

SAFETY DATA SHEET
1,1-Difluoroethane (R 152a)

Issue Date: 16.01.2013
Last revised date: 20.06.2017

Version: 1.0

SDS No.: 000010021757
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: 1,1-Difluoroethane (R 152a)
Trade name: R152a
Other Name: HFC 152a

Additional identification

Chemical name: 1,1-Difluoroethane
Chemical formula: C2H4F2
INDEX No. -
CAS-No. 75-37-6
EC No. 200-866-1
REACH Registration No. 01-2119474440-43

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

Identified uses: Industrial and professional. Perform risk assessment prior to use. Glass processing. Refrigerant. Using gas alone or in mixtures for the calibration of analysis equipment. Formulation of mixtures with gas in pressure receptacles.
Uses advised against Consumer use.

1.3 Details of the supplier of the safety data sheet

Supplier

Khasra no. 2139/1751 Village Govindgarh, Tehsil-Chomu, Dist.- Jaipur, Raj(303712)

Telephone: +91-9928418296

E-mail: akash-sharma@vijaypetrochem.com

1.4 Emergency telephone number: Emergency number +91-9928418296 (during business hours), Poisoning Information Center: +91-9928418296

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical Hazards

Flammable gas	Category 1	H220: Extremely flammable gas.
Gases under pressure	Liquefied gas	H280: Contains gas under pressure; may explode if heated.

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2.2 Label Elements



Signal Words: Danger

Hazard Statement(s): H220: Extremely flammable gas.
H280: Contains gas under pressure; may explode if heated.

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: Eliminate all ignition sources if safe to do so.

Storage: P403: Store in a well-ventilated place.

Disposal: None.

Supplemental label information

EIGA-0783: Contains fluorinated greenhouse gases

2.3 Other hazards: Contact with evaporating liquid may cause frostbite or freezing of skin.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	1,1-Difluoroethane
INDEX No.:	-
CAS-No.:	75-37-6
EC No.:	200-866-1
REACH Registration No.:	01-2119474440-43
Purity:	100%
	The purity of the substance in this section is used for classification only, and does not represent the actual purity of the substance as supplied, for which other documentation should be consulted.
Trade name:	R152a

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SECTION 4: First aid measures

General: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

4.1 Description of first aid measures

Inhalation: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Eye contact: Rinse the eye with water immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush thoroughly with water for at least 15 minutes. Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.

Skin Contact: Contact with evaporating liquid may cause frostbite or freezing of skin. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Get medical attention.

Ingestion: Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed: Respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: Respiratory arrest. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.

Treatment: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

SECTION 5: Firefighting measures

General Fire Hazards: Heat may cause the containers to explode.

5.1 Extinguishing media

Suitable extinguishing media: Water Spray or Fog. Dry powder. Foam.

Unsuitable extinguishing media: Carbon Dioxide.

5.2 Special hazards arising from the substance or mixture: Fire or excessive heat may produce hazardous decomposition products.

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SECTION 7: Handling and storage:

7.1 Precautions for safe handling:

Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service. Purge air from system before introducing gas. Containers, which contain or have contained flammable or explosive substances, must not be inerted with liquid carbon dioxide. Assess the risk of a potentially explosive atmosphere and the need for suitable equipment i.e. explosion-proof. Take precautionary measures against static discharges. Keep away from ignition sources (including static discharges). Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres. Use only non-sparking tools. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Ensure the complete system has been (or is regularly) checked for leaks before use. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Avoid suckback of water, acid and alkalis. Keep container below 50°C in a well ventilated place. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with local/regional/national/international regulations. Never use direct flame or electrical heating devices to raise the pressure of a container. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Damaged valves should be reported immediately to the supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminants particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another. Container valve guards or caps should be in place.

7.2 Conditions for safe storage, including any incompatibilities:

All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere. Segregate from oxidant gases and other oxidants being stored. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible material.

7.3 Specific end use(s):

None.

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SECTION 8: Exposure controls/personal protection
8.1 Control Parameters
Occupational Exposure Limits

None of the components have assigned exposure limits.

