



## Safety Data Sheet

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|                        |           |                         |          |
|------------------------|-----------|-------------------------|----------|
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### SECTION 1: Identification

#### 1.1. Product identifier

3M™ Dyneon™ PTFE Dispersion TF 5060GZ

#### Product Identification Numbers

97-5000-1347-5, 97-5000-1351-7, 98-0213-2752-7  
7100090849, 7000059156, 7010402455

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

##### Recommended use

Custom Compound

#### 1.3. Supplier's details

|                      |                                         |
|----------------------|-----------------------------------------|
| <b>MANUFACTURER:</b> | 3M                                      |
| <b>DIVISION:</b>     | Advanced Materials Division             |
|                      | 3M Germany                              |
| <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

Serious Eye Damage/Irritation: Category 1.

#### 2.2. Label elements

##### Signal word

Danger

##### Symbols

Corrosion |

##### Pictograms

**Hazard Statements**

Causes serious eye damage.

**Precautionary statements****Prevention:**

Wear eye and face protection.

**Response:**

IF IN EYES: Immediately call a POISON CENTER or doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**2.3. Hazards not otherwise classified**

May cause polymer fume fever.

**Supplemental Information:**

May cause thermal burns.

**SECTION 3: Composition/information on ingredients**

| Ingredient                                                    | C.A.S. No. | % by Wt              |
|---------------------------------------------------------------|------------|----------------------|
| Polytetrafluoroethylene                                       | 9002-84-0  | 45 - 55              |
| Water                                                         | 7732-18-5  | 35 - 54              |
| Alcohols, C11-14-iso-, C13-rich, ethoxylated                  | 78330-21-9 | 1 - 5 Trade Secret * |
| Perfluoro-3-methoxypropanoic acid (unintentional impurity)    | 377-73-1   | <= 0.0000213         |
| Perfluoropropanoic acid (unintentional impurity)              | 422-64-0   | <= 0.00000719        |
| Hexafluoropropylene oxide dimer acid (unintentional impurity) | 13252-13-6 | <= 0.00000009        |

\*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

**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**

Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision).

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

Not applicable

**SECTION 5: Fire-fighting measures****5.1. Suitable extinguishing media**

Use a fire fighting agent suitable for the surrounding fire.

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

Exposure to extreme heat can give rise to thermal decomposition.

**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**

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. 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.

**6.2. Environmental precautions**

Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

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

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. 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 get in eyes, on skin, or on clothing. Do not eat, drink or smoke when

using this product. Wash thoroughly after handling. Avoid release to the environment. 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**

No special storage requirements.

# **SECTION 8: Exposure controls/personal protection**

## **8.1. Control parameters**

### **Occupational exposure limits**

No occupational exposure limit values exist for any of the components listed in Section 3 of this SDS.

## **8.2. Exposure controls**

### **8.2.1. Engineering controls**

Provide ventilated enclosure for curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. 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:

Full Face Shield

Indirect Vented Goggles

#### **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 (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

#### **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

|                                                   |                                           |
|---------------------------------------------------|-------------------------------------------|
| Physical state                                    | Liquid                                    |
| Specific Physical Form:                           | Emulsion                                  |
| Color                                             | White                                     |
| Odor                                              | Slight Ammoniacal                         |
| Odor threshold                                    | No Data Available                         |
| pH                                                | 8 - 11                                    |
| Melting point/Freezing point                      | Not Applicable                            |
| Boiling point/Initial boiling point/Boiling range | 100 °C                                    |
| Flash Point                                       | No flash point                            |
| Evaporation rate                                  | 1 [Ref Std: WATER=1]                      |
| Flammability                                      | Not Applicable                            |
| Flammable Limits(LEL)                             | Not Applicable                            |
| Flammable Limits(UEL)                             | Not Applicable                            |
| Vapor Pressure                                    | 2,500 Pa [ @ 20 °C ]                      |
| Relative Vapor Density                            | 25 [ @ 20 °C ] [Ref Std: AIR=1]           |
| Density                                           | 1.2 - 1.6 g/ml                            |
| Relative Density                                  | 1.2 - 1.6 [ @ 23 °C ] [Ref Std: WATER=1]  |
| Water solubility                                  | Negligible [Details: Polymer not soluble] |
| Solubility- non-water                             | No Data Available                         |
| Partition coefficient: n-octanol/ water           | No Data Available                         |
| Autoignition temperature                          | Not Applicable                            |
| Decomposition temperature                         | No Data Available                         |
| Kinematic Viscosity                               | 7.1 mm <sup>2</sup> /sec                  |
| Volatile Organic Compounds                        | Not Applicable                            |
| Percent volatile                                  | 33 - 37 %                                 |
| VOC Less H <sub>2</sub> O & Exempt Solvents       | Not Applicable                            |
| Molecular weight                                  | Not Applicable                            |

