

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

Catalogue Number	CS-ED-41839
Product Name	Perfluoroisobutylene
CAS No.	382-21-8
Category	Intermediate
Synonyms	Octafluoroisobutene;
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email sales@clearsynth.com for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Not available

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H330	Not available
H370	Not available
H372	Not available

Precautionary Statement(s)

Code	Statement
P260	Not available
P264	Wash hands thoroughly after handling.
P270	Not available
P271	Use only outdoors or in a well-ventilated area.
P284	Not available
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P316	Not available
P316	Not available
P320	Not available
P321	Specific treatment (see ... on this label).
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulation
P319	Get medical help if you feel unwell.

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Perfluoroisobutylene

CAS Number : 382-21-8

Molecular Formula : C4F8

Molecular Weight : 200.03

Parent Chemical : Not available

Synonyms : Octafluoroisobutene;

Concentration : Not available

SECTION 4: First aid measures

Not available

SECTION 5: Firefighting measures

Not available

SECTION 6: Accidental release measures

Not available

SECTION-7: Handling and storage

Not available

SECTION 8: Exposure controls / personal protection

Not available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available

Property	Value
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

Not available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: A human skin, eye, and mucous membrane irritant. Human acute exposures causes marked irritation of conjunctivae, throat, and lungs. IDENTIFICATION AND USE: Perfluoroisobutylene is a colorless gas which is soluble in water. It may be used as a potential chemical warfare agent; etching material for semiconductor fabrication and synthesis of polymeric materials. HUMAN EXPOSURE AND TOXICITY: A harmful concentration of this gas in the air will be reached very quickly on loss of containment. The substance can be absorbed into the body by inhalation. The substance irritates the respiratory tract. Inhalation exposure may cause severe symptoms of pulmonary edema with wheezing, difficulty in breathing, coughing up sputum and bluish discoloration of the skin. Coughing and chest pain may occur initially. However, severe symptoms of pulmonary edema may be delayed for several hours and then become rapidly worse. Overexposure may cause death. This chemical is a human skin, eye, and mucous membrane irritant. Human acute exposures causes marked irritation of conjunctivae, throat, and lungs. Occupational exposure to perfluoroisobutylene is limited but may occur through inhalation at workplaces where it or the polymer, polytetrafluoroethylene (PTFE, Teflon) is produced or used. ANIMAL STUDIES: In an acute study, rats were exposed to perfluoroisobutylene at 0.25 ppm for 4 hours. During exposure, some animals showed hyperpnea, while three of six animals had dyspnea for 3 hours postexposure. Hyperemia, sneezing, dyspnea, and mild responsiveness were also documented in some animals. Rats exposed by inhalation to this chemical at either 0.24 or 0.49 ppm for 4 hours showed changes in conditioned reflexes, accompanied by an increase in the activity of glutamicoxaloacetic and glutamicpyruvic transaminases in the blood serum. Edema was seen in the lungs. The histopathology of rat lung has been studied after an acute exposure to perfluoroisobutylene at a concentration of 78 ppm for 1.5 minutes. Within 5 minutes of exposure changes to bronchioles and peribronchial alveoli were observed which took the form of alterations to cilial structure, increased pinocytosis and electron lucency, with occasional vesicle formation of type I alveolar epithelial cells. Intercellular leakage with minimal fluid accumulation in the alveolar spaces was also seen. Gradual development of pulmonary edema followed and was visible histologically 2-3 hr post exposure with deaths occurring from 7 hr onwards. Animals sacrificed at 24 hr post exposure showed evidence of widespread pulmonary edema and alveolar interstitial infiltration by lympho-mononuclear cells and macrophages.

- Skin corrosion/irritation: No data available.

- Serious eye damage/eye irritation: /CASE REPORTS/ /Investigators/ monitored 5 patients (2 men and 3 women) accidentally exposed to PFIB at work. Two were chemical plant operators and the other three were chemical engineer technologists involved in laboratory work. All but one [female] patient reported that the contact with PFIB

lasted less than one minute during which time 2 to 5 breaths were taken. Immediately after exposure, all patients developed cough, difficulty breathing, and deep chest pains. Approximately 6 to 8 hours after exposure, these symptoms increased in severity. No ocular or upper respiratory irritation was noted. All patients ran fevers that lasted between 2 and 25 days, and all developed pulmonary edema. The duration of the in-patient stay of the three patients was 27 13, 17, and 23 days. They were discharged as healthy, and follow-up checkups over 2 years revealed no complications in these patients. One [male] patient remained hospitalized for over 2 months due to exudative pleuritis. Another [female] patient died two days after exposure; postmortem examination confirmed toxic fluid pneumonia and lung edema, hemorrhage into the left adrenal and full bloodiness of internal organs. One of the exposed workers in /this/ study was 15-16 weeks pregnant at the time of exposure. The pregnancy ended in a normal, term delivery, the child was reportedly healthy.

- Respiratory or skin sensitization: No data available.
- Germ cell mutagenicity: No data available.
- Carcinogenicity: No data available.
- Reproductive toxicity: /CASE REPORTS/ /Investigators/ monitored 5 patients (2 men and 3 women) accidentally exposed to PFIB at work. Two were chemical plant operators and the other three were chemical engineer technologists involved in laboratory work. All but one [female] patient reported that the contact with PFIB lasted less than one minute during which time 2 to 5 breaths were taken. Immediately after exposure, all patients developed cough, difficulty breathing, and deep chest pains. Approximately 6 to 8 hours after exposure, these symptoms increased in severity. No ocular or upper respiratory irritation was noted. All patients ran fevers that lasted between 2 and 25 days, and all developed pulmonary edema. The duration of the in-patient stay of the three patients was 27 13, 17, and 23 days. They were discharged as healthy, and follow-up checkups over 2 years revealed no complications in these patients. One [male] patient remained hospitalized for over 2 months due to exudative pleuritis. Another [female] patient died two days after exposure; postmortem examination confirmed toxic fluid pneumonia and lung edema, hemorrhage into the left adrenal and full bloodiness of internal organs. One of the exposed workers in /this/ study was 15-16 weeks pregnant at the time of exposure. The pregnancy ended in a normal, term delivery, the child was reportedly healthy.
- STOT-single exposure: No data available.
- STOT-repeated exposure: No data available.
- Aspiration hazard: No data available.

