



## Safety Data Sheet

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<b>Document group:</b>	10-4331-4	<b>Version number:</b>	26.00
<b>Issue Date:</b>	2021/11/16	<b>Supersedes Date:</b>	2017/04/27

This Safety Data Sheet has been prepared in accordance with the Canadian Hazardous Products Regulations.

### SECTION 1: Identification

#### 1.1. Product identifier

3M™ PF-5060 Performance Fluid

#### Product Identification Numbers

80-0014-4504-0      98-0211-8034-8      98-0211-8067-8      98-0212-4843-4      ZF-0002-1169-6  
ZF-0002-1871-7

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

##### Intended Use

For Industrial Use Only. See Limitations on Use for supplemental information on intended applications including Medical Device applications.

##### Specific Use

Heat Transfer and Solvent Deposition.

##### Restrictions on use

3M™ Performance Fluids are used in a wide variety of applications, including but not limited to precision cleaning of medical devices and as a lubricant deposition solvent for medical devices. When the product is used for applications where the finished device is implanted into the human body, no residual Performance Fluid solvent may remain on the parts. It is highly recommended that the supporting test results and protocol be cited during FDA registration. 3M Electronics Materials Solutions Division (EMSD) will not knowingly sample, support, or sell its products for incorporation in medical and pharmaceutical products and applications in which the 3M product will be temporarily or permanently implanted into humans or animals. The customer is responsible for evaluating and determining that a 3M EMSD product is suitable and appropriate for its particular use and intended application. The conditions of evaluation, selection, and use of a 3M product can vary widely and affect the use and intended application of a 3M product. Because many of these conditions are uniquely within the user's knowledge and control, it is essential that the user evaluate and determine whether the 3M product is suitable and appropriate for a particular use and intended application, and complies with all local applicable laws, regulations, standards, and guidance.

#### 1.3. Supplier's details

<b>Company:</b>	3M Canada Company
<b>Division:</b>	Electronics Materials Solutions Division
<b>Address:</b>	1840 Oxford Street East, Post Office Box 5757, London, Ontario N6A 4T1
<b>Telephone:</b>	(800) 364-3577
<b>Website:</b>	www.3M.ca

**1.4. Emergency telephone number**

Medical Emergency Telephone: 1-800-3M HELPS / 1-800-364-3577; Transportation Emergency Telephone (CANUTEC): (613) 996-6666

**SECTION 2: Hazard identification****2.1. Classification of the substance or mixture**

Not classified according to the Canadian Hazardous Products Regulation.

**2.2. Label elements****Signal word**

Not applicable.

**Symbols**

Not applicable.

**Pictograms**

Not applicable.

**Precautionary statements****Response:**

In case of fire: Use a fire fighting agent suitable for water-reactives such as dry chemical to extinguish.

**2.3. Other hazards**

None known.

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

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt	Common Name
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6- tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5- undecafluoro-4- (trifluoromethyl)pentane	1064697-81-9	100	No Data Available

**SECTION 4: First aid measures****4.1. Description of first aid measures****Inhalation:**

No need for first aid is anticipated.

**Skin Contact:**

No need for first aid is anticipated.

**Eye Contact:**

No need for first aid is anticipated.

**If Swallowed:**

No need for first aid is anticipated.

**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 water-reactives such as dry chemical to extinguish. 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.

**Hazardous Decomposition or By-Products**

**Substance**

Carbon monoxide

Carbon dioxide

**Condition**

During Combustion

During Combustion

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

When fire fighting conditions are severe and total thermal decomposition of the product is possible, 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**

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**

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. For industrial or professional use only. Not for consumer sale or use. Store work clothes separately from other clothing, food and tobacco products. 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**

Store away from heat.

**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**

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/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

**8.2.2. Personal protective equipment (PPE)****Eye/face protection**

None required.

**Skin/hand protection**

Chemical protective gloves are not required under normal use conditions. However, when the product is subjected to extreme heat, HF may be formed. For those cases, neoprene gloves and apron are recommended.