|                          |                |
|--------------------------|----------------|
| Particle Characteristics | Not Applicable |
|--------------------------|----------------|

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

This material is considered to be non reactive under normal use conditions.

### 10.2. Chemical stability

Stable.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

None known.

#### 10.5. Incompatible materials

None known.

#### 10.6. Hazardous decomposition products

| <u>Substance</u>              | <u>Condition</u>                       |
|-------------------------------|----------------------------------------|
| 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 |
| Ammonia                       | At Elevated Temperatures - above 380 C |
| Perfluoroisobutylene (PFIB)   | At Elevated Temperatures - above 380 C |
| Toxic Vapor, Gas, Particulate | At Elevated Temperatures - above 380 C |

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:

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

##### Eye Contact:

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

Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

##### Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

#### 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                                  | Ingestion                  |         | No data available; calculated ATE >5,000 mg/kg |
| Polytetrafluoroethylene                          | Dermal                     |         | LD50 estimated to be > 5,000 mg/kg             |
| Polytetrafluoroethylene                          | Ingestion                  |         | LD50 estimated to be > 5,000 mg/kg             |
| Alcohols, C11-14-iso-, C13-rich, ethoxylated     | Ingestion                  | Rat     | LD50 500-2000 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                                 |

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

| Name                                         | Species          | Value                     |
|----------------------------------------------|------------------|---------------------------|
| Polytetrafluoroethylene                      | Human and animal | No significant irritation |
| Alcohols, C11-14-iso-, C13-rich, ethoxylated | Rabbit           | Mild irritant             |

**Serious Eye Damage/Irritation**

| Name                                         | Species               | Value                     |
|----------------------------------------------|-----------------------|---------------------------|
| Polytetrafluoroethylene                      | Professional judgment | No significant irritation |
| Alcohols, C11-14-iso-, C13-rich, ethoxylated | Rabbit                | Corrosive                 |

**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**

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

**Target Organ(s)****Specific Target Organ Toxicity - single exposure**

| Name                                         | Route      | Target Organ(s)        | Value                                                         | Species        | Test Result         | Exposure Duration |
|----------------------------------------------|------------|------------------------|---------------------------------------------------------------|----------------|---------------------|-------------------|
| Alcohols, C11-14-iso-, C13-rich, ethoxylated | Inhalation | respiratory irritation | Some positive data exist, but the data are not sufficient for | similar health | NOAEL Not available |                   |

|  |  |  |                |         |  |  |
|--|--|--|----------------|---------|--|--|
|  |  |  | classification | hazards |  |  |
|--|--|--|----------------|---------|--|--|

**Specific Target Organ Toxicity - repeated exposure**

| Name                                             | Route     | Target Organ(s)                                                                 | Value          | Species | Test Result         | Exposure 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 completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product 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**

Hazard Not Otherwise Classified (HNOC)

Serious eye damage or eye irritation

**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> |
|---------------------------------------------------------------|-------------------------|-----------------------|
| Perfluoro-3-methoxypropanoic acid (unintentional impurity)    | 377-73-1                | <= 0.0000213          |
| Perfluoropropanoic acid (unintentional impurity)              | 422-64-0                | <= 0.00000719         |
| Hexafluoropropylene oxide dimer acid (unintentional impurity) | 13252-13-6              | <= 0.00000009         |

**This material contains a chemical which requires export notification under TSCA Section 12[b]:****15.2. State Regulations**

Contact 3M for more information.

**15.3. Chemical Inventories**

The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Industrial Safety and Health Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

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.

|                                                                                                          |
|----------------------------------------------------------------------------------------------------------|
| <b>This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.</b> |
|----------------------------------------------------------------------------------------------------------|

**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.

#### HMIS Hazard Classification

**Health:** 3    **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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