

Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the GHS guidelines & India Hazardous substances (Classification, Labeling & Packaging) Draft Rules 2011.

SECTION 1: Identification

1.1. Product identifier

3M Novec 7300 Engineered Fluid

Product Identification Numbers

80-0014-4502-4 98-0212-3243-8 98-0212-3244-6 98-0212-3245-3 98-0212-3384-0

HB-0042-2516-3

1.2. Recommended use and restrictions on use

Recommended use

Heat transfer agent; Cooling agent; electrical insulator; solvent; laboratory chemical – Industrial use & professional use only, Heat-Transfer-Liquid

Restrictions on use

NovecTM 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.

1.3. Supplier's details

Address: 3M India Limited, plot-48-51, Electronic city, Hosur road, Bangalore-560100

Telephone: 080-45543000, contact Product EHS team

E Mail: productehs.in@mmm.com
Website: http://solutions.3mindia.co.in

1.4. Emergency telephone number

080-45543000 (Contact hours: 8:00 AM to 5:00 PM)

SECTION 2: Hazard identification

Under MSIHC Rules, information is noted below on flammability, acute toxicity and explosivity relevant to this product. In line with international standards, information on other hazard classes and associated precautionary statements relevant to this product are included as well.

2.1. Classification of the substance or mixture

Acute Toxicity (oral): Category 5.

2.2. Label elements

Signal Word

WARNING!

Symbols

Pictograms

HAZARD STATEMENTS:

H303 May be harmful if swallowed.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-	132182-92-4	99 - 100
(trifluoromethyl) pentane		

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.

Eve contact

No need for first aid is anticipated.

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

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

Substance
Carbon monoxide.

Condition

During combustion.

Carbon dioxide. Hydrogen Fluoride 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, tunic and trousers (leggings), 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. 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 authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. 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

Avoid inhalation of thermal decomposition products. Avoid skin contact with hot material. 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 oxidising 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 in a well-ventilated place. Keep container tightly closed. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidising 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	CAS Nbr	Agency	Limit type	Additional comments
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-	132182-92-	Manufacturer	TWA(8 hours):100 ppm	
methoxy-4-(trifluoromethyl)	4	determined		
pentane				

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

CMRG: Chemical Manufacturer's Recommended Guidelines

TWA: Time-Weighted-Average STEL: Short Term Exposure Limit

CEIL: Ceiling

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/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

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: Neoprene apron.

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.
Color	Colorless
Odor	Faint Odor
Odour threshold	No data available.
pH	Not applicable.
Melting point/Freezing point: NA	-38 °C
Boiling point/Initial boiling point/Boiling range	97.8 °C
Flash point	No flash point
Evaporation rate	0.07
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	None detected
Flammable Limits(UEL)	None detected
Vapour pressure	5,584.8 Pa [@ 20 °C]
Vapor Density and/or Relative Vapor Density	0.014 [@ 25 °C]

Density	1.67 g/ml
Relative density	1.67 [Ref Std:WATER=1]
Water solubility	0.295 ppm [@ 20 °C]
Solubility- non-water	0.067 Slight (less than 10%) [Details: Solubility of water in
	Novec 7300 (ppm)]
Partition coefficient: n-octanol/water	4.3 [Details:(log Kow)]
Autoignition temperature	408 °C [Details:per ASTM E-659 method]
Decomposition temperature	> 200 °C [Details:(anhydrous conditions)]
Viscosity/Kinematic Viscosity	< 5 mPa-s [@ 25 °C]
Volatile organic compounds (VOC)	Not applicable.
Percent volatile	100 %
VOC less H2O & exempt solvents	Not applicable.
Molecular weight	No data available.

Nanoparticles

This material does not contain nanoparticles.

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 polymerisation will not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Strong acids.

Strong bases.

Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition	
Carbon monoxide.	At elevated temperatures	extreme conditions of
	heat	
Carbon dioxide.	At elevated temperatures	extreme conditions of
	heat	
Hydrogen Fluoride	At elevated temperatures	extreme conditions of
	heat	
Perfluoroisobutylene (PFIB).	At elevated temperatures	extreme conditions of
	heat	
Toxic vapour, gas, particulate.	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 conditions 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 labelling, 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

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 the data are not sufficient for classification.

