

SAFETY DATA SHEET

Product:

ISCEON[®] MO49 (R413A)

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Revision: 1.2

Date: 20/07/06

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

PRODUCT NAME ISCEON[®] MO49 (R413A)

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02 - COMPOSITION/INFORMATION ON INGREDIENTS

COMPOSITION / INFORMATION ON INGREDIENTS Mixture of: TETRAFLUOROETHANE (R-134a)
OCTOFLUOROPROPANE (R-218)
ISOBUTANE (R-600a)

03 - HAZARDS IDENTIFICATION

MOST IMPORTANT HAZARDS -

HEALTH EFFECTS Contains liquefied gas. Contact with liquid may cause frostbite and injury to the cornea.
May have a narcotic effect at high concentrations.

PHYSICAL AND CHEMICAL HAZARDS Heating will cause a rise in pressure with a risk of bursting.
On combustion, toxic gases are released.

CLASSIFICATION/SPECIFIC HAZARDS According to EEC criteria, this product is not classified as a "hazardous preparation".

04 - FIRST AID MEASURES

INHALATION Move the affected person to the fresh air.
Make affected person rest.
Oxygen or artificial respiration should be administered if breathing stops.
Call a doctor immediately.
In case of persistent problems:
Consult a doctor.

SKIN CONTACT Contact of liquid with skin:
Rinse immediately with plenty of warm water.
Immediately remove contaminated clothing and footwear.
If clothing is stuck do not pull it off.
Cover the affected area with a sterile dressing.
Transfer to hospital immediately.

EYE CONTACT Contact of liquid with eyes:
Wash immediately, abundantly and thoroughly with water.
Consult an ophthalmologist immediately.

INGESTION Not specifically applicable (gas).

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

SPECIFIC HAZARDS	Pressurised container. On heating there is a risk of bursting due to internal pressure build up. NOT flammable. However, it may present a risk in the case of a fire. Toxic vapours (halogen compounds) are released
SPECIFIC METHODS	Stay upwind. Evacuate personnel away from fumes. Cool containers/tanks with water spray. Prohibit all sources of sparks and ignition - Do not smoke.
EXTINGUISHING MEDIA	-
Suitable	All extinguishing agents can be used.
Unsuitable	None. If there is a fire close by, use suitable extinguishing agents.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS	Wear self-contained breathing apparatus and protective suit.

06 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION	Avoid contact with skin and eyes. Do not inhale vapours. In enclosed areas: ventilate or wear self-contained breathing apparatus (risk of anoxia). Remove all sources of ignition. No naked flames. Do not smoke. Heavy vapours. Shut off low-level openings in the vicinity (ventilation shafts, drains etc.) Prevent product from entering cellars, basements or pits. Stop the leak. Ventilate spillage area. Ventilate basements.
ENVIRONMENTAL PRECAUTIONS	Prevent product from spreading into the environment. Contain the spilled material by bunding.
METHODS FOR CLEANING UP	-
Recovery	Recover as much of the product as is possible.
Cleaning/Decontamination	Allow residual product to evaporate.
Disposal	Incinerate at a licensed installation.

07 - HANDLING AND STORAGE

HANDLING	-
Technical measures/Precautions	Storage and handling precautions applicable to products: GAS UNDER PRESSURE. Ensure appropriate exhaust and ventilation at machinery. Avoid ignition sources and contact with hot surfaces - DO NOT SMOKE.
Safe handling advice	-
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. Store at temperatures below 45°C.
Incompatible products	Alkali metals. Alkaline earth metals Magnesium. Powdered metals.

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PACKAGING MATERIALS

Recommended	- Ordinary steel. Stainless steel.
Prohibited	Aluminium alloys containing more than 2% of magnesium. Magnesium and its alloys. Zinc and its alloys.

08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES	Ensure good ventilation of the work station.
CONTROL PARAMETERS	-
Exposure limits	OES: 1000ppm (4200 mg/m ³). (Long term exposure limit – 8h TWA reference period). (for tetrafluoroethane).
PERSONAL PROTECTION EQUIPMENT	-
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment.
Hand protection	Protective gloves insulated against the cold.
Eye protection	Safety glasses.
Skin and body protection	Impermeable clothing.
Specific hygiene measures	Avoid contact with skin and eyes and inhalation of vapours. Do not smoke.

