

Safety Data Sheet (SDS)

1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)- 1-propene [PFIB]

CAS No 382-21-8

Creation date: 30th Sep. 2008

1 Identification of the substance or mixture and of the supplier

1.1 GHS product identifier : 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)- 1-propene [PFIB]

1.2 Other means of identification : Octafluoro-sec-butene, Octafluoroisobutylene, 1, 1, 3, 3, 3-Pentafluoro-2-trifluoromethyl-1-propene, PERFLUOROISOBUTYLENE

1.3 Example of use of the chemical : chemical weapon

1.4 Supplier's details (including name, address, phone number, etc) :

Company name: OOOO CO. LTD

address: OO, OO Town, KL, Malaysia

Tel: 03-0000-1234

FAX: 03-0000-1234

e-mail: OOO@OOO.co.my

emergency call: 019-000-0000

2.Hazard Identification

GHS Classification (Based on NITE)

Physical Hazards	Explosives	Not applicable
	Flammable gases	Classification not possible
	Flammable aerosols	Not applicable
	Oxidizing gases	Classification not possible
	Gases under pressure	Classification not possible
	Flammable liquids	Not applicable
	Flammable solids	Not applicable
	Self-reactive substances and mixtures	Not applicable
	Pyrophoric liquids	Not applicable
	Pyrophoric solids	Not applicable
	Self-heating substances and mixtures	Not applicable
	Substances and mixtures which, in contact with water, emit flammable gases	Not applicable
	Oxidizing liquids	Not applicable
	Oxidizing solids	Not applicable
	Organic peroxides	Not applicable
	Corrosive to metals	Classification not possible
Human Health Hazards	Acute toxicity (Oral)	Not applicable
	Acute toxicity (Dermal)	Not applicable
	Acute toxicity (Inhalation: Gases)	Category 1
	Acute toxicity (Inhalation: Vapours)	Not applicable

	Acute toxicity (Inhalation: Dusts)	Not applicable
	Acute toxicity (Inhalation: Mists)	Not applicable
	Skin corrosion/irritation	Classification not possible
	Serious eye damage/eye irritation	Classification not possible
	Respiratory sensitization	Classification not possible
	Skin sensitization	Classification not possible
	Germ cell mutagenicity	Classification not possible
	Carcinogenicity	Classification not possible
	Reproductive toxicity	Classification not possible
	Specific target organ toxicity - Single exposure	Category 1(central nervous system, lung)
	Specific target organ toxicity - Repeated exposure	Category 1(central nervous system)
	Aspiration hazard	Not applicable
Environmental Hazards	Acute toxicity to the aquatic environment	Classification not possible
	Chronic toxicity to the aquatic environment	Classification not possible

Label Elements

Pictogram and Symbol :



Signal word : **Danger**

Hazard statement : Fatal if inhaled (Gases)

Causes damage to central nervous system, lung
Causes damage to central nervous system through prolonged or repeated exposure

Precaution :

[Prevention]

Do not breathe gas.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear respiratory protection.

[Response]

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

[Storage]

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

[Disposal]

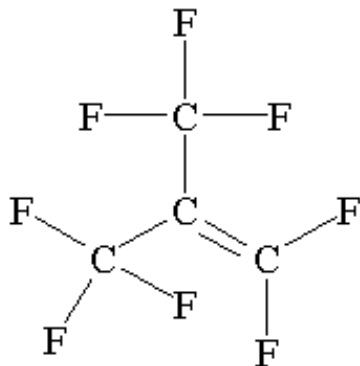
Dispose of contents/container in accordance with local/regional/ national/international regulations.

3 Composition/information on ingredients

3.1 Substance : 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)- 1-propene [PFIB]

3.2 Other name : Octafluoro-sec-butene, Octafluoroisobutylene, 1, 1, 3, 3, 3-Pentafluoro-2-trifluoromethyl-1-propene, PERFLUOROISOBUTYLENE

3.2 Chemical formula : C₄F₈



3.3 CAS number : 382-21-8

3.5 ICSC number : 1216

3.6 EC Number

3.7 NITE number : 956

3.8 Concentration : >99%

4 First aid measures

4.1 Description of necessary measures, subdivided according to the different routes of exposure, ie, inhalation, skin and eye contact, and ingestion

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

4.2 Most important symptoms/effects, acute and delayed

Fatal if inhaled (Gases) (Acute toxicity (Inhalation: Gases) Category 1)

Causes damage to central nervous system, lung (Specific target organ toxicity - Single exposure Category 1(central nervous system, lung))

Causes damage to central nervous system through prolonged or repeated exposure (Specific target organ toxicity - Repeated exposure Category 1(central nervous system))

Please refer to "11 Toxicological information" in detail.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

5 Firefighting measures

Acute hazards/symptoms in Fire : No data.

First AID/Fire Fighting in Fire : In case of fire in the surroundings: use appropriate extinguishing media.

6 Accidental release measures

Evacuate danger area! Consult an expert! Ventilation. Personal protection: self-contained breathing apparatus.

7 Handling and storage

7.1 Precautions for safe handling

Do not breathe gas.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear respiratory protection.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

8 Exposure controls/personal protection

8.1 Control parameters, eg, occupational exposure limit values or biological limit values

ACGIH 2005, TLV-STEL C 0.01ppm

8.2 Appropriate engineering controls (Please refer to engineering controls described in "7.1 Precautions for safe handling".)

