	<b>SAFETY DATASHEET</b>	Page : 1/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

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

### 1.1. Product identifier

Trade name	Perfluorocyclopentene
Chemical description	Octafluorocyclopentene /octafluorocyclopent-1-ene
CAS N°	559-40-0
CE N°	209-203-0
Index N°	--
Registration n°	-
Chemical formula	C <sub>5</sub> F <sub>8</sub>

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

Relevant identified uses	Industrial and professional Test gas/Calibration gas Laboratory use Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

### 1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	<a href="mailto:info@multigas.ch">info@multigas.ch</a>

### 1.4. Emergency telephone numbers


145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51  
+41 (0) 26 676 94 94 (Multigas)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

<b>Hazards</b>	Severe eye damage - Category 1	H318
	Acute toxicity - Inhalation Category 3	H331
	Specific toxicity for certain target organs (single exposure)	H335

	<b>SAFETY DATASHEET</b>	Page : 2/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

## 2.2. Label elements

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

Hazard pictograms



GHS05

GHS06

Signal word

Danger

Hazard statements

H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray
P271	Use only outdoors or in a well-ventilated area
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352	IF ON SKIN: Wash with plenty of soap and water
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P410+403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

## 2.3. Other hazards

Asphyxiant in high concentrations  
Contact with liquid may cause cold burns/frostbite


## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	Concentration	Classification
Perfluorocyclopentene	(CAS-No.) 559-40-0 (EC-No.) 209-203-0 (EC Index-No.) --- (Registration-No.) --	≤ 100%	Acute Tox. Inha 3 ;H331 Eye Dam 1 ;H318 STOT SE 3 ;H335

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

	<b>SAFETY DATASHEET</b>	Page : 3/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

### 3.2. Mixtures

Not established

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General advice</b>	See a doctor. Show this safety data sheet to the attending physician
<b>In case of inhalation</b>	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
<b>In case of skin contact</b>	Sprinkle with large amounts of water until medical help arrives
<b>In case of eyes contact</b>	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Keep the eye open during rinsing
<b>In case of ingestion</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

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

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation  
Refer to section 11

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

No data available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media


<b>Suitable extinguishing media</b>	Water spray or water mist. Dry powder. Carbon dioxide. Foam
<b>Unsuitable extinguishing media</b>	Do not use water jet to extinguish

### 5.2. Special hazards arising from the substance or mixture

<b>Specific hazards</b>	In case of fire or excessive heat, hazardous combustion products may be produced Exposure to fire may cause containers to rupture/explode
<b>Hazardous combustion products</b>	In case of fire or excessive heat, hazardous combustion products may be produced such as : carbon monoxide, hydrogen fluoride, carbonyl fluoride

### 5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

	<b>SAFETY DATASHEET</b>	Page : 4/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

**SECTION 6: Accidental release measures**
**6.1. Personal precautions, protective equipment and emergency procedures**

Avoid breathing vapours, spray mists or gases  
 Provide adequate ventilation  
 Evacuate personnel to a safe place  
 Personal protective equipment, see section 8

**6.2. Environmental precautions**

No data available

**6.3. Methods and material for containment and cleaning up**

Ventilate the area  
 Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

**6.4. Reference to other sections**

See also sections 8 and 13

**SECTION 7: Handling and storage**
**7.1. Precautions for safe handling**

For precautions, see section 2.2

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place  
 Content under pressure

**7.3. Specific end use(s)**

None

**SECTION 8: Exposure controls/personal protection**
**8.1. Control parameters**

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Control parameter	Source
Perfluorocyclopentene	559-40-0	TWA	-	No occupational exposure limit value
			-	
		OEL	-	No occupational exposure limit value
			-	

	<b>SAFETY DATASHEET</b>	Page : 5/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation  
 Gas detectors should be used when flammable / toxic gases / vapours are likely to be released

### 8.2.2. Individual protection measures, e.g. personal protective equipment

#### Eye/face protection

Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN 166

#### Skin / hand protection

Wear protective gloves when handling gas cylinders. Standard EN 388- Protective gloves against mechanical hazards  
 Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511 - Insulating gloves against cold  
 Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals

##### **For short-term use**

Material: Fluoroelastomer  
 Penetration time:> 480 min  
 Glove thickness: 0.7 mm

##### **For long-term use**

Material: Fluoroelastomer  
 Penetration time:> 480 min  
 Glove thickness: 0.7 mm

Have appropriate, chemical-resistant protective clothing ready for use in emergencies

#### Respiratory protection

Self-contained breathing apparatus (SCBA) or mask with positive pressure air supply must be used in oxygenated atmospheres. Standard EN 137 - Self-contained open-circuit compressed air unit with full face mask

### 8.2.3. Environmental exposure controls

-

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

- Physical state at 20°C / 101.3kPa                      Liquid
- Colour    Colourless

Odour    No data available

Odour threshold                              No data available

pH    No data available

Melting point / Freezing point              < -70°C

**Perfluorocyclopentene**
**MTGxxx**

<b>Boiling point</b>	27°C
<b>Flash point</b>	No data available
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	Non-flammable
<b>Explosive limits</b>	Non-flammable
<b>Vapour pressure [20°C]</b>	0.82 bar
<b>Vapour pressure [50°C]</b>	No data available
<b>Vapour density</b>	No data available
<b>Relative density, liquid (water=1)</b>	1.58
<b>Relative density, gas (air=1)</b>	7.4
<b>Water solubility</b>	Insoluble
<b>Partition coefficient n-octanol/water (Log Kow)</b>	2.9
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidising properties</b>	No data available