Acute Toxicity

ricute romenty			
Name	Route	Species	Value
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl)	Dermal	Rat	LD50 > 2,000 mg/kg
pentane			
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl)	Inhalation-	Rat	LC50 > 430 mg/l
pentane	Vapor (4		
	hours)		
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl)	Ingestion	Rat	LD50 > 2,000 mg/kg
pentane			

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	Rabbit	No significant irritation

Sensitization:

Skin Sensitisation

Name	Species	Value
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	Mouse	Not classified

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Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	In Vitro	Not mutagenic
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	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
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	Inhalation	Not classified for female reproduction	Rat	NOAEL 281 mg/l	premating into lactation
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	Inhalation	Not classified for male reproduction	Rat	NOAEL 281 mg/l	28 days
1,1,1,2,2,3,4,5,5,5-Decafluoro-3-methoxy-4-(trifluoromethyl) pentane	Inhalation	Not classified for development	Rat	NOAEL 281 mg/l	premating into lactation

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 Duration
1,1,1,2,2,3,4,5,5,5- Decafluoro-3-methoxy-4- (trifluoromethyl) pentane	Inhalation	endocrine system liver heart hematopoietic system immune system nervous system kidney and/or bladder	Not classified	Rat	NOAEL 281 mg/l	28 days
1,1,1,2,2,3,4,5,5,5- Decafluoro-3-methoxy-4- (trifluoromethyl) pentane	Inhalation	respiratory system	Not classified	Rat	NOAEL 143 mg/l	5 days
1,1,1,2,2,3,4,5,5,5- Decafluoro-3-methoxy-4- (trifluoromethyl) pentane	Ingestion	liver kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 150 mg/kg/day	28 days
1,1,1,2,2,3,4,5,5,5- Decafluoro-3-methoxy-4- (trifluoromethyl) pentane	Ingestion	endocrine system bone, teeth, nails, and/or hair hematopoietic system heart immune system nervous 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
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The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:

Not acutely toxic to aquatic life by GHS criteria. No toxicity at limit of water solubility.

Chronic aquatic hazard:

Not chronically toxic to aquatic life by GHS criteria.

No product test data available.

Material	CAS Nbr	Organism	Туре	Exposure	Test endpoint	Test result
1,1,1,2,2,3,4,5,	132182-92-4	Activated	Experimental	3 hours	EC50	>1,000 mg/l
5,5-		sludge				
Decafluoro-3-						
methoxy-4-						
(trifluoromethy						
l) pentane						
1,1,1,2,2,3,4,5,	132182-92-4	Green algae	Experimental	72 hours	No tox obs at	>100 mg/l
5,5-					lmt of water sol	
Decafluoro-3-						
methoxy-4-						
(trifluoromethy						
1) pentane						
1,1,1,2,2,3,4,5,	132182-92-4	Medaka	Experimental	96 hours	No tox obs at	>100 mg/l
5,5-					lmt of water sol	
Decafluoro-3-						
methoxy-4-						
(trifluoromethy						
1) pentane						
1,1,1,2,2,3,4,5,	132182-92-4	Water flea	Experimental	48 hours	No tox obs at	>100 mg/l
5,5-					lmt of water sol	
Decafluoro-3-						
methoxy-4-						
(trifluoromethy						
1) pentane						

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
1,1,1,2,2,3,4,5,	132182-92-4	Experimental		Photolytic half-	2.63 years (t	Non-standard method
5,5-		Photolysis		life (in air)	1/2)	
Decafluoro-3-						
methoxy-4-						
(trifluoromethy						
l) pentane						
1,1,1,2,2,3,4,5,	132182-92-4	Experimental	28 days	BOD	0 %	OECD 301D - Closed
5,5-		Biodegradation			BOD/ThBOD	bottle test
Decafluoro-3-						

3M Novec 7300 Engineered Fluid						
methoxy-4-	1					
methoxy-4- (trifluoromethy l) pentane						
l) pentane						

12.3: Bioaccumulative potential

No test data available.

12.4. Mobility in soil

Please contact manufacturer for more details

12.5 Other Adverse effects

No information 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. 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.

SECTION 14: Transport Information

Not hazardous for transportation.