Likely routes of exposure

- IDENTIFICATION AND USE: Perfluoroisobutylene is a colorless gas which is soluble in water. It may be used as a potential chemical warfare agent; etching material for semiconductor fabrication and synthesis of polymeric materials. HUMAN EXPOSURE AND TOXICITY: A harmful concentration of this gas in the air will be reached very quickly on loss of containment. The substance can be absorbed into the body by inhalation. The substance irritates the respiratory tract. Inhalation exposure may cause severe symptoms of pulmonary edema with wheezing, difficulty in breathing, coughing up sputum and bluish discoloration of the skin. Coughing and chest pain may occur initially. However, severe symptoms of pulmonary edema may be delayed for several hours and then become rapidly worse. Overexposure may cause death. This chemical is a human skin, eye, and mucous membrane irritant. Human acute exposures causes marked irritation of conjunctivae, throat, and lungs. Occupational exposure to perfluoroisobutylene is limited but may occur through inhalation at workplaces where it or the polymer, polytetrafluoroethylene (PTFE, Teflon) is produced or used. ANIMAL STUDIES: In an acute study, rats were exposed to perfluoroisobutylene at 0.25 ppm for 4 hours. During exposure, some animals showed hyperpnea, while three of six animals had dyspnea for 3 hours postexposure. Hyperemia, sneezing, dyspnea, and mild responsiveness were also documented in some animals. Rats exposed by inhalation to this chemical at either 0.24 or 0.49 ppm for 4 hours showed changes in conditioned reflexes, accompanied by an increase in the activity of glutamicoxaloacetic and glutamicpyruvic transaminases in the blood serum. Edema was seen in the lungs. The

histopathology of rat lung has been studied after an acute exposure to perfluoroisobutylene at a concentration of 78 ppm for 1.5 minutes. Within 5 minutes of exposure changes to bronchioles and peribronchial alveoli were observed which took the form of alterations to cilia structure, increased pinocytosis and electron lucency, with occasional vesicle formation of type I alveolar epithelial cells. Intercellular leakage with minimal fluid accumulation in the alveolar spaces was also seen. Gradual development of pulmonary edema followed and was visible histologically 2-3 hr post exposure with deaths occurring from 7 hr onwards. Animals sacrificed at 24 hr post exposure showed evidence of widespread pulmonary edema and alveolar interstitial infiltration by lympho-mononuclear cells and macrophages.

Symptoms related to the physical, chemical and toxicological characteristics

- IDENTIFICATION AND USE: Perfluoroisobutylene is a colorless gas which is soluble in water. It may be used as a potential chemical warfare agent; etching material for semiconductor fabrication and synthesis of polymeric materials. HUMAN EXPOSURE AND TOXICITY: A harmful concentration of this gas in the air will be reached very quickly on loss of containment. The substance can be absorbed into the body by inhalation. The substance irritates the respiratory tract. Inhalation exposure may cause severe symptoms of pulmonary edema with wheezing, difficulty in breathing, coughing up sputum and bluish discoloration of the skin. Coughing and chest pain may occur initially. However, severe symptoms of pulmonary edema may be delayed for several hours and then become rapidly worse. Overexposure may cause death. This chemical is a human skin, eye, and mucous membrane irritant. Human acute exposures causes marked irritation of conjunctivae, throat, and lungs. Occupational exposure to perfluoroisobutylene is limited but may occur through inhalation at workplaces where it or the polymer, polytetrafluoroethylene (PTFE, Teflon) is produced or used. ANIMAL STUDIES: In an acute study, rats were exposed to perfluoroisobutylene at 0.25 ppm for 4 hours. During exposure, some animals showed hyperpnea, while three of six animals had dyspnea for 3 hours postexposure. Hyperemia, sneezing, dyspnea, and mild responsiveness were also documented in some animals. Rats exposed by inhalation to this chemical at either 0.24 or 0.49 ppm for 4 hours showed changes in conditioned reflexes, accompanied by an increase in the activity of glutamicoxaloacetic and glutamicpyruvic transaminases in the blood serum. Edema was seen in the lungs. The histopathology of rat lung has been studied after an acute exposure to perfluoroisobutylene at a concentration of 78 ppm for 1.5 minutes. Within 5 minutes of exposure changes to bronchioles and peribronchial alveoli were observed which took the form of alterations to cilia structure, increased pinocytosis and electron lucency, with occasional vesicle formation of type I alveolar epithelial cells. Intercellular leakage with minimal fluid accumulation in the alveolar spaces was also seen. Gradual development of pulmonary edema followed and was visible histologically 2-3 hr post exposure with deaths occurring from 7 hr onwards. Animals sacrificed at 24 hr post exposure showed evidence of widespread pulmonary edema and alveolar interstitial infiltration by lympho-mononuclear cells and macrophages.

SECTION 12: Ecological information

Not available

SECTION 13: Disposal considerations

Not available

SECTION 14: Transport information

Not available

SECTION 15: Regulatory information

Not available

SECTION 16: Other information

Not available

DISCLAIMER

This MSDS is system-generated. Please verify and confirm all data, statements, and values with the Support Team before use or distribution.