COSHH ASSESSMENT

PRODUCTS	Teflon MP1600-N\5069A-N	**DATE**	04.07.01
CUSTOMER	DU-PONT DE NEMOURS	**ASSESSOR**	5.1.2e

RAW MATERIALS	Teflon MP1600-N	5069A-N		
(i) Appearance	Powder	Powder		
(ii) Colour	White	White		
(iii) Odour	None	None		
(iv) Bulk Density	0.5	1.5		

HEALTH HAZARDS ASSESSMENT

	MAJOR	MINOR	NONE
The materials are rated as:		X	

General Risk Statement:	Minor Hazard Risk. There is a risk of flu type symptoms if the operator does not have high hygiene standards			
(i) Inhalable Dust Level	10 mg/m3	10 mg/m3		
(ii) Respirable Dust Level	5 mg/m3	5 mg/m3		
(iii) Respiratory Sensitiser	Yes	Yes		
(iv) Skin irritant	Yes	Yes		
(v) Skin Sensitiser	No	No		
(vi) Ingested LD50	Non Toxic	Non Toxic		
(vii) 50% chance for 75 Kg man.	N\A	N\A		
(viii) Eye Irritant	Yes	Yes		

FIRST AID - IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION

(i) Inhaled	Remove from source keep warm and rest
(ii) Ingested	Remove from source keep warm and rest
(iii) Skin Contact	Wash skin thoroughly with soap and water
(iv) Eye Contact	Wash eyes with saline solution and irrigate in eyebath for at least 15 minutes

PROCESS RISK ASSESSMENT

(i) Fire Risks	WILL GIVE OFF TOXIC FUMES WHEN BURNING			
(ii) Chemical Risks	Reacts with magnesium & aluminium powders at high temp, with molton metals or intermalonon compounds.			
(iii) Explosion Risks	NONE	ST1	ST2	ST3
(iv) Environment Risks	LOW RISK	MEDIUM RISK	HIGH RISK	
		*		
	Clean up spillages IMMEDIATELY The material is insoluble but will float on water			
(v) Any Other Risks	Fumes from fire will give FLU type symptoms			

COSHH ASSESSMENT

PERSONNEL RISK ASSESSMENT & CONTROL

Sources of exposure during processing	
	FEED: X
	BAGGING POINT: X
	WASTE DISPOSAL: X
	OTHER:

Standard Operating Procedures in force during processing: See Production Manual

Operating Procedures - Prodution Manual
Dust Control - Production Manual
Material Handling - Production Manual
Waste Packaging Disposal - Production Manual
Planned Productive Maintenence Procedure - Production Manual
General Process Cleaning

Sources of exposure during non-processing activities

MAINTENANCE	X
CLEANING	X
SPILLAGE	X
OTHER	

Standard Operating Procedures in force during non processing: See Production Manual

Spillage & Waste Disposal Procedure - Enviromental Manual
Pre & Post Maintenance Procedure - Production Manual
General Cleaning Procedure - Production Manual
Cleandown Procedure - Production Manual
Site & Plant Emergency Procedure

CONTROL MEASURES REQUIRED OTHER THAN STANDARD OPERATING PROCEDURES

(i) Engineering — Ensure all seals are intact, are functioning correctly and not causing leakage resulting in a higher risk of exposure

	NDC	NONE	OTHER
Dust control	X		

(ii) Personal Protective Equipment

Eye Protection	NONE	GLASSES	GOGGLES	PUREFLO
Processing	X			
Non-processing	X			

Hand Protection	NONE	CREAM	GLOVES	
Processing			For Smokers	Non smokers
Non-processing			For Smokers	Optional

Dust Mask Type	NONE	8822/9932	PUREFLO	OTHER
Processing		X		
Non-processing		X		

Overall Type	BLUE	WHITE	PAPER	WATERPROOF
Processing	X			
Non-processing	X			

ASSESSMENTS DURING PROCESSING ARE UNDERTAKEN ON A DAILY BASIS. THESE RESULTS ARE PUBLISHED REGULARLY ON THE COMPANY NOTICE BOARD AND ARE AVAILABLE ON REQUEST.

STORAGE REQUIREMENTS

Normal	Oxidizing	Reducing
X		

The MSDS format adheres to U.S. standards and regulatory requirements and may not meet regulatory requirements in other countries.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience are gained.

