Mercedes Scientific Freeze Spray

Safety Data Sheet

According to Federal Register Rules and Regulations Revision date: 04/18/2016 :

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Trade name	: Mercedes Scientific Freeze Spray
CAS No	: 75-37-6
Formula	: C2H2F4
Synonyms	: 1,1-difluoroethane / 1,1-Difluoroethane (refrigerant gas R 152a) / algofrene type 67 / difluoroethane / dymel 152 / dymel 152A / ethane, 1,1-difluoro- / ethylene fluoride (=1,1difluoroethane) / ethylidenedifluoride / ethylidene fluoride / FC 152A / fluorocarbon 152A / freon 152 / freon 152A / genetron 100 / genetron 152 / genetron 152A / halocarbon R 152A / HCFC-152a / HCFC-152A / HFC-152a / hydrofluorocarbon 152A / refrigerant 152A

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

Use of the substance/mixture : Medical Freeze

1.3. Details of the supplier of the safety data sheet

MERCEDES SCIENTIFIC
12210 RANGELAND PKWY
LAKEWOOD RANCH, FL
34211
T 941-355-3333

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Liquefied gas H280

2.2. Label elements

GHS-US labeling :

Hazard pictograms (GHS-US)

Signal word (GHS-US)	: Danger
Hazard statements (GHS-US)	: H223 - Flammable aerosol H280 - Contains gas under pressure; may explode if heated
Precautionary statements (GHS-US)	: P410+P403 - Protect from sunlight. Store in a well-ventilated place P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P211: Do not spray on an open flame or other ignition source. P251 - Pressurized container: Do not pierce or burn, even after use P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F

2.3. Other hazards

Other hazards not contributing to the classification :N/A

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name : 1,1-Difluoroethane, liquefied, under pressure

CAS No : 75-37-6

EC no : 200-866-1

Name	Product identifier	%	Classification (GHS-US)
1,1-Difluoroethane, liquefied, under pressure (Main constituent)	(CAS No)75-37-6	> 99	Liquefied gas, H280

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up).
Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give alcohol to drink.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Rinse with water. In case of frostbites: Wash immediately with lots of water (15 minutes)/shower. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Not applicable.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Contains refrigerated gas; may cause cryogenic burns or injury. Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Dizziness. Slight irritation. Headache. Nausea. Vomiting. Coordination disorders. Disturbances of consciousness. Disturbances of heart rate.

Symptoms/injuries after skin contact : Frostbites.

Symptoms/injuries after eye contact : No data available.

Symptoms/injuries after ingestion : Not applicable.

Chronic symptoms : No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. BC powder. Carbon dioxide.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Flammable aerosol. Gas/vapor flammable with air within explosion limits. INDIRECT FIRE HAZARD. May build up electrostatic charges: risk of ignition. May be ignited by sparks. Gas/vapor spreads at floor level: ignition hazard.
Explosion hazard	: DIRECT EXPLOSION HAZARD. Gas/vapor explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD. Heat may cause pressure rise in tanks/drums: explosior risk. may be ignited by sparks.
Reactivity	: On heating/burning: release of toxic and corrosive gases/vapor e.g.: hydrofluoric acid, carbonylfluoride. Reacts violently with (strong) oxidizers.

5.3. Advice for firefighters

Firefighting instructions	: If no hazard for/from the surroundings: controlled burning. If hazardous substances are nearby: consider extinguishment. Extinguish only if gas supply/leak can be shut afterwards. Cool tanks/drums with water spray/remove them into safety. Physical explosion risk: extinguish/cool from behind cover. Do not move the load if exposed to heat. After cooling: persistent risk of physical explosion. Dilute toxic gases with water spray.
Protection during firefighting	: Heat/fire exposure: compressed air/oxygen apparatus.
Other information	: NFPA Aerosol Level 1.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges. Eliminate every possible source of ignition. No naked lights. No smoking.

6.1.1. For non-emergency personnel

Protective equipment	: Insulating gloves. Protective goggles. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. See "Material-Handling" to select protective clothing.
Emergency procedures	: Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment. Avoid ingress of water in the containers. Wash contaminated clothes.

6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Ventilate area.

6.2. Environmental precautions

Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the liquid spill. Tip the container on one side to stop the leakage. Try to reduce evaporation. Measure the concentration of the explosive gas-air mixture. Dilute/disperse combustible gas/vapor with water curtain. Provide equipment/receptacles with earthing. Do not spray water on unheated tank walls. Do not use compressed air for pumping over spills.
Methods for cleaning up	: Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. See "Material-handling" for suitable container materials. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Pressurized container: Do not pierce or burn, even after use.
Precautions for safe handling	: Comply with the legal requirements. Clean contaminated clothing. Handle uncleaned empty containers as full ones. Thoroughly clean/dry the installation before use. Do not use compressed air for pumping over. Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Observe normal hygiene standards. Measure the concentration in the air regularly. Measure the oxygen concentration in the air. Work under local exhaust/ventilation.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Level 1 Aerosol.
Proper grounding procedures to avoid static electricity should be followed.

Storage conditions	: Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use. Keep in fireproof place. Do not expose to temperatures exceeding 50 °C/ 122 °F.
Incompatible products	: Strong bases. Strong acids.
Incompatible materials	: Sources of ignition. Direct sunlight. Heat sources.
Storage temperature	: < 50 °C
Heat-ignition	: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: oxidizing agents.
Storage area	: Ventilation at floor level. Fireproof storeroom. Provide for a tub to collect spills. Provide the tank with earthing. Keep out of direct sunlight. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: with pressure relief valve. clean. correctly labelled. meet the legal requirements.
Packaging materials	: SUITABLE MATERIAL: steel. stainless steel. monel steel. lead. aluminium. copper. tin.

