



PRODUCT NAME: POLYTETRAFLUOROETHYLENE

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None Anticipated during normal use. Fumes produced at elevated temperatures may aggravate pre-existing eye, skin, and respiratory conditions.

HMIS Hazard Codes		Rating System
Health	1	0 = No Hazard
Flammability	0	1 = Slight Hazard
Reactivity	0	2 = Moderate Hazard
		3 = Serious Hazard
		4 = Severe Hazard

4) First Aid Measures

Eye Effects: In case of contact with thermal decomposition products, flush the eyes immediately and continuously with cold running water. Seek immediate medical assistance*.

Skin Effects: In case of contact with thermal decomposition products, immediately flush the skin with cold running water to cool it. Remove contaminated clothing. Do not attempt to remove molten polymer from the skin. Cover burns with sterile dressings. Seek immediate medical assistance*.

Ingestion/Oral Effects: No effects requiring first aid are expected during normal use. In case of ingestion/oral contact with thermal decomposition products, give several glasses of water to drink. Do not induce vomiting. Seek immediate medical assistance*.

Inhalation: In case of inhalation of thermal decomposition products, remove the patient to fresh air and keep the patient warm. If breathing problems occur, a qualified individual should administer oxygen or artificial respiration. Seek immediate medical assistance*.

Other Information: * In all case of exposure to thermal decomposition products of PTFE seek immediate medical assistance, indicating that hydrofluoric acid and toxic gases are decomposition products. Note that symptoms may not appear until some hours after inhalation of decomposition product.

5) Fire Fighting Measures

Auto Ignition Temp: N/A - Flammable Limits – UEL: N/A -Flash Point: N/A -Flammable Limits – LEL: N/A

Extinguishing Media Water, foam, dry powder or carbon dioxide. Extinguishing materials and fire remnants must be safely disposed of: see Section 13 - Disposal Considerations

Fire and Explosion Hazard When exposed to temperatures over 380° C PTFE can decompose to produce toxic and corrosive substances: see Section 10

Ingestion/Oral Effects: Fire fighters should wear a self contained breathing apparatus (SCBA) which meets appropriate standards, operated in positive pressure mode, and full turn out gear. Wear eye/skin protection adequate to protect from thermal decomposition products. Use acid resistant protective clothing (capable of resisting hydrofluoric acid) to handle cool parts containing decomposed PTFE.

For Flammability Properties - see Section 9



PRODUCT NAME: POLYTETRAFLUOROETHYLENE

6) Accidental Release Measures

No material specific actions are required. Collect the spilled material and dispose as in Section 13.

7) Handling and Storage

Handling: No special precautions are required during normal use

Storage: Store in cool, well ventilated space away from direct sunlight, inflammable materials and sources of ignition. Store in original packaging, showing code numbers

8) Exposure Controls/Personal Protection

Exposure Limits:

Ingredient	CAS#	Limit Type	Limit Type
PTFE	9002-84-0	TWA, as respirable dust, mg/m3 (CMRG)	5
		TWA, as total dust, mg/m3 (CMRG)	10

CMRG: Chemical Manufacturer Recommended Guideline

Threshold limits of Decomposition products

Hydrogen fluoride: 3ppm (Ceiling) ACGIH TLV; 3 ppm OSHA PEL

Carbonyl fluoride: 2ppm (TWA) ACGIH TLV; 5 ppm

Engineering Measures Use appropriate ventilation to control airborne exposures.

Respiratory Protection For conditions of exposure to fumes and/or vapor, use a full face mask with acid and organic vapor cartridges.

Hand/Skin Protection None required under normal conditions of use.

Eye/Face Protection Full face shield or goggles recommended.

Hygiene Measures Practice good workplace hygiene. Do not eat or smoke when handling. Wash hands after handling and before eating smoking.

Other/General Protection None required under normal conditions of use.

**PRODUCT NAME: POLYTETRAFLUOROETHYLENE****9) Physical and Chemical Properties**

Appearance	White
pH (as supplied)	N/A
Solubility in Water	Negligible
Volatile Content by Volume	N/A
Specific Gravity	2.16 +/- .02
Vapor Pressure	N/A

Boiling Point	N/A
Melting Point (Initial)	342 +/- 10° C
Odor	None
Flash Point	No Flash Point
Auto Ignition Temp	N/A
Physical Form	Free Flow Pellets

10) Stability and Reactivity

Stability:	Stable in normal conditions.
Material/ Conditions to Avoid:	Flames and high temperatures.
Hazardous Decomposition:	When exposed to temperatures above 380° C PTFE can be decomposed to produce toxic gases, predominantly carbon dioxide, carbon monoxide, hydrofluoric acid, tetrafluoroethylene, hexafluoropropylene, perfluoroisobutylene, carbonyl fluoride, and other low-molecular fluorohydrocarbons.
Hazardous Polymerization:	Will not occur.

11) Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation, refer to Section 3: Hazards Identification

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

Substance	Condition
Carbonyl Fluoride	At Elevated Temperatures - above 380° C
Carbon Monoxide	At Elevated Temperatures - above 380° C
Carbon Dioxide	At Elevated Temperatures - above 380° C
Hydrogen Fluoride	At Elevated Temperatures - above 380° C
Perfluoroisobutylene (PFIB)	At Elevated Temperatures - above 380° C
Toxic Vapor, Gas, Particulate	At Elevated Temperatures - above 380° C

Carcinogenicity

No known carcinogenic effects.

Toxicity Information for PTFE Decomposition Products:

Inhalation: PTFE decomposition products vary widely in experimental animals. Four hour LC50s (inhalation) for decomposition products range from 0.76 ppm (perfluoroisobutane) to 40,000 ppm (tetrafluoroethylene monomer). Workers exposed to PTFE fumes produced at 350-380C (temperatures associated with liberation of hexafluoroethane, perfluoroisobutylene and octafluorocyclobutene) exhibited symptoms consistent with polymer fume fever at workplace air concentrations of 3.5 mg/m³ compounds containing fluorine.

Chronic: Repeated episodes of polymer fume fever may damage the lungs.



PRODUCT NAME: POLYTETRAFLUOROETHYLENE

12) Ecological Information

The ecological effects of the product have not been established. The product is not expected to be substantially biodegradable. The material contains no chlorofluorocarbons (CFC).

13) Disposable Considerations

Uncontaminated material can be recycled. The material must be properly contained. Dispose of at approved land fill sites, or by high temperature incineration, using licensed contractors.

Water or other substances used to extinguish a fire containing the materials, together with the fire remains, must be collected and suitably disposed of.

Disposal must be in accordance with local authority and national regulations.

14) Transport Information

This product is not classified as dangerous under transport regulations.

Parameter	European	Canadian TDG	United States DOT
Proper Shipping Name	N/A	N/A	N/A
Hazard Class	N/A	N/A	N/A
Identification Number	N/A	N/A	N/A
Shipping Label	N/A	N/A	N/A

15) Regulatory Information

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and 40 CFR Part 372

California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity,

Glossary:

ACGIH- American Conference of Governmental Industrial Hygienists; **ANSI** - American National Standards Institute; **Canadian TDG** - Canadian Transportation of Dangerous Goods; **CAS** - Chemical Abstracts Service; **Chemtrec** - Chemical Transportation Emergency Center (US); **CHIP** - Chemical (Hazard Information and Packing); **DSL** - Domestic Substance List; **EH40 (UK)** - HSE Guidance Note EH40 Occupational exposure limits; **EPCRA** - Emergency Planning and Community Right-to-Know Act; **HMIS** - Hazardous Material Information Services; **HSDB** - Hazardous Substances Data Base; **LC** - Lethal Concentration; **LD** - Lethal Dose; **NFPA** - National Fire Protection Association; **NLM** - National Library of Medicine; **OSHA** - Occupational Safety and Health Administration, US Department of Labor; **PEL** - Permissible exposure limits; **RTECS** - Registry of Toxic Effects of Chemical Substances; **SARA (Title III)** - Superfund Amendments and and Reauthorization Act; **SARA 313** - Superfund Amendments and and Reauthorization Act, Section 313; **SCBA** - Self Contained Breathing Apparatus; **TLV** - threshold limit value; **TSCA** - Toxic Substances Control Act Public Law 94-469; **TWA** - Time Weighted Average; **US DOT** - US Department of Transportation; **WHMIS** - Workplace Hazardous Materials Information System.

DISCLAIMER: the information in this Safety Data Sheet is believed to be correct as of the date issued. No warranties, expressed or implied, including but not limited to, any implied warranty or merchantability or fitness for a particular purpose or course of performance or usage of trade. User is responsible for determining whether the product is fit for a particular purpose and suitable for user's method of use or application and shall not establish a legally valid contractual relationship.