"ZONYL" FLUOROADDITIVES ALL IN SYNONYM LIST ZON003

ZON003 Revised 26-AUG-1999 Printed 12-JUL-2001

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"ZONYL" is a registered trademark of DuPont.

Corporate MSDS Number : DU007110

Tradenames and Synonyms

MP1500J,
MP1600N

Company Identification

MANUFACTURER/DISTRIBUTOR
DUPONT FLUOROPRODUCTS
1007 MARKET STREET
WILMINGTON, DE 19898

PHONE NUMBERS
Product Information : 1-(800)441-7515
Transport Emergency : 1-(800)424-9300
Medical Emergency : 1-(800)441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%

POLYTETRAFLUOROETHYLENE	9002-84-0	100
Heated above 400 deg C (750 deg F) can evolve as degradation products:		
Hydrogen Fluoride	7664-39-3	<1
Carbonyl Fluoride	353-50-4	<1

Components (Remarks)

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

ADDITIONAL HEALTH EFFECTS

Before using read the Fluoropolymers Safe Handling Guide published by The Society of the Plastics Industry.

The primary hazard associated with these polymers is the inhalation of fumes from overheating or burning, which may cause "polymer fume fever" (see HUMAN HEALTH EFFECTS below).

POLYTETRAFLUOROETHYLENE (PTFE)

Inhalation of PTFE dust may cause irritation of the nose, throat and lungs with cough, difficulty breathing or shortness of breath. Inhalation of fumes from overheating PTFE may cause polymer fume fever, a temporary flu-like illness with fever, chills, and sometimes cough, of approximately 24 hours duration. There are some reports in in the literature of persistent pulmonary effects in individuals, especially smokers, who have repeated episodes of polymer fume fever. Because of complicating factors, such as mixed exposures and smoking history, these findings are uncertain. Protection against acute exposure should also provide protection against any potential chronic effects. Smokers should avoid contamination of tobacco products, and should wash their hands before smoking.

Significant skin permeation, and systemic toxicity, after contact apperars unlikely. There are no reports of human sensitization.

If particles of Polytetrafluoroethylene contact the eye, mechanical irritation with tearing, pain or blurred vision may result.

Individuals with pre-existing diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures from thermal decomposition products.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION
No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

SKIN CONTACT
The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn.

EYE CONTACT
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION
No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Ignition Temperature	:	530-550C (986-1022F)
Method	:	ASTM D1929
Self Ignition Temperature	:	520-560C (968-1040F)
Method	:	ASTM D1929
UL-94 Flammability Rating	:	V-O
Limiting Oxygen Index	:	>95
Method	:	ASTM D2863

Difficult to ignite, and flame goes out when initiating source is removed (UL-94). Limited flame spread and low smoke generation (NFPA 262-1990, UL-910). Complies with NFPA definition of "limited combustible" material. High self-ignition and auto-ignition temperatures (ASTM D1929).

Hazardous gases/vapors produced in fire are hydrogen fluoride (HF), carbon monoxide, potentially toxic fluorinated compounds.

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Hydrogen fluoride fumes emitted during a fire can react with water to form hydrofluoric acid. Wear neoprene gloves when handling refuse from fire.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spilled material is a slipping hazard.

Spill Clean Up

Recover undamaged and minimally contaminated material for reuse and reclamation. Shovel or sweep up.

HANDLING AND STORAGE

Handling (Personnel)

Avoid contamination of cigarettes or tobacco with dust from this material.

Handling (Physical Aspects)

Do not use a torch to clean this material from equipment without local exhaust ventilation and respirator.

Storage

Keep container closed to prevent contamination.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

VENTILATION Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area.

Personal Protective Equipment

EYE/FACE PROTECTION Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and

face contact due to splashing or spraying of molten material.

RESPIRATORS A respirator is not required if local exhaust ventilation is adequate. At processing temperatures less than 400 deg C (750 deg F) a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister may provide protection from airborne particulates which cause polymer fume fever. At higher processing temperatures if ventilation is inadequate to maintain hydrogen fluoride and carbonyl fluoride concentrations below exposure limits, use a positive pressure air supplied respirator. Air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

Exposure Guidelines

Applicable Exposure Limits

POLYTETRAFLUOROETHYLENE

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: None Established
AEL *	(DuPont)	: 10 mg/m3, 8 Hr. TWA, total dust 5 mg/m3, 8 Hr. TWA, respirable dust