Air Transport (IATA)Regulations

UN No Not applicable

Proper Shipping Name Not applicable **Hazard Classs/Division** Not applicable **Subsidiary Risk** Not applicable

Packing Group: Not applicable

Marine Transport (IMDG)

UN No Not applicable

Proper Shipping Name
Hazard Classs/Division
Subsidiary Risk
Packing Group:
Not applicable
Not applicable
Not applicable

Environmental Hazards: Not applicable

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 Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. 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.

Applicable Environmental, Health and Safety Regulations

The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 Hazardous Waste(Management, Handling & Transboundary) Rules, 2008 Hazardous Chemicals (Classification, Packaging and Labelling Draft Rules), 2011

The following ingredients are listed as hazardous on Part II of Schedule I of the India Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) rules

None

The following ingredients are classified as hazardous based on the criteria listed under Part I of Schedule I of the India Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) rules:

The product is classified as Non-Hazardous as per MSIHC Rules, 1989.

SECTION 16: Other information

NFPA Hazard Classification

Health: 3 Flammability: 0 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.

Revision information:

Section 14: Packing group (IMO) information was added.

Company Telephone information was modified.

Section 1: Emergency telephone information was modified.

Section 1: Product identification numbers information was modified.

US Section 01 Product Use - Recommended Use information was modified.

Section 4: First aid for eye contact information information was modified.

Section 4: First aid for inhalation information information was modified.

Section 4: First aid for skin contact information information was modified.

Section 04: Information on toxicological effects information was deleted.

Section 5: Hazardous combustion products table information was added.

Section 6: Accidental release environmental information information was modified.

Section 7: Precautions safe handling information information was modified.

Section 8: Eye protection information information was added.

Section 8: Eye/face protection information information was deleted.

Section 8: Occupational exposure limit table information was modified.

Section 8: Personal Protection - Eye information information was deleted.

Section 8: Personal Protection - Respiratory Information information was modified.

Section 8: Personal Protection - Skin/body information information was added.

Section 8: Personal Protection - Skin/hand information information was modified. Section 8: Skin protection - protective clothing information information was added.

Section 8: Skin protection - recommended gloves information information was added.

Section 8: Skin protection - recommended gloves text information was added.

Section 09: Color information was added.

Section 9: Density information information was modified.

Section 09: Nanoparticle information was added.

Section 09: Odor information was added.

Sections 3 and 9: Odour, colour, grade information information was deleted.

Section 09: Percent Volatile information was added.

Section 9: Property description for optional properties information was added.

Section 9: Property description for optional properties information was deleted.

Section 9: Relative density information information was modified.

Section 09: Vapor Density Value information was added.

Section 9: Vapour density value information was deleted.

Section 9: Viscosity information information was deleted.

Section 09: Viscosity information was added.

Section 09: VOC Less H2O & Exempt Solvents information was added.

Section 09: Volatile Organic Compounds information was added.

Section 10: Hazardous decomposition or by-products table information was modified.

Section 10: Hazardous decomposition products during combustion text information was added.

Section 10: Hazardous Decomposition Products information information was modified.

Section 11: Germ Cell Mutagenicity Table information was modified.

Section 11: Health Effects - Eye information information was modified.

Section 11: Health Effects - Inhalation information information was modified.

Section 11: Reproductive Toxicity Table information was modified.

Section 11: Target Organs - Repeated Table information was modified.

Section 12: Acute aquatic hazard information information was modified.

Section 12: Component ecotoxicity information information was modified.

Prints No Data if Adverse effects information is not present information was added.

Prints No Data if Bioccumulative potential information is not present information was added.

Section 12: Persistence and Degradability information information was modified.

Section 12:Bioccumulative potential information information was deleted.

Section 13: 13.1. Waste disposal note information was modified.

Section 13: Standard Phrase Category Waste GHS information was modified.

Section 14: Environmental hazards information was added.

Section 14: IMO Subsidiary Risk information was added.

Section 14: IMO transport hazard classes information was added.

Section 14: Proper Shipping Name (IMO) information was added.

Section 14: UN Number (IMO) information was added.

Section 15: Applicable Environmental, Health and Safety Regulations information was modified.

Section 15: MSIHC Part I of Schedule I ingredients information was modified.

Section 15: Regulations - Inventories information was modified.

Section 16: NFPA hazard classification for flammability information was modified.

Sectio 16: UK disclaimer information was deleted.

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 India SDSs are available at http://solutions.3mindia.co.in