DNEL-Values

Critical component	type	Value	Remarks
1,1-Difluoroethane	Worker - inhalative, long-term - systemic	2713 mg/m ³	-

PNEC-Values

Critical component	type	Value	Remarks
1,1-Difluoroethane	Aquatic (intermit. releases)	0,48 mg/l	-
	Aquatic (marine water)	0,0048 mg/l	-
	Aquatic (freshwater)	0,048 mg/l	-
	Sediment (freshwater)	0,19 mg/kg	-
	marine sediment	0,019 mg/kg dry weight	-
	soil	0,141 mg/kg dry weight	-

8.2 Exposure controls
Appropriate engineering controls:

Consider a work permit system e.g. for maintenance activities. Ensure adequate air ventilation. Provide adequate general and local exhaust ventilation. Keep concentrations well below lower explosion limits. Gas detectors should be used when quantities of flammable gases or vapours may be released. Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system. Only use permanent leak tight installations (e.g. welded pipes). Take precautionary measures against static discharges.

Individual protection measures, such as personal protective equipment
General information:

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered. Keep self contained breathing apparatus readily available for emergency use. Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment. Do not eat, drink or smoke when using the product.

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Eye/face protection:	Safety eyewear, goggles or face-shield to EN166 should be used to avoid exposure to liquid splashes. Wear eye protection to EN 166 when using gases. Guideline: EN 166 Personal Eye Protection.
Skin protection	
Hand Protection:	Wear working gloves while handling containers Guideline: EN 388 Protective gloves against mechanical risks.
Body protection:	Wear fire/flame resistant/retardant clothing. Guideline: ISO/TR 2801:2007 Clothing for protection against heat and flame -- General recommendations for selection, care and use of protective clothing.
Other:	Wear safety shoes while handling containers Guideline: ISO 20345 Personal protective equipment - Safety footwear.
Respiratory Protection:	Not required.
Thermal hazards:	No precautionary measures are necessary.
Hygiene measures:	Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Do not eat, drink or smoke when using the product.
Environmental exposure controls:	For waste disposal, see section 13 of the SDS.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	Gas
Form:	Liquefied gas
Color:	Colorless Colorless
Odor:	Odorless Odorless
Odor Threshold:	Odor threshold is subjective and is inadequate to warn of over exposure.
pH:	not applicable.
Melting Point:	-117 °C
Boiling Point:	-25 °C
Sublimation Point:	not applicable.
Critical Temp. (°C):	113,0 °C
Flash Point:	Not applicable to gases and gas mixtures.
Evaporation Rate:	Not applicable to gases and gas mixtures.
Flammability (solid, gas):	Flammable Gas
Flammability Limit - Upper (%):	20,2 %(V)

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Flammability Limit - Lower (%):	4 %(V)
Vapor pressure:	514.624 Pa (25 °C) QSAR, Key study
Vapor density (air=1):	2,3 AIR=1
Relative density:	0,91 (21 °C)
Solubility(ies)	
Solubility in Water:	3.200 mg/l (21 °C)
Partition coefficient (n-octanol/water):	0,75
Autoignition Temperature:	440 °C Experimental result, Key study
Decomposition Temperature:	Not known.
Viscosity	
Kinematic viscosity:	No data available.
Dynamic viscosity:	0,263 mPa.s (50 °F)
Explosive properties:	Not applicable.
Oxidizing properties:	not applicable.

9.2 Other information:	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
Molecular weight:	66,1 g/mol (C ₂ H ₄ F ₂)

SECTION 10: Stability and reactivity

10.1 Reactivity:	No reactivity hazard other than the effects described in sub-section below.
10.2 Chemical Stability:	Stable under normal conditions.
10.3 Possibility of hazardous reactions:	Can form a potentially explosive atmosphere in air. May react violently with oxidants.
10.4 Conditions to avoid:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
10.5 Incompatible Materials:	Air and oxidizers. For material compatibility see latest version of ISO-11114.
10.6 Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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SECTION 11: Toxicological information

General information: None.

11.1 Information on toxicological effects

**Acute toxicity - Oral
Product**

Based on available data, the classification criteria are not met.

**Acute toxicity - Dermal
Product**

Based on available data, the classification criteria are not met.

**Acute toxicity - Inhalation
Product**

Based on available data, the classification criteria are not met.

1,1-Difluoroethane

LC 50 (Rat, 4 h): > 437500 ppm Remarks: Gas Experimental result, Key study

Repeated dose toxicity

1,1-Difluoroethane

NOAEL (Rat(Female, Male), Inhalation, 104 Weeks): 2,5 %(m) Inhalation
Experimental result, Key study

**Skin Corrosion/Irritation
Product**

Based on available data, the classification criteria are not met.

**Serious Eye Damage/Eye Irritation
Product**

Based on available data, the classification criteria are not met.

