



DuPont™ ISCEON® MO79 refrigerant

Version 2.3

Revision Date 15.12.2009

Ref.130000027388

This SDS adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Product name : DuPont™ ISCEON® MO79 refrigerant

Types : ASHRAE Refrigerant number designation: R-422A

Use of the Substance/Mixture : Refrigerant

Company : Du Pont de Nemours (Nederland) B.V.
Baanhoekweg 22
NL-3313 LA Dordrecht
Netherlands

Telephone : +31-78-630.1011

Emergency telephone : +44-(0)8456-006.640

E-mail address : sds-support@che.dupont.com

2. HAZARDS IDENTIFICATION

Rapid evaporation of the liquid may cause frostbite.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
May cause cardiac arrhythmia.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	EC-No.	Classification	Concentration [%]
1,1,1,2-Tetrafluoroethane	811-97-2	212-377-0		11,5
Pentafluoroethane	354-33-6	206-557-8		85,1
Isobutane (<0.1% butadiene)	75-28-5	200-857-2	F+; R12	3,4

For the full text of the R-phrases mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice : Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.

Inhalation : Remove from exposure, lie down. Artificial respiration and/or oxygen may be necessary. Consult a physician.

Skin contact : Take off contaminated clothing and shoes immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.


DuPont™ ISCEON® MO79 refrigerant

Version 2.3

Revision Date 15.12.2009

Ref.130000027388

Eye contact : Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Ingestion : Is not considered a potential route of exposure.

Notes to physician

Treatment : Do not give adrenaline or similar drugs.

5. FIRE-FIGHTING MEASURES

Specific hazards during fire fighting : pressure build-up

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers / tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Should not be released into the environment.

Methods for cleaning up : Evaporates.

7. HANDLING AND STORAGE
Handling

Advice on safe handling : Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.

Advice on protection against fire and explosion : No special protective measures against fire required.

Storage

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Store in original container.

Advice on common storage : No materials to be especially mentioned.

Storage temperature : < 49 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Components with workplace control parameters


DuPont™ ISCEON® MO79 refrigerant

Version 2.3

Revision Date 15.12.2009

Ref.130000027388

Components	CAS-No.	Type Form of exposure	Control parameters	Update	Basis
1,1,1,2- Tetrafluoroethane	811-97-2	TWA	4 240 mg/m3 1 000 ppm	2007	EH40 WEL

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection : Heat insulating gloves

Eye protection : Safety glasses with side-shields Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: Liquefied gas,
Colour	: colourless,
Odour	: slight, ether-like,
pH	: neutral
Boiling point/boiling range	: -46,2 - -41,5 °C at 1 013 hPa
Flash point	: does not flash
Upper explosion limit	: , not applicable
Vapour pressure	: 12 200 hPa at 25 °C
Density	: 1,157 g/cm ³ at 25 °C, (as liquid)
Water solubility	: , slightly soluble

10. STABILITY AND REACTIVITY

Conditions to avoid : The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become


DuPont™ ISCEON® MO79 refrigerant

Version 2.3

Revision Date 15.12.2009

Ref.130000027388

flammable or reactive under certain conditions.

Materials to avoid : Alkali metals, Alkaline earth metals, Powdered metals, Powdered metal salts

Hazardous decomposition products : Hydrogen halides, Carbon dioxide (CO₂), Carbon monoxide, Fluorocarbons, Carbonyl halides

11. TOXICOLOGICAL INFORMATION

Acute inhalation toxicity

- Pentafluoroethane : LC50/ 4 h/ rat :
> 769 000 ppm

Repeated dose toxicity

- Pentafluoroethane : Inhalation rat
No toxicologically significant effects were found.

Mutagenicity assessment

- Pentafluoroethane : Did not cause genetic damage in cultured bacterial cells., Did not cause genetic damage in cultured mammalian cells., Did not cause genetic damage in animals.

Carcinogenicity assessment

- : Did not show carcinogenic effects in animal experiments.

Toxicity to reproduction assessment

- : Did not show mutagenic or teratogenic effects in animal experiments.

Human experience

- : Excessive exposures may affect human health, as follows:

Inhalation

Severe shortness of breath, Irregular cardiac activity, narcosis

Further information

- : Rapid evaporation of the liquid may cause frostbite.

12. ECOLOGICAL INFORMATION

Toxicity to fish

- 1,1,1,2-Tetrafluoroethane : LC50 / 96 h/ Oncorhynchus mykiss (rainbow trout) : 450 mg/l

Aquatic toxicity

- 1,1,1,2-Tetrafluoroethane : / EC50/ 48 h/ Daphnia magna (Water flea): 980 mg/l

Ozone depletion potential : 0

Global warming potential (GWP) : 3 143

**DuPont™ ISCEON® MO79 refrigerant**

Version 2.3

Revision Date 15.12.2009

Ref.130000027388

13. DISPOSAL CONSIDERATIONS

- Product : Can be used after re-conditioning.
- Contaminated packaging : Empty pressure vessels should be returned to the supplier.

14. TRANSPORT INFORMATION**ADR**

- Class: 2
Classification Code: 2A
HI No.: 20
UN-Number: 1078
Labelling No.: 2.2
Proper shipping name: Refrigerant gas, n.o.s. (1,1,1,2-Tetrafluoroethane, Pentafluoroethane)

IATA_C

- Class: 2.2
UN-Number: 1078
Labelling No.: 2.2
Proper shipping name: Refrigerant gas, n.o.s. (1,1,1,2-Tetrafluoroethane, Pentafluoroethane)

IMDG

- Class: 2.2
UN-Number: 1078
Labelling No.: 2.2
Proper shipping name: Refrigerant gas, n.o.s. (1,1,1,2-Tetrafluoroethane, Pentafluoroethane)

15. REGULATORY INFORMATION**Labelling according to EC Directives**

- Special labelling of certain mixtures : Safety data sheet available on request for professional users. Contains fluorinated greenhouse gas covered by the Kyoto Protocol. 1,1,1,2-TetrafluoroethanePentafluoroethane

The product does not need to be labelled in accordance with Directive 1999/45/EC, or Annex VI to 67/548/EEC.

16. OTHER INFORMATION**Text of R-phrases mentioned in Section 3**

- R12 Extremely flammable.

Significant change from previous version is denoted with a double bar.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s)



DuPont™ ISCEON® MO79 refrigerant

Version 2.3

Revision Date 15.12.2009

Ref.130000027388

used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.