09 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Compressed liquefied gas
COLOUR	colourless
ODOUR	ether-like (slightly)
pH	not applicable
BOILING POINT	-35.0°C
FLASH POINT	Not applicable
OXIDISING PROPERTIES	Non oxidising material according to EEC criteria.
VAPOUR PRESSURE	(20°C): 0.683 MPa (6.83 bar)
SPECIFIC GRAVITY	(20°C): 1214 kg/m ³
SOLUBILITY	-
Water	Slightly soluble.
In organic solvents	Soluble in: common solvents

10 - STABILITY AND REACTIVITY

STABILITY	Stable at ambient temperature and under normal conditions of use.
CONDITIONS TO AVOID	Avoid contact with flames and red hot metallic surfaces. May decompose.
METALS TO AVOID	Alkali metals. Alkaline earth metals Magnesium. Powdered metals.

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HAZARDOUS DECOMPOSITION PRODUCTS

On combustion or on thermal decomposition (pyrolysis) releases:
toxic gases.
(Fluorinated compounds).
(Hydrofluoric acid).

11 - TOXICOLOGICAL INFORMATION

ACUTE SYMPTOMS

Effects following high level exposure:
Headaches.
Dizziness.
Loss of consciousness.
Possible effects following high level exposure:
Cardiac disorders.
Possibility of cardiac arrest.

LOCAL EFFECTS

Contact with liquefied gas causes frostbite.
Contact with liquefied gas causes injury to the cornea.

FURTHER INFORMATION

Not classified as a hazardous substance according to EEC criteria.

12 - ECOLOGICAL INFORMATION

BEHAVIOUR IN THE ENVIRONMENT

Mobility

-
Product is volatile when in aqueous solution.

PERSISTENCE/DEGRADABILITY

No information available.

BIOACCUMULATION

Not bioaccumulable.

DESTINATION OF THE PORODUCT

Ultimate destination of the product : AIR

ECOTOXICITY

-

Effects on the aquatic environment

No information available.

13 - DISPOSAL CONSIDERATIONS

WASTE FROM RESIDUES

Prohibition

-
Do not allow the product to be released into the environment.

DESTRUCTION/DISPOSAL

Consult manufacturer or supplier for information regarding recovery and recycling of the product.

If recovery is not possible:

Incinerate at a licensed installation.

CONTAMINATED PACKAGING

Decontamination/Cleaning

-

De-gas.

Destruction/Disposal

Re-useable containers:

Return to the supplier.

Disposable containers:

Dispose of at an authorised land fill site.

NOTE:

The users attention is drawn to the possible existence of local regulations regarding disposal.

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14 - TRANSPORT INFORMATION

INTERNATIONAL REGULATIONS

Land:

-rail/road (RID/ADR):

UN number: 3163.

Class : 2.2

Hazard identification number: 20.

Labelling: 2.2

Sea (IMO/IMDG):

Class: 2.2.

UN number: 3163.

Labelling: 2 NON FLAMMABLE GAS.

Marine pollutant: NO

Air (ICAO-IATA):

Class: 2.2.

UN number: 3163.

Labelling: 2 NON-FLAMABLE GAS.

Cargo aircraft: Packing instruction: 200 Quantity: 150kg.

Passenger aircraft: Packing instruction: 200 Quantity: 75kg.

-United Kingdom: Rail/road

Substance identification number: 3163.

Classification for conveyance: NON-FLAMABLE COMPRESSED GAS.

The above regulatory prescriptions are those valid for the date of publication of this sheet.

Given the possible evolution of transport regulations for hazardous materials, it would be

advisable to check their validity with your sales office.

15 - REGULATORY INFORMATION

LABELLING

EEC Regulations

-R phrases

-S phrases

Mandatory labelling (self-classification) of hazardous preparations: Not applicable.

No R phrases.

S 24/25: Avoid contact with skin and eyes.

S 41: In the case of fire and/or explosion do not breathe fumes.

NOTE:

The regulatory information given above only indicates the principle regulations specifically applicable to the product described in the Safety Data Sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations.

Refer to all applicable national, international and local regulations or provisions.

16 - OTHER INFORMATION

RECOMMENDED USES

FURTHER INFORMATION

Registration numbers

Refrigerant.

-

All the constituents in this preparation are registered in the EINECS inventory.

All the constituents in this preparation are registered in the TSCA inventory.

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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.

End of document