Hydrogen Fluoride

PEL	(OSHA)	: 3 ppm, 8 Hr. TWA, as F
TLV	(ACGIH)	: 3 ppm, 2.6 mg/m3, Ceiling as F
AEL *	(DuPont)	: 3 ppm, 15 minute TWA

Carbonyl Fluoride

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: 2 ppm, 5.4 mg/m3, 8 Hr. TWA STEL 5 ppm, 13 mg/m3
AEL *	(DuPont)	: None Established

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point	: 323-342 C (613-648 F)
Solubility in Water	: Insoluble
Odor	: None
Form	: Powder
Color	: White
Specific Gravity	: 2.1-2.3

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Incompatible or can react with finely divided metal powders (e.g., aluminum and magnesium) and potent oxidizers like fluorine (F2) and related compounds (e.g., chlorine trifluoride, ClF3). Contact with incompatibles can cause fire, an explosion.

Decomposition

Heating above 300 deg C (572 deg F), may cause evolution of particulate matter, which can cause polymer fume fever (see HUMAN HEALTH EFFECTS). Trace amounts of hydrogen fluoride and carbonyl fluoride may be evolved at about 400 deg C (750 deg F), with larger amounts at higher temperatures.

TOXICOLOGICAL INFORMATION

Animal Data

PTFE

Animal testing indicates that PTFE is not a skin irritant.

Repeated exposure to PTFE by ingestion caused no significant toxicological effects. Long-term exposure caused altered white blood cell count.

Single exposure to PTFE by inhalation caused irritation of the lungs. Exposure to thermal decomposition products caused pulmonary inflammation. Exposure to thermal decomposition products from higher temperatures caused pulmonary edema and death.

No adequate animal data are available to define the carcinogenicity or developmental hazards of PTFE. No adequate reports of genetic testing were found. No animal data are available to define the reproductive toxicity of PTFE.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:
No information is available. Toxicity is expected to be low based on insolubility in water.

DISPOSAL CONSIDERATIONS

Waste Disposal

Preferred options for disposal are (1) recycling and (2) landfill. Incinerate only if incinerator is capable of scrubbing out hydrogen fluoride and other acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/ provincial, and local regulations.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Proper Shipping Name : Not regulated

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (U.S.)

STATE RIGHT-TO-KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES): Polytetrafluoroethylene is listed, but we believe it was listed in error and have petitioned to have it delisted.

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- Tetrafluoroethylene.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS)- None known.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 2

Flammability : 1
Reactivity : 0

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : 5.1.2e
Address : DUPONT FLUOROPRODUCTS
CHESTNUT RUN PLAZA 713
WILMINGTON, DE 19880-0713
Telephone : 5.1.2e

# Indicates updated section.

End of MSDS

The MSDS format adheres to U.S. standards and regulatory requirements and may not meet regulatory requirements in other countries.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience are gained.

"ZONYL" FLUOROADDITIVES ALL IN SYNONYM LIST ZON002

CEFZN002 Revised 30-NOV-1999 Printed 12-JUL-2001

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number : DU007109

Tradenames and Synonyms

ZONYL(R) is a registered trademark of E.I. du Pont de Nemours and Company. DuPont Canada Inc. is a licensee.
"ZONYL" MP1000, MP1050, MP1100, MP1150, MP1200,
"ZONYL" MP1200CG, MP1300, MP1400,
"ZONYL" TE3757, TE3776, TE3792, TE3807D, TE3808, #
"ZONYL" TE5069A-N, TE6386

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Canada, Inc.
P.O. Box 2200
Streetsville
Mississauga, Ontario L5M 2H3

PHONE NUMBERS
Product Information : 1-800-387-2122
Transport Emergency : 1-613-348-3616 (24 HOURS)
Medical Emergency : 1-613-348-3616 (24 HOURS)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
POLYTETRAFLUOROETHYLENE	9002-84-0	99-100 %
Small amounts may be present in closed containers; additional amounts may be liberated upon heating:		
HYDROGEN FLUORIDE	7664-39-3	<0.05 %
CARBONYL FLUORIDE	353-50-4	<0.05 %

Components (Remarks)

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

ADDITIONAL HEALTH EFFECTS

Before using read the Fluoropolymers Safe Handling Guide published by The Society of the Plastics Industry.

The fluoroadditives in this MSDS may contain small amounts of hydrogen fluoride and carbonyl fluoride, and additional amounts may be liberated upon heating, especially in the presence of moisture. The primary hazard associated with these polymers is the inhalation of fumes from overheating or burning, which may cause "polymer fume fever" (see HUMAN HEALTH EFFECTS below).

