic Development Zone, Jiangsu, China
Supplier Post Code	225400
Supplier Telephone	0523-86602888
Supplier Fax	0523-86602888
Supplier E-mail	13961040299@139. com

Emergency phone number

Emergency phone number	0523-82761295

2 Hazard(s) identification

Hazard classification according to GHS

Flammable Gas	Category 1A, Flammable Gas
Gases Under Pressure	Liquefied gas
Hazardous To The Ozone Layer	Category 1

GHS Label elements

Hazard pictograms	
Signal word	Danger

Hazard statements

H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H420	Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary statements

- Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

- Response

P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.

- Storage

P403	Store in a well-ventilated place.
P410+P403	Protect from sunlight. Store in a well-ventilated place.

- Disposal

P502	Refer to manufacturer or supplier for information on recovery or recycling.

Hazard description

- Physical and chemical hazards

	Extremely flammable gas, risk of explosion. High pressure, may explode if heated.

- Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Due to physical form of this product, considered an unlikely route of entry in commercial/industrial environments.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

- Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Substance

Component	CAS No.	EC No.	Concentration (Volume or weight percent, %)

Difluoromethane	75-10-5	200-839-4	≥ 99.9

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Dry chemical or carbon dioxide.
Unsuitable extinguishing media	Don't use water spray directly in the leak or safety equipment, otherwise may cause icing.

Specific hazards arising from the substance or mixture

1	Flammable: will be easily ignited by heat, sparks or flames.
2	Will form explosive mixtures with air.
3	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/ or vapour concentration.
4	Vapours may travel to source of ignition and flash back.
5	Development of hazardous combustion gases or vapor possible in the event of fire.
6	May expansion or decompose explosively when heated or involved in fire.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapours and contacting with skin and eye.
2	Beware of vapours accumulating to form explosive concentrations.
3	Vapours can accumulate in low areas.
4	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5	Use personal protective equipment,do not breathe gas.
6	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
7	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	All equipment used in the work should be grounded.
2	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
3	Spray water inhibits vapor or changes the direction of vapor cloud flow.
4	Do not allow spills to come into contact with combustible materials such as wood, paper, oil, etc.
5	Do not touch or cross spills.
6	Isolate the leak area until the gas is exhausted.
7	Cut off the source of the leak as much as possible.
8	Keep leaks in a ventilated place.
9	Do not use water directly to impact spills or sources of leakage.
10	Wear a cold suit when the liquefied gas leaks.
11	It is recommended that emergency personnel wear a positive pressure self-contained breathing apparatus and wear general work clothes.
12	A large number of leaks: The warning zone is delineated according to the area affected by the gas, and the unrelated personnel are evacuated from the crosswind and the upwind to the safe zone.
13	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
14	Prevent gas from diffusing through sewers, ventilation systems, and confined spaces.

7 Handling and storage

Precautions for safe handling

1	Avoid inhalation of vapors.
2	Use only non-sparking tools.
3	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
4	Use explosion proof equipment.
5	Handling is performed in a well ventilated place.
6	Wear suitable protective equipment.
7	Avoid contact with skin and eyes.
8	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection

Control parameters

Occupational Exposure limit values	No relevant regulations

◆ Biological limit values

Biological limit values	No relevant regulations

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 series standard Determination of toxic substances in workplace air.

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Appropriate respiratory protective equipment must be worn. When the oxygen concentration is unknown, a self-contained atmosphere-supplying respiratory protective apparatus must be worn.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

9 Physical and chemical properties

Physical and chemical properties

Physical state	Gas(liquefied)
Colour	Colorless transparent
Odor	No information available
Odor threshold	No information available
pH	Not applicable
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	>35
Flash point(Closed cup,°C)	Not applicable

Evaporation rate	Not applicable
Flammability	Extremely flammable
Upper/lower explosive limits[%(v/v)]	Upper limit：No information available；Lower limit：No information available
Vapor pressure	Not applicable
Relative vapour density(Air = 1)	Not applicable
Relative density(Water=1)	Not applicable
Solubility	No information available
n-octanol/water partition coefficient	Not applicable
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity	Not applicable
Particle characteristics	Not applicable

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	No information available.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	No information available.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Difluoromethane	No information available	No information available	1890mg/L(Rat)

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Difluoromethane	Not Listed	Not Listed

Others

Difluoromethane(Component)	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met

STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Difluoromethane	LC_{50}：1731mg/L (96h)(Fresh water fish)	No information available	No information available

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Difluoromethane	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Difluoromethane	Low	Log Kow=0.2

Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Difluoromethane	Low	23.74

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Difluoromethane	No information available

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label

Transporting Label	

IMDG-CODE

UN number	3252
UN proper shipping name	DIFLUOROMETHANE(REFRIGERANT GAS R 32)
Transport hazard class	2.1
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number
Marine pollutant (Yes or no)	No

ICAO/IATA-DGR

UN number	3252
UN proper shipping name	DIFLUOROMETHANE(REFRIGERANT GAS R 32)
Transport hazard class	2.1
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number

UN-ADR

UN number	3252
UN proper shipping name	DIFLUOROMETHANE
Transport hazard class	2.1
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number

15 Regulatory information

International chemical inventory

Component	EC inventory	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIICS	ENCS
Difluoromethane	√	√	√	√	√	√	√	√	√

[EC inventory] European Inventory of Existing Commercial Chemical Substances
[TSCA] United States Toxic Substances Control Act Inventory
[DSL] Canadian Domestic Substances List
[IECSC] China Inventory of Existing Chemical Substances
[NZIoC] New Zealand Inventory of Chemicals
[PICCS] Philippines Inventory of Chemicals and Chemical Substances
[KECI] Korea Existing Chemicals Inventory
[AIICS] Australian. Inventory of Industrial Chemical (AIICS)
[ENCS] Japan Inventory of Existing & New Chemical Substances

Note:

"√" Indicates that the substance included in the regulations.
"×" No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2024/03/05
Revision Date	-
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home。
[2] IARC, website: http://www.iarc.fr/。
[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/。
[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple。
[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp。
[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/。
[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg。
[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/。

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program
EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 10th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.