



## Safety Data Sheet

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### SECTION 1: Identification

#### 1.1. Product identifier

3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 133TB

#### Product Identification Numbers

98-0213-3856-5, 98-0213-3932-4, UU-0108-2136-9, UU-0108-2194-8  
7100215076, 7100214973, 7100238560, 7100248788

#### 1.2. Recommended use and restrictions on use

##### Recommended use

Industrial use

#### 1.3. Supplier's details

<b>MANUFACTURER:</b>	3M
<b>DIVISION:</b>	Advanced Materials Division
<b>ADDRESS:</b>	3M Center, St. Paul, MN 55144-1000, USA
<b>Telephone:</b>	1-888-3M HELPS (1-888-364-3577)

#### 1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

### SECTION 2: Hazard identification

#### 2.1. Hazard classification

Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### 2.2. Label elements

##### Signal word

Not applicable.

##### Symbols

Not applicable.

##### Pictograms

Not applicable.

#### Supplemental Information:

May cause thermal burns.

## SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Perfluoro(5-cyanopentyl vinyl ether)-Perfluoro(methyl vinyl ether)-Tetrafluoroethylene Copolymer	163336-49-0	70 - 80
Polytetrafluoroethylene	9002-84-0	20 - 30
Perfluoro-3-methoxypropanoic acid (unintentional impurity)	377-73-1	<= 0.00000005
Perfluorobutanoic acid (unintentional impurity)	375-22-4	<= 0.00000022
Perfluorodecanoic acid (unintentional impurity)	335-76-2	<= 0.00000016
Perfluorododecanoic acid (unintentional impurity)	307-55-1	<= 0.00000032
Perfluorohexanoic acid (unintentional impurity)	307-24-4	<= 0.00000039
Perfluorononanoic acid (unintentional impurity)	375-95-1	<= 0.00000019
Perfluorooctanoic acid (unintentional impurity)	335-67-1	<= 0.00000025
Perfluoropropanoic acid (unintentional impurity)	422-64-0	<= 0.00000118
Perfluorotetradecanoic acid (unintentional impurity)	376-06-7	<= 0.00000024

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation:

Remove person to fresh air. If you feel unwell, get medical attention.

#### Skin Contact:

Immediately flush skin with large amounts of cold water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Cover affected area with a clean dressing. Get immediate medical attention.

#### Eye Contact:

Immediately flush eyes with large amounts of water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Get immediate medical attention.

#### If Swallowed:

Rinse mouth. If you feel unwell, get medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed

No critical symptoms or effects. See Section 11.1, information on toxicological effects.

### 4.3. Indication of any immediate medical attention and special treatment required

Not applicable

## SECTION 5: Fire-fighting measures

### 5.1. Suitable extinguishing media

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

### 5.2. Special hazards arising from the substance or mixture

Exposure to extreme heat can give rise to thermal decomposition.

### Hazardous Decomposition or By-Products

#### Substance

Carbonyl Fluoride  
Carbon monoxide  
Carbon dioxide

#### Condition

During Combustion  
During Combustion  
During Combustion

Hydrogen Cyanide  
 Hydrogen Fluoride  
 Oxides of Nitrogen  
 Perfluoroisobutylene (PFIB)  
 Toxic Vapor, Gas, Particulate

During Combustion  
 During Combustion  
 During Combustion  
 During Combustion  
 During Combustion

### 5.3. Special protective actions for fire-fighters

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS. Evacuate area. Ventilate the area with fresh air. Observe precautions from other sections.

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

Collect as much of the spilled material as possible. Sweep up. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Do not breathe thermal decomposition products. Avoid skin contact with hot material. For industrial/occupational use only. Not for consumer sale or use. Store work clothes separately from other clothing, food and tobacco products. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) No smoking: Smoking while using this product can result in contamination of the tobacco and/or smoke and lead to the formation of hazardous decomposition products.

### 7.2. Conditions for safe storage including any incompatibilities

Store away from heat. Store away from oxidizing agents.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
Perfluorooctanoic acid (unintentional impurity)	335-67-1	Manufacturer determined	TWA:0.01 mg/m3	SKIN

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association  
CMRG : Chemical Manufacturer's Recommended Guidelines  
OSHA : United States Department of Labor - Occupational Safety and Health Administration  
TWA: Time-Weighted-Average  
STEL: Short Term Exposure Limit  
CEIL: Ceiling

## 8.2. Exposure controls

### 8.2.1. Engineering controls

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment. Local exhaust required above 400 C.

### 8.2.2. Personal protective equipment (PPE)

#### Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

#### Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Gloves made from the following material(s) are recommended: Neoprene

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - Neoprene

#### Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use a positive pressure supplied-air respirator.

Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

#### Thermal hazards

Wear heat insulating gloves, indirect vented goggles, and a full face shield when handling hot material to prevent thermal burns.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**Appearance****Physical state**

Solid

**Color**

Off-White

**Specific Physical Form:**

Crumb

**Odor**

Odorless

**Odor threshold***No Data Available***pH***Not Applicable***Melting point**

322 °C

**Boiling Point***Not Applicable***Flash Point**No flash point [*Test Method:*Closed Cup]**Evaporation rate***Not Applicable***Flammability (solid, gas)**

Not Classified

**Flammable Limits(LEL)***Not Applicable***Flammable Limits(UEL)***Not Applicable***Vapor Pressure***Not Applicable***Vapor Density***Not Applicable***Density**2.0 g/cm<sup>3</sup>**Specific Gravity**2.0 [*@ 20 °C*] [*Ref Std:*WATER=1]**Solubility in Water**

Negligible

**Solubility- non-water***No Data Available***Partition coefficient: n-octanol/ water***No Data Available***Autoignition temperature***Not Applicable***Decomposition temperature***No Data Available***Viscosity***Not Applicable***Molecular weight***No Data Available***Volatile Organic Compounds***Not Applicable***Percent volatile**

0 %

**VOC Less H<sub>2</sub>O & Exempt Solvents***Not Applicable***Flash Point as text**No flash point [*Test Method:*Closed Cup]**SECTION 10: Stability and reactivity****10.1. Reactivity**

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

**10.2. Chemical stability**

Stable.

**10.3. Possibility of hazardous reactions**

Hazardous polymerization will not occur.

**10.4. Conditions to avoid**

Heat

**10.5. Incompatible materials**

Strong oxidizing agents

Al or Mg powder and high/shear temperature conditions

**10.6. Hazardous decomposition products****Substance****Condition**

None known.

Refer to section 5.2 for hazardous decomposition products during combustion.

If the product is exposed to extreme condition of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur.

## SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

### 11.1. Information on Toxicological effects

#### Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

##### Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

During heating:

Polymer Fume Fever: Sign/symptoms may include chest pain or tightness, shortness of breath, cough, malaise, muscle aches, increased heart rate, fever, chills, sweats, nausea and headache.

##### Skin Contact:

May be harmful in contact with skin.

During heating: Thermal Burns: Signs/symptoms may include intense pain, redness and swelling, and tissue destruction.

Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

##### Eye Contact:

During heating: Thermal Burns: Signs/symptoms may include severe pain, redness and swelling, and tissue destruction.

Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

##### Ingestion:

May be harmful if swallowed.

##### Carcinogenicity:

Ingredient	CAS No.	Class Description	Regulation
Perfluorooctanoic acid	335-67-1	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

#### Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

#### Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >2,000 - =5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 mg/kg
Perfluoro(5-cyanopentyl vinyl ether)-Perfluoro(methyl vinyl ether)-Tetrafluoroethylene Copolymer	Dermal	similar compounds	LD50 estimated to be 2,000 - 5,000 mg/kg
Perfluoro(5-cyanopentyl vinyl ether)-Perfluoro(methyl vinyl ether)-Tetrafluoroethylene Copolymer	Ingestion	similar compound	LD50 estimated to be 2,000 - 5,000 mg/kg

		ds	
Polytetrafluoroethylene	Dermal		LD50 estimated to be > 5,000 mg/kg
Polytetrafluoroethylene	Ingestion		LD50 estimated to be > 5,000 mg/kg
Perfluoropropanoic acid (unintentional impurity)	Ingestion		LD50 estimated to be 300 - 2,000 mg/kg
Perfluoropropanoic acid (unintentional impurity)	Inhalation-Vapor (4 hours)	Rat	LC50 > 11 mg/l
Perfluorohexanoic acid (unintentional impurity)	Ingestion	Rat	LD50 500-1000 mg/kg

ATE = acute toxicity estimate

### Skin Corrosion/Irritation

Name	Species	Value
Polytetrafluoroethylene	Human and animal	No significant irritation

### Serious Eye Damage/Irritation

Name	Species	Value
Polytetrafluoroethylene	Professional judgement	No significant irritation

### Skin Sensitization

Name	Species	Value
Polytetrafluoroethylene	Human	Not classified

### Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

### Germ Cell Mutagenicity

Name	Route	Value
Perfluoropropanoic acid (unintentional impurity)	In Vitro	Not mutagenic

### Carcinogenicity

Name	Route	Species	Value
Polytetrafluoroethylene	Not Specified	Multiple animal species	Some positive data exist, but the data are not sufficient for classification

### Reproductive Toxicity

#### Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Perfluorohexanoic acid (unintentional impurity)	Ingestion	Not classified for reproduction and/or development	Rat	LOEL 500 mg/kg	
Perfluorohexanoic acid (unintentional impurity)	Ingestion	Not classified for male reproduction	Rat	LOAEL 500 mg/kg	not applicable

### Target Organ(s)

#### Specific Target Organ Toxicity - single exposure

For the component/components, either no data are currently available or the data are not sufficient for classification.

#### Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure
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						Duration
Polytetrafluoroethylene	Ingestion	hematopoietic system	Not classified	Rat	NOAEL Not available	90 days
Perfluoropropanoic acid (unintentional impurity)	Ingestion	liver   heart   endocrine system   hematopoietic system   kidney and/or bladder	Not classified	Rat	NOAEL 320 mg/kg/day	28 days

**Aspiration Hazard**

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

**SECTION 12: Ecological information****Ecotoxicological information**

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

**Chemical fate information**

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

**SECTION 13: Disposal considerations****13.1. Disposal methods**

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

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

**EPA Hazardous Waste Number (RCRA):** Not regulated

**SECTION 14: Transport Information**

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

**SECTION 15: Regulatory information****15.1. US Federal Regulations**

Contact 3M for more information.

**EPCRA 311/312 Hazard Classifications:****Physical Hazards**

Not applicable



**Health Hazards**

Not applicable

**Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):**

<b><u>Ingredient</u></b>	<b><u>C.A.S. No</u></b>	<b><u>% by Wt</u></b>
Perfluoropropanoic acid (unintentional impurity)	422-64-0	<= 0.00000118
Perfluorohexanoic acid (unintentional impurity)	307-24-4	<= 0.00000039
Perfluorododecanoic acid (unintentional impurity)	307-55-1	<= 0.00000032
Perfluorooctanoic acid (unintentional impurity)	335-67-1	<= 0.00000025
Perfluorotetradecanoic acid (unintentional impurity)	376-06-7	<= 0.00000024
Perfluorobutanoic acid (unintentional impurity)	375-22-4	<= 0.00000022
Perfluorononanoic acid (unintentional impurity)	375-95-1	<= 0.00000019
Perfluorodecanoic acid (unintentional impurity)	335-76-2	<= 0.00000016
Perfluoro-3-methoxypropanoic acid (unintentional impurity)	377-73-1	<= 0.00000005

**This material contains a chemical which requires export notification under TSCA Section 12[b]:**

<b><u>Ingredient (Category if applicable)</u></b>	<b><u>C.A.S. No</u></b>	<b><u>Regulation</u></b>	<b><u>Status</u></b>
Perfluorododecanoic acid (unintentional impurity)	307-55-1	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable
Perfluorooctanoic acid (unintentional impurity)	335-67-1	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable
Perfluorodecanoic acid (unintentional impurity)	335-76-2	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable
Perfluorononanoic acid (unintentional impurity)	375-95-1	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable
Perfluorotetradecanoic acid (unintentional impurity)	376-06-7	Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals	Applicable

**This material contains a chemical regulated by an EPA Significant New Use Rule (TSCA Section 5)**

<b><u>Ingredient (Category if applicable)</u></b>	<b><u>C.A.S. No</u></b>	<b><u>Reference</u></b>
Perfluorododecanoic acid (unintentional impurity)	307-55-1	40 CFR 721.10536
Perfluorooctanoic acid (unintentional impurity)	335-67-1	40 CFR 721.10536
Perfluorodecanoic acid (unintentional impurity)	335-76-2	40 CFR 721.10536
Perfluorononanoic acid (unintentional impurity)	375-95-1	40 CFR 721.10536
Perfluorotetradecanoic acid (unintentional impurity)	376-06-7	40 CFR 721.10536

**15.2. State Regulations**

Contact 3M for more information.

**15.3. Chemical Inventories**

The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

Contact 3M for more information.

**15.4. International Regulations**

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SECTION 16: Other information

### NFPA Hazard Classification

**Health:** 3 **Flammability:** 1 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

The NFPA Health code of 3 is due to emergency situations where the material may thermally decompose and release Hydrogen Fluoride and Perfluoroisobutylene (PFIB). During normal use conditions, please reference Section 2 and Section 11 of the SDS for additional health hazard information.

### HMIS Hazard Classification

**Health:** 1 **Flammability:** 1 **Physical Hazard:** 0 **Personal Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS® IV) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® IV ratings are to be used with a fully implemented HMIS® IV program. HMIS® is a registered mark of the American Coatings Association (ACA).

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