POLYTETRAFLUOROETHYLENE (PTFE) Inhalation of PTFE dust may cause generalized irritation of the nose, throat and lungs with cough, difficulty breathing or shortness of breath.

Heating PTFE above 300 degrees C may liberate a fine particulate fume. Inhalation may produce polymer fume fever, a temporary flu-like condition with fever, chills, nausea, shortness of breath, chest tightness, muscle or joint ache, and sometimes cough and elevated white blood cell count. The symptoms are often delayed 4 to 24 hours after exposure. These signs are generally temporary, lasting 24-48 hours and resolve without further complications. However, some individuals with repeated episodes of polymer fume fever have reported persistent pulmonary effects. Protection against polymer fume fever should also provide protection against any potential chronic effects.

Exposure to decomposition products from PTFE heated above 400 degrees C may cause pulmonary inflammation, hemorrhage or edema. These more serious consequences of exposure may occur from extreme thermal decomposition of PTFE which can liberate fume particles, and toxic gases (carbonyl fluoride, hydrogen fluoride, and other

fluorinated gases) especially under conditions of poor ventilation and/or confined spaces. These decomposition products may initially produce chest tightness or pain, chills, fever, nausea, with shortness of breath, cough, wheezing and progression into pulmonary edema. Edema may be delayed in onset and requires medical treatment. In severe cases, if medical intervention is delayed, pulmonary edema may become life threatening. Recovery is generally complete within a few days; in some rare cases, persistent lung function abnormalities have been reported.

Compared to nonsmokers, polymer fume fever symptoms appear to be more prevalent and serious in smokers. Smokers must avoid contamination of tobacco with residual polymer from their hands or from fumes, and should wash their hands before smoking.

Significant skin permeation, and systemic toxicity, after contact with the dust appears unlikely. There are no reports of human sensitization from contact with the dust.

If PTFE dusts contact the eye, mechanical irritation with tearing, pain or blurred vision may result.

Individuals with pre-existing diseases of the lungs or cardiovascular system may have increased susceptibility to the reduction in blood oxygen that may develop after excessive exposures to thermal decomposition products.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION
No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

SKIN CONTACT
The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn.

EYE CONTACT
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION
No specific intervention is indicated as compound is not likely to

be hazardous by ingestion. Consult a physician if necessary.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Ignition Temperature	:	530-550C (986-1022F)
Method	:	ASTM D1929
Self Ignition Temperature	:	520-560C (968-1040F)
Method	:	ASTM D1929
UL-94 Flammability Rating	:	V-O
Limiting Oxygen Index	:	>95
Method	:	ASTM D2863

Difficult to ignite, and flame goes out when initiating source is removed (UL-94). Limited flame spread and low smoke generation (NFPA 262-1990, UL-910). Complies with NFPA definition of "limited combustible" material. High self-ignition and auto-ignition temperatures (ASTM D1929).

Hazardous gases/vapors produced in fire are hydrogen fluoride (HF), carbon monoxide, potentially toxic fluorinated compounds.

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Hydrogen fluoride fumes emitted during a fire can react with water to form hydrofluoric acid. Wear neoprene gloves when handling refuse from fire.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spilled material is a slipping hazard.

HANDLING AND STORAGE

Handling (Personnel)

See FIRST AID and PERSONAL PROTECTIVE EQUIPMENT SECTIONS. Use only with adequate ventilation. Avoid contact with eyes, skin, or

clothing. Avoid breathing vapor or dust. Avoid contamination of cigarettes or tobacco with dust from this material.

Handling (Physical Aspects)

Open container only in well-ventilated area. Do not use a torch to clean this material from equipment without local exhaust ventilation and respirator.

Storage

Keep container closed to prevent contamination.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

VENTILATION Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area. Use a totally enclosed system.

Personal Protective Equipment

EYE/FACE PROTECTION Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material.

