

SAFETY DATA SHEET

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	Revision: 1.2	Date: 04/08

01 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

PRODUCT NAME	HARP® 152a
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02 - HAZARDS IDENTIFICATION

MOST IMPORTANT HAZARDS	-
PHYSICAL AND CHEMICAL HAZARDS	At high temperature: Thermal decomposition giving toxic and corrosive products.
SPECIFIC HAZARDS / EC	EXTREMELY FLAMMABLE Extremely flammable. Rapid evaporation of the liquid may cause frostbite. May cause cardiac arrhythmia.

03 - COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME OF THE SUBSTANCE	1,1-DIFLUOROETHANE
GENERIC NAME	HALOGENATED HYDROCARBON
CAS	75-37-6
EINECS	200-866-1

04 - FIRST AID MEASURES

INHALATION	Move to fresh air Oxygen or artificial respiration if needed In case of persistent problems: Consult a doctor.
SKIN CONTACT	Frostbite: treat as thermal burns.
EYE CONTACT	Wash immediately, abundantly and thoroughly with water If irritation persists, consult an ophthalmologist
PROTECTION OF FIRST-AIDERS	In case of insufficient ventilation, wear suitable respiratory equipment
INFORMATION FOR DOCTORS	Do not administer catecholamines (because of the cardiac effect caused by the product).

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05 - FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA	Any.
SPECIFIC HAZARDS	Pressure build up.
SPECIFIC METHODS	Cool containers/tanks with water spray

06 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION	Avoid contact with skin and eyes and inhalation of vapours. Wear personal protective equipment. In enclosed areas: ventilate or wear self-contained breathing apparatus (risk of anoxia). Remove all sources of ignition. Do not smoke.
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07 - HANDLING AND STORAGE

HANDLING	-
Technical measures/Precautions	Storage and handling precautions applicable to products: LIQUEFIED GAS UNDER PRESSURE Forming flammable mixtures with air. Ensure appropriate exhaust and ventilation at machinery
Safe handling advice	Avoid ignition sources and contact with hot surfaces - DO NOT SMOKE
STORAGE	-
Technical measures/Storage conditions	Store at room temperature in the original container Keep away from heat and sources of ignition Keep away from naked flames, hot surfaces and sources of ignition Keep in a cool, well ventilated place Protect full containers from sources of heat to avoid over-pressurisation Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres.
Incompatible products	Alkaline hydroxides Alkaline earth metals Strong oxidising agents Finely divided metals (Al, Mg, Zn)
PACKAGING MATERIALS	-
Recommended	Ordinary or stainless steel
Prohibited	Alloys containing more than 2% of magnesium Plastic materials

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08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

PROTECTIVE PROVISIONS	Provide sufficient air exchange and/or exhaust in work areas
CONTROL PARAMETERS	-
Exposure limits	Acceptable exposure limit: AEL (8-h TWA) = 1000 ml/m ³
PERSONAL PROTECTION EQUIPMENT	-
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment. Vapours are heavier than air and may cause suffocation by reducing oxygen available for breathing.
Hand protection	Gloves
Eye protection	Safety glasses
Specific hygiene measures	Avoid contact with skin and eyes and inhalation of vapours Do not smoke

09 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE (20°C)	liquefied gas
COLOUR	colourless
ODOUR	ether-like (slightly)
pH	not applicable
BOILING POINT/RANGE	-24.9°C
MELTING POINT/RANGE	-117°C
FLASH POINT	<-50°C
AUTOIGNITION TEMPERATURE	Standard not quoted. 455°C
EXPLOSIVE LIMITS	-
Lower	3.7% in volume
Upper	18% in volume
VAPOUR PRESSURE	(25°C): 0.614 MPa (6.14 bar) (50°C): 1.2 MPa (12.0 bar) (65°C): 1.7 MPa (17.0 bar) (70°C): 1.9 MPa (19.0 bar)
VAPOUR DENSITY	(25°C, 1.013 bar): 2.75 kg/m ³
LIQUID DENSITY	(25°C): 899 kg/m ³ (50°C): 830 kg/m ³ (65°C): 780 kg/m ³ (70°C): 762 kg/m ³
SOLUBILITY	-
Water	(25°C) = 3.2 g/l
Solvents	Soluble in: Ethers Ketones Alcohols Chlorinated solvents
OTHER DATA	Critical temperature: T _c = 113.5°C Critical pressure: P _c = 4.52 MPa (45.2 bar) Molecular mass: 102.0 Henry's constant: 2.04E3 Pa m ³ /mol

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10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID	Keep away from heat and sources of ignition Avoid contact with flames and red hot metallic surfaces
HAZARDOUS DECOMPOSITION PRODUCTS	At high temperature: Thermal decomposition giving toxic and corrosive products: Hydrogen fluoride (hydrofluoric acid) Oxides of carbon
FURTHER INFORMATION	The product is stable at ambient temperatures

11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY	LC50 / inhalation/2h/rat = > 200ml/l
LOCAL EFFECTS	Concentrations substantially above the TLV value may cause narcotic effects. Inhalation of decomposition products in high concentrations may cause shortness of breath (lung edema).
LONG TERM TOXICITY SPECIFIC EFFECTS	Did not show carcinogenic, teratogenic or mutagenic effects in animals experiments. May cause arrhythmia. Cardiac sensitisation threshold limit 405,520 mg/m ³ Anaesthetic effects threshold limit: 540,695 mg/m ³ Rapid evaporation may cause frostbite.

12 - ECOLOGICAL INFORMATION

ECOTOXICITY EFFECTS	Halocarbon global warming potential (HGWP); (R-11 = 1) = 0.03. Does not deplete ozone.
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14 - TRANSPORT INFORMATION

UN/ID No.	1030
ADR/RID	Class: 2 Proper shipping name: 1030 1,1-Difluoroethane, 2, ADR Hazard label: 2.1 H/UN Number: 23/1030
IMO	Class: 2.1 Proper shipping name: 1,1-Difluoroethane Hazard label: 2.1
ICAO	Class: 2.1 Proper shipping name: 1,1-Difluoroethane Hazard label: 2.1

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15 - REGULATORY INFORMATION

EC DIRECTIVE	67/548
SYMBOL(S)	F+_ EXTREMELY FLAMMABLE
CONTENTS	1,1-Difluoroethane (R152a)
R-PHRASE(S)	R12 - Extremely flammable.
S-PHRASE(S)	S9_ Keep container in a well ventilated place. S16_ Keep away from sources of ignition – No smoking. S33_ Take precautionary measures against static discharges.

16 - OTHER INFORMATION

RECOMMENDED USES	Aerosol propellant
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NOTE

This information contained within this safety data sheet applies only to the Harp International Limited product to which it relates. The information provided is based upon our best knowledge at the time that this safety data sheet was published.

The information is believed to be accurate and is given in all good faith.

When used in other preparations, in formulations or in mixtures, it is necessary to ascertain if the classification of the hazards have changed. The attention of users is drawn to the possibility of creating other hazards when the product is used for purposes other than that for which it is recommended. In such cases a complete reassessment should be made by user.

This safety data sheet should only be used and reproduced in order that the necessary measures may be taken relating to the protection of health and safety at work and relating to the protection of environment.

The reference to the legislative, regulatory and codes of practice documents must not be considered as exhaustive.

It is the responsibility of handlers of the product to pass on the totality of the information contained within this document to any subsequent persons who will come into contact with, handle or use the product in any way.

They should check the adequacy of the information contained in the safety data sheet received before passing it onto their customers.

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