**Respiratory or Skin Sensitization
Product**

Based on available data, the classification criteria are not met.

**Germ Cell Mutagenicity
Product**

Based on available data, the classification criteria are not met.

**Carcinogenicity
Product**

Based on available data, the classification criteria are not met.

**Reproductive toxicity
Product**

Based on available data, the classification criteria are not met.

**Specific Target Organ Toxicity - Single Exposure
Product**

Based on available data, the classification criteria are not met.

**Specific Target Organ Toxicity - Repeated Exposure
Product**

Based on available data, the classification criteria are not met.

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**Aspiration Hazard
Product**

Not applicable to gases and gas mixtures..

SECTION 12: Ecological information

12.1 Toxicity

**Acute toxicity
Product**

No ecological damage caused by this product.

Acute toxicity - Fish

1,1-Difluoroethane

LC 50 (Various, 96 h): 295,783 mg/l (QSAR) Remarks: QSAR QSAR, Key study
LC 50 (Fish, 96 h): 296 mg/l

Acute toxicity - Aquatic Invertebrates

1,1-Difluoroethane

LC 50 (Daphnid, 48 h): 269,8 mg/l (QSAR) Remarks: QSAR QSAR, Supporting study
EC 50 (Water flea (Daphnia magna), 48 h): 147 mg/l

**12.2 Persistence and Degradability
Product**

Not applicable to gases and gas mixtures..

**12.3 Bioaccumulative potential
Product**

The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.

**12.4 Mobility in soil
Product**

Because of its high volatility, the product is unlikely to cause ground or water pollution.

**12.5 Results of PBT and vPvB
assessment
Product**

Not classified as PBT or vPvB.

12.6 Other adverse effects:

Global Warming Potential

Global warming potential: 124

Contains fluorinated greenhouse gases When discharged in large quantities may contribute to the greenhouse effect. For GWP value of mixture and quantities, refer to container label.

1,1-Difluoroethane

EU. F-Gases Subject to Emission Limits/Reporting (Annexes I, II), Regulation 517/2014/EU on FGGs

- Global warming potential: 124 Annex 1: Fluorinated greenhouse gases referred to in Point 1 of Article 2; Section 1:Hydrofluorocarbons (HFCs) and its mixtures

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information:

Do not discharge into any place where its accumulation could be dangerous. Consult supplier for specific recommendations. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.

Disposal methods:

Refer to the EIGA code of practice (Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org>) for more guidance on suitable disposal methods. Dispose of container via supplier only. Discharge, treatment, or disposal may be subject to national, state, or local laws.

European Waste Codes

Container:

14 06 01*: chlorofluorocarbons, HCFC, HFC

SECTION 14: Transport information

ADR

14.1 UN Number: UN 1030
14.2 UN Proper Shipping Name: 1,1-DIFLUOROETHANE
14.3 Transport Hazard Class(es)
Class: 2
Label(s): 2.1
Hazard No. (ADR): 23
Tunnel restriction code: (B/D)
14.4 Packing Group: -
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -

RID

14.1 UN Number: UN 1030
14.2 UN Proper Shipping Name: 1,1-DIFLUOROETHANE
14.3 Transport Hazard Class(es)
Class: 2
Label(s): 2.1
14.4 Packing Group: -
14.5 Environmental hazards: not applicable
14.6 Special precautions for user: -

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IMDG

14.1 UN Number:	UN 1030
14.2 UN Proper Shipping Name:	1,1-DIFLUOROETHANE
14.3 Transport Hazard Class(es)	
Class:	2.1
Label(s):	2.1
EmS No.:	F-D, S-U
14.3 Packing Group:	-
14.5 Environmental hazards:	not applicable
14.6 Special precautions for user:	-

IATA

14.1 UN Number:	UN 1030
14.2 Proper Shipping Name:	Refrigerant gas R 152a
14.3 Transport Hazard Class(es):	
Class:	2.1
Label(s):	2.1
14.4 Packing Group:	-
14.5 Environmental hazards:	not applicable
14.6 Special precautions for user:	-
Other information	
Passenger and cargo aircraft:	Forbidden.
Cargo aircraft only:	Forbidden.

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

Additional identification: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the container valve is closed and not leaking. Container valve guards or caps should be in place. Ensure adequate air ventilation.

SECTION 15: Regulatory information

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

National Regulations

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work Directive 89/686/EEC on personal protective equipment Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) Only products