**Respiratory protection**

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.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Specific Physical Form:</b>	Liquid
<b>Colour</b>	Colourless
<b>Odour</b>	Odourless
<b>Odour threshold</b>	<i>No Data Available</i>
<b>pH</b>	<i>Not Applicable</i>
<b>Melting point/Freezing point</b>	<i>Not Applicable</i>
<b>Boiling point</b>	50 - 60 °C
<b>Flash Point</b>	No flash point
<b>Evaporation rate</b>	> 1 Units not available or not applicable [Ref Std:BUOAC=1]
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Flammable Limits(LEL)</b>	None detected
<b>Flammable Limits(UEL)</b>	None detected
<b>Vapour Pressure</b>	30,930.7 Pa [ @ 20 °C ]
<b>Vapour Density and/or Relative Vapour Density</b>	11.7 [ @ 20 °C ] [Ref Std:AIR=1]
<b>Density</b>	1.7 g/ml
<b>Relative density</b>	1.7 [Ref Std:WATER=1]
<b>Water solubility</b>	Nil
<b>Solubility- non-water</b>	<i>No Data Available</i>
<b>Partition coefficient: n-octanol/ water</b>	<i>No Data Available</i>
<b>Autoignition temperature</b>	<i>No Data Available</i>
<b>Decomposition temperature</b>	<i>Not Applicable</i>
<b>Viscosity/Kinematic Viscosity</b>	0.4 mm <sup>2</sup> /sec

<b>Volatile Organic Compounds</b>	<i>No Data Available</i>
<b>Percent volatile</b>	100 %
<b>VOC Less H2O &amp; Exempt Solvents</b>	<i>No Data Available</i>
<b>Molecular weight</b>	<i>No Data Available</i>

**Nanoparticles**

This material does not contain nanoparticles.

**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**

Alkali and alkaline earth metals

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

Hydrogen Fluoride

At Elevated Temperatures - greater than 200 °C

Perfluoroisobutylene (PFIB)

At Elevated Temperatures - greater than 200 °C

Toxic Vapor, Gas, Particulate

At Elevated Temperatures - greater than 200 °C

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:**

No known health effects.

**Skin Contact:**

Contact with the skin during product use is not expected to result in significant irritation.

#### Eye Contact:

Contact with the eyes during product use is not expected to result in significant irritation.

#### Ingestion:

No known health effects.

#### 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
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Inhalation-Vapor (4 hours)	Rat	LC50 > 276 mg/l
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Ingestion	Rat	LD50 > 5,000 mg/kg

ATE = acute toxicity estimate

#### Skin Corrosion/Irritation

Name	Species	Value
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Rabbit	No significant irritation

#### Serious Eye Damage/Irritation

Name	Species	Value
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Rabbit	No significant irritation

#### Skin Sensitization

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

#### Respiratory Sensitization

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

#### Germ Cell Mutagenicity

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

#### Carcinogenicity

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

#### Reproductive Toxicity

#### Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Ingestion	Not classified for female reproduction	Rat	NOAEL 2,000 mg/kg/day	32 days
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-	Ingestion	Not classified for male reproduction	Rat	NOAEL 2,000	32 days

**3M™ PF-5060 Performance Fluid**

tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane				mg/kg/day	
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**Target Organ(s)****Specific Target Organ Toxicity - single exposure**

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL 2,350 mg/l	10 minutes

**Specific Target Organ Toxicity - repeated exposure**

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Inhalation	heart   endocrine system   gastrointestinal tract   bone, teeth, nails, and/or hair   hematopoietic system   liver   immune system   nervous system   eyes   kidney and/or bladder   respiratory system	Not classified	Rat	NOAEL 689 mg/l	13 weeks
Reaction mass of 1,1,1,2,2,3,3,4,4,5,5,6,6,6-tetradecafluoro-hexane and 1,1,1,2,2,3,3,4,4,5,5,5-undecafluoro-4-(trifluoromethyl)pentane	Ingestion	heart   endocrine system   hematopoietic system   liver   nervous system   kidney and/or bladder   respiratory system	Not classified	Rat	NOAEL 2,000 mg/kg/day	32 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**

No data available.

**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 and clean product containers may be disposed as non-hazardous waste. Consult your specific regulations and service providers to determine available options and requirements.

**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. Safety, health and environmental regulations/legislation specific for the substance or mixture****Global inventory status**

Contact 3M for more information. The components of this material are in compliance with the provisions of the Korea Chemical Control Act. Certain restrictions may apply. Contact the selling division for additional information. 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 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 material are in compliance with the provisions of Philippines RA 6969 requirements. 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. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. 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.

**SECTION 16: Other information**

**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.**

**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: 0 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).

<b>Document group:</b>	10-4331-4	<b>Version number:</b>	26.00
<b>Issue Date:</b>	2021/11/16	<b>Supersedes Date:</b>	2017/04/27

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COURSE OF DEALING, CUSTOM 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. Given the variety of factors that can affect the use and application of a product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

**3M Canada SDSs are available at [www.3M.ca](http://www.3M.ca)**