7.3. Specific end use(s)

Follow Label Directions.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls	: Local exhaust ventilation, vent hoods.
Personal protective equipment	: Avoid all unnecessary exposure. Gloves. Safety glasses.

Materials for protective clothing	: GIVE GOOD RESISTANCE: butyl rubber. leather. neoprene. polyethylene. PVC.
Hand protection	: Insulated gloves.
Eye protection	: Safety glasses.
Skin and body protection	: Protective clothing.
Respiratory protection	: High vapor/gas concentration: self-contained respirator. Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of this product.Wear appropriate mask.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquefied gas.
Molecular mass	: 66.05 g/mol
Color	: Colorless.
Odor	: Mild odor. Slight Ether-like odor
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -117 °C
Freezing point	: No data available
Boiling point	: -25 °C

Flash point	:	< -50 °C
Critical temperature	:	114 °C
Auto-ignition temperature	:	455 °C
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	5100 hPa
Vapor pressure at 50 °C	:	11700 hPa
Critical pressure	:	44960 hPa
Relative vapor density at 20 °C	:	2.3
Relative density	:	1.0 (-25 °C)
Specific gravity / density	:	1004 kg/m³ (-25 °C)
Solubility	:	Poorly soluble in water. Soluble in organic solvents. Water: 0.54 g/100ml (0 °C)
Log Pow	:	0.75 (Experimental value)
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	0.37 Pa.s (-31 °C)
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	4 - 19 vol % 112 - 518 g/m³

9.2. Other information

VOC content	:	0 %
Gas group	:	Liquefied gas
Other properties	:	Gas/vapor heavier than air at 20°C. May generate electrostatic charges.

SECTION 10: Stability and reactivity

10.1. Reactivity

On heating/burning: release of toxic and corrosive gases/vapor e.g.: hydrofluoric acid, carbonylfluoride. Reacts violently with (strong) oxidizers.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Toxic fume. . Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

R152A (\f)75-37-6

LC50 inhalation rat (mg/l)	176 mg/l/4h (Rat; Literature study)
LC50 inhalation rat (ppm)	> 437500 ppm/4h Mortality in 2/6 at 43.75% and 1/6 at 38.3%. At ≥ 17.52% lethargy, laboured breathing, reduced responsiveness to sound were observed. At 6.64% only hyperaemia and shallow breathing were observed.

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified. Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified. Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified. Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified. Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	: EXPOSURE TO HIGH CONCENTRATIONS: Dizziness. Slight irritation. Headache. Nausea. Vomiting. Coordination disorders. Disturbances of consciousness. Disturbances of heart rate.
Symptoms/injuries after skin contact	: Frostbites.
Symptoms/injuries after eye contact	: No data available.
Symptoms/injuries after ingestion	: Not applicable.
Chronic symptoms	: No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - air	:Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Included in the list of substances which may contribute to the greenhouse effect (Regulation (EC) No 842/2006). TA-LuftKlasse 5.2.5.
Ecology - water	:Mild water pollutant (surface water). No data available on ecotoxicity.

12.2. Persistence and degradability

R152A (75-37-6)

Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

R152A (75-37-6)

Log Pow	0.75 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow< 4).

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Refer to manufacturer/supplier for information on recovery/ recycling.

Additional information : LWCA (the Netherlands): KGA category 06. Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

US DOT (ground):	UN1030, 1,1-Difluoroethane, R152A Flammable, 2.1
ICAO/IATA (air):	UN1950, Aerosols, Flammable, 2.1, Limited Quantity
IMO/IMDG (water):	UN1950, Aerosols, Flammable, 2.1, Limited Quantity
Special Provisions:	DOT-SP 11516: In accordance with this special permit, this product is not subject to labeling requirements unless offered for transportation by air. This product is not subject to placarding requirements. Outside packaging must be marked with proper shipping description and 'DOT-SP 11516'

14.2. UN proper shipping name

DOT Proper Shipping Name : 1,1-Difluoroethane, R152A Flammable

DOT Special Provisions (49 CFR 172.102) : DOT-SP 11516: In accordance with this special permit, this product is not subject to labeling requirements unless offered for transportation by air. This product is not subject to placarding requirements. Outside packaging must be marked with proper shipping description and 'DOT-SP 11516'

DOT Packaging Exceptions (49 CFR 173.xxx) : 306

DOT Packaging Non Bulk (49 CFR 173.xxx) : 304

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

14.3. Additional information

Other information : No supplementary information available.

Special transport precautions : DOT-SP 11516: In accordance with this special permit, this product is not subject to labeling requirements unless offered for transportation by air. This product is not subject to placarding requirements. Outside packaging must be marked with proper shipping description and 'DOT-SP 11516'.

Overland transport

Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 23

Classification code (ADR) : 2F

Additional Information: TDG Canada: AVW, Inc has been granted Equivelancy Certificate SU 9211 (ren. 1) by the TCSS, TDGD to offer for transportby road, rail and marine.

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

R152A (75-37-6)

SARA Section 311/312 Hazard Classes: Fire hazard
Sudden release of pressure hazard
Immediate (acute) health hazard

15.2. International regulations

CANADA

R152A (75-37-6)

WHMIS Classification: Class A - Compressed Gas
Class B Division 1 - Flammable Aerosol

NEW ZEALAND

HSNO regulation: Hazard Class: 2.1.2A

UN1030, 1,1-Difluoroethane, R152A Flammable, Gases that are not otherwise hazardous

EU-Regulations

No additional information available

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

Flam. Gas 1 H220 Press.
Gas

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD] F+;
R12

Full text of R-phrases: see section 16

15.2.2. National regulations

No additional information available

15.3. US State regulations

R152A (75-37-6)

State or local regulations: U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

SECTION 16: Other information

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