



## Safety Data Sheet

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**Document Group:** 08-1308-9 **Version Number:** 2.01  
**Revision Date:** 24/08/2018 **Supersedes Date:** 08/08/2016  
**Transportation version number:**

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

3M™ Novec™ 7200 Engineered Fluid

REACH registration number	CASRN	EC Number	Ingredient Name
01-0000017174-74-0003		425-340-0	Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane

#### Product Identification Numbers

98-0211-9368-9

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

##### Identified uses

For Industrial Use Only. Not Intended for Use as a Medical Device Or Drug.

##### Uses advised against

Novec™ Engineered Fluids are used in a wide variety of applications, including but not limited to precision cleaning of medical devices and as lubricant deposition solvents for medical devices. When the product is used for applications where the finished device is implanted into the human body, no residual Novec solvent may remain on the parts. It is highly recommended that the supporting test results and protocol be cited during FDA registration.

3M Electronics Markets Materials Division (EMMD) 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 EMMD 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. Details of the supplier of the safety data sheet

**ADDRESS:** 3M Israel, 91 Medinat Ha'Yehudim Street, Herzeliya 46120  
**Telephone:** 09-961 5000  
**E Mail:** innovation.il@mmm.com  
**Website:** www.3M.com/il

**1.4. Emergency telephone number**

09-961 5000

**SECTION 2: Hazard identification****2.1. Classification of the substance or mixture****CLP REGULATION (EC) No 1272/2008****CLASSIFICATION:**

Hazardous to the Aquatic Environment (Chronic), Category 4 - Aquatic Chronic 4; H413

For full text of H phrases, see Section 16.

**2.2. Label elements****CLP REGULATION (EC) No 1272/2008****Ingredients:**

Ingredient	C.A.S. No.	EC No.	% by Wt
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane		425-340-0	80 - 100

**HAZARD STATEMENTS:**

H413 May cause long lasting harmful effects to aquatic life.

**PRECAUTIONARY STATEMENTS****Disposal:**

P501 Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

**SUPPLEMENTAL INFORMATION****Supplemental Hazard Statements:**

EUH018 In use, may form flammable/explosive vapour-air mixture.

**Notes on labelling:**

Updated per Regulation (EC) No. 648/2004 on detergents.

**2.3. Other hazards**

None known

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

Ingredient	C.A.S. No.	EC No.	% by Wt	Classification
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane		425-340-0	80 - 100	**Aquatic Chronic 4**, H413

Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

## 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:**

Wash with soap and water. If you feel unwell, get medical attention.

#### **Eye Contact:**

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

#### **If Swallowed:**

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

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

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. Extinguishing media

Material will not burn. 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

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

### 5.3. Advice 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

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.

### 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.

#### **6.4. Reference to other sections**

Refer to Section 8 and Section 13 for more information

## **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 or professional use only. Store work clothes separately from other clothing, food and tobacco products. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. 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 acids. Store away from strong bases. Store away from oxidizing agents.

### **7.3. Specific end use(s)**

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

## **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 appropriate local exhaust when product is heated. 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.

#### **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: Nitrile Rubber

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 – Nitrile

### Respiratory protection

During heating:

Use a positive pressure supplied-air respirator if there is a potential for over exposure from an uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

### Thermal hazards

Wear heat insulating gloves 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:	liquid
Appearance/Odor	Clear colorless liquid with faint odor
Odor threshold	<i>No Data Available</i>
pH	<i>Not Applicable</i>
Boiling point/boiling range	76 °C
Melting point	-138 °C
Flammability (solid, gas)	Not Applicable
Explosive properties:	Not Classified
Oxidising properties:	Not Classified
Flash Point	No flash point
Autoignition temperature	375 °C [ <i>Details:ASTM E659-78 Method</i> ]
Flammable Limits(LEL)	210 g/m3 [ <i>Details:ASTM E681-94 Method</i> ]
Flammable Limits(UEL)	1,070 g/m3 [ <i>Details:ASTM E681-94 Method</i> ]
Vapor Pressure	14,532.1 Pa [ <i>@ 25 °C</i> ]
Relative Density	1.43 [ <i>Ref Std:WATER=1</i> ]
Water solubility	Nil
Solubility- non-water	<i>No Data Available</i>
Partition coefficient: n-octanol/ water	4.2 [ <i>Details:at 30 °C</i> ]
Evaporation rate	33 [ <i>Ref Std:BUOAC=1</i> ]
Vapor Density	9.1 [ <i>Ref Std:AIR=1</i> ]
Decomposition temperature	<i>Not Applicable</i>
Viscosity	0.4 mm <sup>2</sup> /sec
Density	1.43 g/ml

### 9.2. Other information

EU Volatile Organic Compounds	1,430 g/l
Molecular weight	<i>No Data Available</i>
Percent volatile	100 %

## 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

Strong acids

Strong bases

Strong oxidizing agents

## 10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Hydrogen Fluoride	At Elevated Temperatures - extreme conditions of heat
Perfluoroisobutylene (PFIB)	At Elevated Temperatures - extreme conditions of heat

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 agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from 3M assessments.

