

SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

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ISCEON MO49 PLUS (R437A)

Revision 1

Revision date 2014-10-16

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

1.1. Product identifier

Product name	ISCEON MO49 PLUS (R437A)
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1.2. Relevant identified uses of the substance or mixture and uses advised against

Product Use	<p>[SU22] Professional uses: Public domain (administration, education, entertainment, services, craftsmen); [SU19] Building and construction work; [PC16] Heat transfer fluids; [PROC1] Use in closed process, no likelihood of exposure; [ERC7] Industrial use of substances in closed systems; [AC1] Vehicles;</p> <p>-----</p> <p>[SU22] Professional uses: Public domain (administration, education, entertainment, services, craftsmen); [SU19] Building and construction work; [PC16] Heat transfer fluids; [PROC1] Use in closed process, no likelihood of exposure; [ERC7] Industrial use of substances in closed systems; [AC2] Machinery, mechanical appliances, electrical/electronic articles;</p> <p>-----</p> <p>[SU22] Professional uses: Public domain (administration, education, entertainment, services, craftsmen); [SU19] Building and construction work; [PC16] Heat transfer fluids; [PROC1] Use in closed process, no likelihood of exposure; [ERC7] Industrial use of substances in closed systems; [AC3] Electrical batteries and accumulators;</p>
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1.3. Details of the supplier of the safety data sheet

Company	A-Gas UK Limited
Address	Banyard Road Portbury West Bristol BS20 7XH United Kingdom
Telephone	[+44] (0) 1275 376600
Fax	[+44] (0) 1275 376601
Email address of the competent person	info.uk@agas.com

1.4. Emergency telephone number

Emergency telephone number	[+44] (0) 1275 376600 24 hr
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Main hazards	No Significant Hazard
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2.2. Label elements

Risk phrases	No Significant Hazard.
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2.3. Other hazards

Other hazards	No data available.
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SECTION 3: Composition/information on ingredients

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3.2. Mixtures

67/548/EEC / 1999/45/EC

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
1,1,1,2-Tetrafluoroethane		811-97-2	212-377-0		70 - 80%	
Butane	601-004-00-0	106-97-8	203-448-7		1 - 10%	F+; R12
Pentane	601-006-00-1	109-66-0	203-692-4		0.5 - 1%	F+; R12 Xn; R65 R66 R67 N; R51/53

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air. If breathing is difficult give oxygen.
Eye contact	Rinse immediately with plenty of water for 15 minutes holding the eyelids open.
Skin contact	Allow to evaporate. Remove contaminated clothing. Rinse immediately with plenty of water for 15 minutes.
Ingestion	Not applicable.

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

Inhalation	May cause irritation to respiratory system.
Eye contact	May cause irritation to eyes.
Skin contact	May cause irritation to skin.
Ingestion	Not applicable.

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

Inhalation	Seek medical attention if irritation or symptoms persist.
Eye contact	Seek medical attention if irritation or symptoms persist.
Skin contact	Seek medical attention if irritation or symptoms persist.
Ingestion	Seek medical attention if irritation or symptoms persist.

SECTION 5: Firefighting measures

5.1. Extinguishing media

	Use extinguishing media appropriate to the surrounding fire conditions.
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5.2. Special hazards arising from the substance or mixture

	Heating produces hazardous fumes.
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5.3. Advice for firefighters

	Wear self contained breathing apparatus and protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

	Ensure adequate ventilation of the working area. Evacuate personnel to a safe area. Prevent further spillage if safe. Keep public away from danger area. Keep upwind. Eliminate all sources of ignition.
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6.2. Environmental precautions

	Avoid release to the environment. Refer to special instructions/Safety data sheets.
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6.3. Methods and material for containment and cleaning up

	Do not allow product to enter drains.
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6.4. Reference to other sections

	See section 3, 8, 13 for further information.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

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7.1. Precautions for safe handling

Ensure adequate ventilation of the working area. Keep away from sources of ignition - No smoking. Keep away from heat. Heating may cause an explosion.

7.2. Conditions for safe storage, including any incompatibilities

Keep in a cool, dry, well ventilated area. Store in original container. Keep away from incompatible materials.

7.3. Specific end use(s)

See section 1.2. Relevant identified uses of the substance or mixture and uses advised against for further information.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

See section 8.2 for further information.

8.1.1. Exposure Limit Values

1,1,1,2-Tetrafluoroethane	WEL 8-hr limit ppm: 1000 WEL 15 min limit ppm: -	WEL 8-hr limit mg/m3: 4240 WEL 15 min limit mg/m3: -
Butane	WEL 8-hr limit ppm: 600 WEL 15 min limit ppm: 750	WEL 8-hr limit mg/m3: 1450 WEL 15 min limit mg/m3: 1810
Pentane	WEL 8-hr limit ppm: 600 WEL 15 min limit ppm: -	WEL 8-hr limit mg/m3: 1800 WEL 15 min limit mg/m3: -

8.2. Exposure controls



8.2.1. Appropriate engineering controls

Ensure adequate ventilation of the working area.

8.2.2. Individual protection measures

Wear protective clothing.
Wash all contaminated clothing before reuse.

Eye / face protection

Approved safety goggles.
In case of splashing, wear: Face shield.