**9.2. Other information**

<b>Molar mass</b>	212.05 g/mol
<b>Critical temperature [°C]</b>	No data available
<b>Relative vapour density</b>	7.4 (Air=1)

**SECTION 10: Stability and reactivity**
**10.1. Reactivity**

No reactivity hazard other than the effects described in sub-sections below

**10.2. Chemical stability**


Stable under recommended storage conditions

**10.3. Possibility of hazardous reactions**

No data available

**10.4. Conditions to avoid**

Avoid exposure to high temperatures or daylight. Heat, flame, sparks

	<b>SAFETY DATASHEET</b>	Page : 7/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

### **10.5. Incompatible materials**

Oxidising agents, alkalis  
For additional information on compatibility refer to ISO 11114

### **10.6. Hazardous decomposition products**

No hazardous decomposition products under normal conditions of use and storage

## SECTION 11: Toxicological information

### **11.1. Chemical safety assessment**

<b>Acute toxicity</b>	There is no information available for the product itself
<b>Skin corrosion/irritation</b>	May cause skin delipidation, but is not irritating
<b>Serious eye damage/irritation</b>	Causes severe eye damage
<b>Respiratory or skin sensitisation</b>	No data available
<b>Germ cell mutagenicity</b>	No data available
<b>Carcinogenicity</b>	No data available
<b>Reproductive toxicity</b>	No data available
<b>STOT-single exposure – Target organ(s)</b>	Kidneys. Respiratory system. Central nervous system. Heart
<b>STOT-repeated exposure</b>	May cause damage to organs (liver, lung, skin) through prolonged or repeated exposure
<b>Ingestion hazard</b>	Toxic by inhalation. Irritating to the respiratory tract. May be fatal if inhaled

## SECTION 12: Ecological information

### **12.1. Toxicity**

<b>Assessment</b>	May cause pH changes in aqueous environmental systems
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### **12.2. Persistence and degradability**

The product is not easily biodegradable

### **12.3. Bioaccumulative potential**

No data available

### **12.4. Mobility in soil**

Due to its high volatility, the product is not likely to cause soil pollution

	<b>SAFETY DATASHEET</b>	Page : 8/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

### 12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

### 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Product</b>	<p>Must not be released into the atmosphere</p> <p>Burn in a chemical incinerator equipped with an afterburner and scrubber</p> <p>Return to the supplier the product not consumed in its original container</p>
<b>Contaminated container</b>	<p>Eliminate as unused product</p> <p>Contact the supplier if instructions are needed</p>
<b>OMoD Code</b>	<p>16 05 04</p> <p>Gases in pressure containers (including halons) containing dangerous substances</p>

## SECTION 14: Transport information

### 14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
2810	2810	2810

### 14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
TOXIC LIQUID, ORGANIC, N.O.S., (Perfluorocyclopentene)	TOXIC LIQUID, ORGANIC, N.O.S., (Perfluorocyclopentene)	TOXIC LIQUID, ORGANIC, N.O.S., (Perfluorocyclopentene)

### 14.3. Transport hazard class(es)


Labelling



ADR/RID  
IMDG  
IATA

6.1 : Toxic liquids



	<b>SAFETY DATASHEET</b>	Page : 9/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

#### 14.4. Packing group

ADR/RID  
IMDG  
IATA

Not established

#### 14.5. Environmental hazards

ADR/RID

None

IMDG

None

ICAO-TI / IATA-DGR

None

#### 14.6. Special precautions for user

No data available

#### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

#### 15.2. Chemical safety assessment

A CSA has not yet been carried out

### SECTION 16: Other information

#### Indication of changes

Revised safety data sheet in accordance with commission regulation (EU) No 2015/830

#### Abbreviations and acronyms

ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS : Chemical Abstract Service number (USA)

CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008

CSA : Chemical Safety Assessment

EIGA : European Industrial Gases Association

EINECS : European Inventory of Existing Commercial Chemical Substances

EN : European Standard


ATE : Acute Toxicity Estimate

IATA : International Air Transport Association

IMDG Code : International Maritime Dangerous Goods Code

LC50 : Lethal Concentration to 50 % of a test population

OMoD : Swiss Ordinance on the movement of waste

	<b>SAFETY DATASHEET</b>	Page : 10/10
		Revised edition n° : 10.0
		Revision date : 03/2033
<b>Perfluorocyclopentene</b>		<b>MTGxxx</b>

PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
REACH :	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID :	Regulations concerning the international carriage of dangerous goods by rail
RMM :	Risk Management Measures
STOT-SE :	Specific Target Organ Toxicity - Single Exposure
UN :	United Nations
vPvB :	Very Persistent and Very Bioaccumulative
WGK:	Water Hazards Class

### Full text of H, EUH and P statements used in sections 2 and 3

#### Hazard statements

H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation

#### Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray
P271	Use only outdoors or in a well-ventilated area
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352	IF ON SKIN: Wash with plenty of soap and water
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P410+403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

#### Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press  
They do not claim to be exhaustive and should be considered as a guide