### 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 health effects are expected.

#### Skin Contact:

May be harmful in contact with skin.

#### Eye Contact:

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

#### Ingestion:

May be harmful if swallowed.

#### 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

**3M™ Novec™ 7200 Engineered Fluid**

the data are not sufficient for classification.

**Acute Toxicity**

Name	Route	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Inhalation-Vapor (4 hours)	Rat	LC50 > 989 mg/l
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Ingestion	Rat	> 2,000 mg/kg

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

Name	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Rabbit	No significant irritation

**Serious Eye Damage/Irritation**

Name	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Rabbit	No significant irritation

**Skin Sensitization**

Name	Species	Value
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Guinea pig	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
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	In Vitro	Not mutagenic
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	In vivo	Not mutagenic

**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 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Inhalation	Not classified for development	Rat	NOAEL 260 mg/l	during gestation

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

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
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Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Inhalation	cardiac sensitization	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 204 mg/l	17 minutes
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Inhalation	respiratory irritation	Not classified	Rat	NOAEL 989 mg/l	4 hours

**Specific Target Organ Toxicity - repeated exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Inhalation	liver   kidney and/or bladder   respiratory system   heart   endocrine system   gastrointestinal tract   bone marrow   hematopoietic system   immune system   nervous system	Not classified	Rat	NOAEL 263.4 mg/l	4 weeks
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	Ingestion	blood   liver   kidney and/or bladder   heart   endocrine system   bone marrow   hematopoietic system   immune system   nervous system   respiratory system	Not classified	Rat	NOAEL 1,000 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**

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

**12.1. Toxicity**

No product test data available

Material	CAS #	Organism	Type	Exposure	Test Endpoint	Test Result
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Green algae	Endpoint not reached	72 hours	Effect Concentration 50%	>100 mg/l



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Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Fathead Minnow	Experimental	96 hours	Lethal Concentration 50%	>100 mg/l
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Water flea	Experimental	48 hours	Effect Concentration 50%	>100 mg/l
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Green algae	Experimental	72 hours	Effect Concentration 10%	2.37 mg/l

**12.2. Persistence and degradability**

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Experimental Photolysis		Photolytic half-life (in air)	0.55 years (t <sub>1/2</sub> )	Other methods
Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 % BOD/ThBOD	OECD 301D - Closed Bottle Test

**12.3. Bioaccumulative potential**

Reaction Mass of 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane and 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-butane	425-340-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
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**12.4. Mobility in soil**

Please contact manufacturer for more details

**12.5. Results of the PBT and vPvB assessment**

This material does not contain any substances that are assessed to be a PBT or vPvB

**12.6. Other adverse effects**

No information available

**SECTION 13: Disposal considerations****13.1 Waste treatment methods**

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

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Dispose of waste product in a permitted industrial waste facility. 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.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/CE and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor

### EU waste code (product as sold)

070103*	Organic halogenated solvents, washing liquids and mother liquors
140602*	Other halogenated solvents and solvent mixtures

## SECTION 14: Transportation information

ADR/IMDG/IATA: Not restricted for transport.

## 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 product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory.

## SECTION 16: Other information

### List of relevant H statements

H413 May cause long lasting harmful effects to aquatic life.

### Revision information:

Section 01: Product name information was modified.  
Section 01: REACH registration number information was added.  
Section 03: Composition/ Information of ingredients table information was modified.  
Section 06: Accidental release clean-up information information was modified.  
Section 06: Accidental release environmental information information was modified.  
Section 06: Accidental release personal information information was modified.  
Section 09: Autoignition temperature information information was modified.  
Section 09: Evaporation Rate information information was modified.  
Section 09: Flammable limits (LEL) information information was modified.  
Section 09: Flammable limits (UEL) information information was modified.  
Section 09: n-octanol/water coefficient information information was modified.  
Section 09: Relative density information information was modified.  
Section 09: Vapor density value information was modified.

Section 09: Vapor pressure value information was modified.  
Section 11: Acute Toxicity table information was modified.  
Section 11: Reproductive Toxicity Table information was modified.  
Section 11: Skin Sensitization Table information was modified.  
Section 11: Target Organs - Repeated Table information was modified.  
Section 11: Target Organs - Single Table information was modified.  
Section 12: Component ecotoxicity information information was modified.  
Section 12: No PBT/vPvB information available warning information was modified.  
Section 12: Persistence and Degradability information information was modified.  
Section 13: Standard Phrase Category Waste GHS information was modified.  
Section 15: Regulations - Inventories information was modified.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

**3M Israel SDSs are available at [www.3M.com/il](http://www.3M.com/il)**