PRODUCT NAME: GRAPHITE FILLED POLYTETRAFLUOROETHYLENE

1) Product and Company Identification

Product Name	Polytetrafluoroethylene & Carbon & Graphite
Synonyms	Carbon Graphite Filled PTFE
Material Code	% Carbon, % Graphite - Powder Pellets, Presintered Granules
Supplier	Poly-Smith PTFE
	8 Taylor Road,Edison, NJ 08818
	phone: 732.287.0610
	fax: 732.281.0790
PTFE CAS Number:	9002-84-0 Graphite CAS Number: 7782-42-5, Carbon CAS Number: 7782-42-5
Emergency Phone	908-337-9851

2) Composition/Information on Ingredients

Ingredient	% weight	CAS Number	Hazard
Polytetrafluoroethylene	65-85%	9002-84-0	NotConsidered to be Hazardous under normal use
Carbon	13-33%	7782-42-5	NotConsidered to be Hazardous under normal use
Graphite	0 - 2%	7782-42-5	NotConsidered to be Hazardous under normal use

3) Hazards Identification

EMERGENCY OVERVIEW: This material, when properly handled according to good working and hygenic practices, is not dangerous to human health and the enviroment. Toxic gases may be realsed at temperatures of 380° C and above. Harmful if thermal decomposition products are inhaled. For short and long term exposure effects see Section 11 Toxilogical data.

Eye Effects	May cause mild eye irritation. No effects requiring first aid are expected during normal use. Eye contact with thermal decomposition products causes redness, irritation, burns.
Skin Effects	No effects requiring first aid are expected during normal use. Skin contact with thermal decomposition products causes redness, irritation, burns.
Ingestion/Oral Effects	No effects requiring first aid are expected during normal use.
Inhalation	May cause upper respiratory tract irritation. Symptoms include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. No effects requiring first aid are expected during normal use.Dust mask recomended. Inhalation of thermal decomposition products causes headache, short breathing, cough, chills and fever, tachychardia (polymer fume fever). Smoking tobacco contaminated with PTFE may also cause polymer fume fever.

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

HMIS Hazard Codes		Rating System
Health	1	0 = No Hazard
Flammibility	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 inhallation of thermal decomposition products, remove the patient to fresh air and keep the patient warm. If breathing problems occur, a qualifiifed individual should administer oxygen or artificial resperation. 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 inhallation of decomposition product.

5) Fire Fighting Measures

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.

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

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6) Accidental Release Measures

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

Measures For Cleaning And Collecting	Collect as much of the spilled material as possible. Use wet sweeping compound or water to avoid creating dust. Sweep up. Clean up residue. Place in a closed container approved for transportation by appropriate authorities. Dispose of material as soon as possible in accordance with federal, state, local or other applicable laws and regulations.

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**
Carbon/Graphite	**7782-42-5**	**TWA, as respirable dust, mg/m3 (OSHA)**	**5**	**TWA, as total dust, mg/m3 (OSHA)**	**15**

CMRG: Chemical Manufacturer Recommended Guideline

Threshold limits of Decoposition 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 sheild or goggles recommended.
Hygiene Measures	Practice good workplace hygeine. Do not eat or smoke when handling. Wash hands after handling and before eating or smoking.
Other/General Protection	None required under normal conditions of use.

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9) Physical and Chemical Properties

Appearance	Grey to Black
pH (as supplied)	N/A
Solubility in Water	Negligable
Volatile Content by Volume	N/A
Specific Gravity	1.9 - 2.22
Vapor Pressure	N/A

Boiling Point	N/A
Melting Point (Initial)	342 +/- 10° C
Odor	None
Flash Point	N/A
Boiling Point	N/A
Physical Form	Powder/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) Toxcological Information

HAZARDOUS DECOMPOSITION: Hydrogen fluoride has an ACGIH Threshold Limit Value of 3 parts per million (as fluoride) as a ceiling limit and an OSHA PEL of 3 ppm of fluoride as an eight hour time-weighted average and 6 ppm of fluoride as a short-term exposure limit. The odor threshold for HF is 0.04 ppm, providing good warning properties for exposure

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° C- 380° C (temperatures associated with liberation of hexafluoroethane, perfluoroisobutylene and octafluorocyclobutene) exhibited symptoms consistent with polymer fume fever at workplace air concentrations of 3.5 mg/m^3 compunds containg fluorine.

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

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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 Godds; **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** - Permissable 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.