RESPIRATORS A respirator is not required if local exhaust ventilation is adequate. At processing temperatures less than 250 deg C (480 deg F) a NIOSH/MSHA approved air purifying respirator with dust/mist cartridge or canister may provide protection from airborne particulates which cause polymer fume fever. At higher processing temperatures if ventilation is inadequate to maintain hydrogen fluoride and carbonyl fluoride concentrations below exposure limits, use a positive pressure air supplied respirator. Air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

Exposure Guidelines

Exposure Limits
"ZONYL" FLUOROADDITIVES ALL IN SYNONYM LIST ZON002

PEL	(OSHA)	: Particulates (Not Otherwise Regulated) 15 mg/m3, 8 Hr. TWA, total dust 5 mg/m3, 8 Hr. TWA, respirable dust

Other Applicable Exposure Limits
POLYTETRAFLUOROETHYLENE

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: None Established
AEL *	(DuPont)	: 10 mg/m3, 8 Hr. TWA, total dust 5 mg/m3, 8 Hr. TWA, respirable dust

HYDROGEN FLUORIDE

PEL	(OSHA)	: 3 ppm, 8 Hr. TWA, as F
TLV	(ACGIH)	: 3 ppm, 2.6 mg/m3, Ceiling as F
AEL *	(DuPont)	: 3 ppm, 15 minute TWA

CARBONYL FLUORIDE

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: 2 ppm, 5.4 mg/m3, 8 Hr. TWA STEL 5 ppm, 13 mg/m3
AEL *	(DuPont)	: None Established

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point	: 320-342 C (608-648 F)
Solubility in Water	: Insoluble
Odor	: None
Form	: Powder
Color	: White
Specific Gravity	: 2.1-2.3

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Incompatible or can react with finely divided metal powders (e.g., aluminum and magnesium) and potent oxidizers like fluorine (F2) and related compounds (e.g., chlorine trifluoride, ClF3). Contact with incompatibles can cause fire, an explosion.

Decomposition

Heating above 300 deg C (572 deg F), may cause evolution of particulate matter which can cause polymer fume fever (see HUMAN HEALTH EFFECTS). Small amounts of hydrogen fluoride and carbonyl fluoride may be present in closed containers, and additional amounts (maximum 0.055 wt% HF) may be evolved upon heating between about 250-400 deg C (480-750 deg F), with larger amounts above 400 deg C (750 deg F).

TOXICOLOGICAL INFORMATION

Animal Data

PTFE

Animal testing indicates that PTFE is not a skin irritant.

Repeated exposure to PTFE by ingestion caused no significant toxicological effects. Possible effects on white blood cell counts were found in rats fed 25% PTFE in the diet for 90 days, however any changes were within normal variability and were considered to be of no toxicological significance.

In rats, single exposure to dusts of undegraded PTFE by inhalation caused irritation of the lungs. Exposure to thermal decomposition products of PTFE caused lung injury whose severity depends upon the temperature and exposure conditions. Birds appear to be especially susceptible to the toxic effects of fluoropolymer decomposition products. In rats, exposure to freshly formed low molecular weight polymer fragments (fume) produced by continuous heating of the polymer above 400 degrees C may produce acute pulmonary inflammation. When the concentration of fluoropolymer fragment fumes increases, deaths may occur from pulmonary edema and hemorrhage. Exposure to fume aged for several minutes, markedly reduces the toxicity. At higher temperatures involving gross thermal decomposition of the polymer, deaths occurred due to pulmonary edema from lethal concentrations of fluoropolymer fume and/or fluorinated gas decomposition products.

No adequate animal data are available to define the carcinogenicity or developmental hazards of PTFE. No adequate reports of genetic testing were found. No animal data are available to define the reproductive toxicity of PTFE.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:
No information is available. Toxicity is expected to be low based on insolubility in water.

DISPOSAL CONSIDERATIONS

Waste Disposal

Preferred options for disposal are (1) recycling and (2) landfill. Incinerate only if incinerator is capable of scrubbing out hydrogen fluoride and other acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/ provincial, and local

regulations.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Proper Shipping Name : Not regulated

Shipping Information -- Canada

This material is Not Regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (U.S.)

STATE RIGHT-TO-KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES): Polytetrafluoroethylene is listed, but we believe it was listed in error and have petitioned to have it delisted.

WARNING - SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM- Tetrafluoroethylene.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS)- None known.

Canadian Regulations

This is not a WHMIS Controlled Product.

CEPA Status : DSL: REPORTED/INCLUDED.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health	: 2
Flammability	: 1
Reactivity	: 0

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS

End of MSDS

Legenda toegepaste uitzonderingsgrondslagen

In dit document zijn gegevens geanonimiseerd op grond van:

Wet	Artikel	Omschrijving	Pagina's
Wet open overheid	Art. 5.1 lid 2 sub e	De eerbiediging van de persoonlijke levenssfeer	1, 10