Skin protection - Handprotection

Wear suitable gloves.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Occupational exposure controls

Adopt best Manual Handling considerations when handling, carrying and dispensing.
Keep away from food, drink and animal feedingstuffs.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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9.1. Information on basic physical and chemical properties

Appearance	Liquified Gas.
Colour	Colourless
Odour	Slight
Relative density	1.2
Fat Solubility	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available
pH	No data available
Melting point	No data available
Freezing Point	No data available
Initial boiling point	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability limits	No data available
Vapour Flammability	No data available
Vapour pressure	No data available
Vapour density	No data available
Solubility	No data available

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Gas group	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data is available on this product.

10.2. Chemical stability

Stable under normal conditions. Vapours are heavier than air.

10.3. Possibility of hazardous reactions

No data is available on this product.

10.4. Conditions to avoid

Heat.

10.5. Incompatible materials

No data is available on this product.

10.6. Hazardous decomposition products

No data is available on this product.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

No data available.

11.1.4. Toxicological Information

1,1,1,2-Tetrafluoroethane	Inhalation Rat LC50/4H h: 1500 gm/m ³	Inhalation Mouse LC50/2H h: 1700 gm/m ³
Butane	Inhalation Rat LC50/4H h: 658000 mg/m ³	Inhalation Mouse LC50/2H h: 680000 mg/m ³
Pentane	Inhalation Rat LC50/4H h: 364 gm/m ³	Oral Rat LD50: >2000 mg/kg

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SECTION 12: Ecological information**12.1. Toxicity**

1,1,1,2-Tetrafluoroethane	Daphnia EC50/48h: 980 mg/l	Rainbow trout LC50/96h: 450 mg/l
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12.2. Persistence and degradability

	No data is available on this product.
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12.3. Bioaccumulative potential

	No data is available on this product.
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12.4. Mobility in soil

	No data is available on this product.
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12.5. Results of PBT and vPvB assessment

	No data is available on this product.
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12.6. Other adverse effects

	No data is available on this product.
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SECTION 13: Disposal considerations**13.1. Waste treatment methods**

	Dispose of in compliance with all local and national regulations.
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SECTION 14: Transport information**Hazard pictograms**

	
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14.1. UN number

	UN1078
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14.2. UN proper shipping name

	REFRIGERANT GAS, N.O.S. (1,1,1,2-Tetrafluoroethane, Pentafluoroethane)
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14.3. Transport hazard class(es)

ADR/RID	2
Subsidiary risk	-
IMDG	2.2
Subsidiary risk	-
IATA	2.2
Subsidiary risk	-

14.4. Packing group

Packing group	-
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14.5. Environmental hazards

Environmental hazards	No
Marine pollutant	No

14.6. Special precautions for user

	No data available.
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14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

	Not applicable.
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ADR/RID

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ADR/RID	
Hazard ID	20
Tunnel Category	(C/E)
IMDG	
EmS Code	F-C S-V
IATA	
Packing Instruction (Cargo)	200
Maximum quantity	150 kg
Packing Instruction (Passenger)	200
Maximum quantity	75 kg

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulations	<p>COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.</p> <p>REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.</p>
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15.2. Chemical safety assessment

	No data is available on this product.
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SECTION 16: Other information**Other information**

Revision	<p>This document differs from the previous version in the following areas:.</p> <ul style="list-style-type: none"> 1 - Description. 1 - Product Use. 7 - 7.3. Specific end use(s). 9 - 9.1. Information on basic physical and chemical properties (Appearance). 9 - 9.1. Information on basic physical and chemical properties (Colour). 9 - 9.1. Information on basic physical and chemical properties (Odour). 9 - 9.1. Information on basic physical and chemical properties (PH). 9 - 9.1. Information on basic physical and chemical properties (Initial boiling point). 9 - 9.1. Information on basic physical and chemical properties (Melting point). 9 - 9.1. Information on basic physical and chemical properties (Flash point). 9 - 9.1. Information on basic physical and chemical properties (Flammability limits). 9 - 9.1. Information on basic physical and chemical properties (Autoignition temperature). 9 - 9.1. Information on basic physical and chemical properties (Explosive properties). 9 - 9.1. Information on basic physical and chemical properties (Oxidising properties). 9 - 9.1. Information on basic physical and chemical properties (Vapour pressure). 9 - 9.1. Information on basic physical and chemical properties (Viscosity). 9 - 9.1. Information on basic physical and chemical properties (Vapour density). 9 - 9.1. Information on basic physical and chemical properties (Evaporation rate). 9 - 9.1. Information on basic physical and chemical properties (Freezing Point). 9 - 9.1. Information on basic physical and chemical properties (Fat Solubility). 9 - 9.1. Information on basic physical and chemical properties (Solubility). 9 - 9.2. Other information (Conductivity).
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Other information

Text of risk phrases in Section 3	9 - 9.2. Other information (Partition coefficient).
	9 - 9.2. Other information (Gas group).
	9 - 9.2. Other information (Surface tension).
	R12 - Extremely flammable.
	R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R65 - Harmful: may cause lung damage if swallowed.
	R66 - Repeated exposure may cause skin dryness or cracking.
	R67 - Vapours may cause drowsiness and dizziness.

Further information

	The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.
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