8.3 Individual protection measures, such as personal protective equipment (Please refer to Individual protection measures described in "7.1 Precautions for safe handling".)

9 Physical and chemical properties

9.1 Appearance (physical state, color, etc) : colorless gas

9.2 Odor : No data

9.3 Odor threshold : No data

9.4 pH : No data

9.5 Melting point/Freezing point : -130 degree C (melting point)

9.6 Initial boiling point and boiling range : 7 degree C (boiling point)

9.7 Flash point : No data

9.8 Evaporation rate : not applicable

9.9 Flammability (solid, gas) : No data

9.10 Upper/lower flammability or explosive limits : No data

9.11 Vapor pressure : No data

9.12 Vapor density : 6.9 (calculated value)

9.13 Relative density : 1.5297 (0 degree C/4 degree C)

9.14 Solubility(ies) : No data

9.15 Partition coefficient: n-octanol/water : No data

9.16 Autoignition temperature : No data

9.17 Decomposition temperature : No data

9.18 GHS Classification - Physical Hazards

10 Stability and reactivity

10.1 Chemical stability : No data

10.2 Possibility of hazardous reactions :

10.3 Conditions to avoid (eg, static discharge, shock or vibration) :

10.4 Incompatible materials :

10.5 Hazardous decomposition products : CO, CO₂

11 Toxicological information

11.1 Acute toxicity (Oral)

Gas (GHS definition)

11.2 Acute toxicity (Dermal)

Gas (GHS definition)

11.3 Acute toxicity (Inhalation: Gases)

Boiling points is 7degree C in 760torr, and it is gas according to GHS definition. It was considered as Category 1 based on rat 2 hour exposure LC50 value: 1.05ppm (4 hour equivalent: 0.742ppm) (ACGIH 7th, 2001) (in source of Priority 1).

Fatal if inhaled (Gases) (Acute toxicity (Inhalation: Gases) Category 1)

11.4 Acute toxicity (Inhalation: Vapours)

Gas (GHS definition)

11.5 Acute toxicity (Inhalation: Dusts / Mist)

Gas (GHS definition)

11.6 Skin corrosion / irritation

No data available

11.7 Serious eye damage / eye irritation

No data available

11.8 Respiratory sensitization / Skin sensitization

No data available

11.9 Germ cell mutagenicity

No data available

11.10 Carcinogenicity

No data available

11.11 Reproductive toxicity

No data available

11.12 Specific target organ toxicity - Single exposure

Due to confirmation of effects on central nervous systems such as conditioned reflex changes, and of increase or reduction of breathing rates, congestion of lungs, and pulmonary edemas through an inhalation exposure test using rats for 4 hours, so target organs were judged to be central nervous systems and lungs. All of which were confirmed at a dosage within the guidance value of Category 1, and determined to be Category 1 (central nervous systems, pneumoconiosis).

Causes damage to central nervous system, lung (Specific target organ toxicity - Single exposure Category 1(central nervous system, lung))

11.13 Specific target organ toxicity - Repeated exposure

Based on the description that in 19 week intermittent repeated inhalation exposure test on rats, effects on the central nervous systems was observed with the exposure concentration of 0.183 ppm within the guidance value range for Category 1 (RTECS, 2005), it was classified into Category 1 (central nervous systems).

Causes damage to central nervous system through prolonged or repeated exposure (Specific target organ toxicity - Repeated exposure Category 1(central nervous system))

11.14 Aspiration hazard

Gas (GHS definition)

12 Ecological information

12.1 Acute toxicity to the aquatic environment

No data available.

12.2 Chronic toxicity to the aquatic environment

No data available.

12.3 Other adverse effects

13 Disposal considerations

13.1 Description of waste residues and information on their safe handling and methods of disposal

If you would like to dispose of this chemical, you should properly dispose of this by yourself or ask qualified specific agents dispose of this according to related legislations and local regulations. If you would like to ask the agents dispose of this chemical, you should provide sufficient information on dangerousness and hazard of this chemical.

13.2 the disposal of any contaminated packaging

Container should be recycled after cleaning or if you would like to dispose of container of this chemical, you should properly dispose of this by yourself or ask qualified specific agents dispose of this according to related legislations and local regulations. If you would like to ask the agents dispose of this container, you should provide sufficient information on dangerousness and hazard of this chemical in this container and information on ingredient and notice of container.

14 Transport information

14.1 UN Number : 3162

14.2 UN Proper shipping name : LIQUEFIED GAS, TOXIC, N.O.S.

14.3 Transport Hazard class(es) : Division 2.3: Toxic gases

14.4 Packing group, if applicable :

14.5 Marine pollutant (Yes/No)

14.6 Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises

15 Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question (under survey)

16 Other information including information on preparation and revision of the SDS

(Reference)

NITE GHS Classification of this substance ([English/Japanese](#))

GHS Model Label of this substance ([English/Japanese](#))

GHS Model Label List of 714 Chemicals in OSH in Japan ([English/Japanese](#))

GHS Classification Manual, Technical Guidance and Results of the classification in Japan ([English/Japanese](#))

Technical Guidance on GHS classification in Japan ([English/Japanese](#))

Japan Advanced Information center of Safety and Health - Chemical information (Only [Japanese](#))

ICSC 1216 ([English/Japanese](#))

This information was provided by the Project for Improving Occupational Safety and Health Administration of the DOSH between JICA and DOSH, Malaysia.

