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™ 71DE Engineered Fluid

Product Identification Numbers
98-0211-9219-4 98-0211-9221-0 98-0211-9223-6 98-0212-1172-1

1.2. Recommended use and restrictions on use

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

Restrictions on use
Novec™ Engineered 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 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
Serious Eye Damage/Irritation: Category 2B.
Specific Target Organ Toxicity (single exposure): Category 3.

Acute Aquatic Toxicity: Category 3.
Chronic Aquatic Toxicity: Category 3.

2.2. Label elements
Signal Word
WARNING!

Symbols
Exclamation mark |

Pictograms

HAZARD STATEMENTS:

H320	Causes eye irritation.
H336	May cause drowsiness or dizziness.
H412	Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.

Disposal:

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

2.3. Other hazards
In use, may form flammable/explosive vapour-air mixture.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
1,2-Trans-Dichloroethylene	156-60-5	49 - 51
Methyl Nonafluoroisobutyl Ether	163702-08-7	27.5 - 45
Methyl Nonafluorobutyl Ether	163702-07-6	5 - 22.5

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. 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. Material displays no closed-cup flash point but may form flammable/explosive vapor air mixture.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Chloride	During combustion.
Hydrogen Fluoride	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
Keep away from sparks, flames, and extreme heat. 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. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

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

6.3. Methods and material for containment and cleaning up
Eliminate all potential ignition sources when cleaning up spill. 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
Contents may be under pressure, open carefully. Avoid inhalation of thermal decomposition products. Avoid skin contact with hot material. Store work clothes separately from other clothing, food and tobacco products. Avoid breathing dust/fume/gas/mist/vapours/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. 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. Keep away from sparks, flames, and extreme heat.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Store away from heat. Store at temperatures not exceeding 38C/100F 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
1,2-Trans-Dichloroethylene	156-60-5	ACGIH	TWA:200 ppm	
Methyl Nonafluorobutyl Ether	163702-07-6	AIHA	TWA:750 ppm	
Methyl Nonafluoroisobutyl Ether	163702-08-7	AIHA	TWA:750 ppm	

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. Provide ventilation adequate to maintain vapor concentration below lower explosive concentration. EUH018_SUPP Provide ventilation adequate to maintain vapor concentration below lower explosive concentration.

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:
Indirect vented goggles.

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

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:
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.

Half facepiece or full facepiece air-purifying respirator suitable for organic vapours
Organic vapor respirators may have short service life.

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

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	Slight Odor
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point: NA	*Not applicable.*
Boiling point/Initial boiling point/Boiling range	41 ºC
Flash point	No flash point [*Details:*Tested according to ASTM Method D 3278-96]
Evaporation rate	70 [*Ref Std:*BUOAC=1]
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	None detected [*Details:*Tested according to ASTM Method E681-94]
Flammable Limits(UEL)	None detected [*Details:*Tested according to ASTM Method E681-94]
Vapour pressure	51,062.3 Pa [@ 25 ºC]
Vapor Density and/or Relative Vapor Density	4.8 [*Ref Std:*AIR=1]
Density	1.37 g/ml
Relative density	1.37 [*Ref Std:*WATER=1]
Water solubility	Slight (less than 10%)
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	410 ºC
Decomposition temperature	*Not applicable.*
Viscosity/Kinematic Viscosity	0.43 mPa-s [@ 25 ºC]
Volatile organic compounds (VOC)	685 g/l [*Test Method:*South Cost Air Qual Mgmt Dist]
Percent volatile	100 %
VOC less H2O & exempt solvents	685 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Molecular weight	*No data available.*

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 polymerisation will not occur.

10.4 Conditions to avoid
Heat.
Sparks and/or flames.

10.5 Incompatible materials
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 Chloride	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
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause additional health effects (see below).

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

Eye contact
Moderate eye irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Central nervous system (CNS) depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

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	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
1,2-Trans-Dichloroethylene	Dermal	Rabbit	LD50 > 5,000 mg/kg
1,2-Trans-Dichloroethylene	Inhalation-Vapor (4 hours)	Rat	LC50 95.6 mg/l
1,2-Trans-Dichloroethylene	Ingestion	Rat	LD50 7,902 mg/kg
Methyl Nonafluoroisobutyl Ether	Dermal		LD50 estimated to be > 5,000 mg/kg
Methyl Nonafluoroisobutyl Ether	Inhalation-Vapor (4 hours)	Rat	LC50 > 1,000 mg/l
Methyl Nonafluoroisobutyl Ether	Ingestion	Rat	LD50 > 5,000 mg/kg
Methyl Nonafluorobutyl Ether	Dermal		LD50 estimated to be > 5,000 mg/kg
Methyl Nonafluorobutyl Ether	Inhalation-Vapor (4 hours)	Rat	LC50 > 1,000 mg/l
Methyl Nonafluorobutyl Ether	Ingestion	Rat	LD50 > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
1,2-Trans-Dichloroethylene	Rabbit	Minimal irritation
Methyl Nonafluoroisobutyl Ether	Rabbit	No significant irritation
Methyl Nonafluorobutyl Ether	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
1,2-Trans-Dichloroethylene	Rabbit	Moderate irritant
Methyl Nonafluoroisobutyl Ether	Rabbit	No significant irritation

Methyl Nonafluorobutyl Ether	Rabbit	No significant irritation

Sensitization:

Skin Sensitisation

Name	Species	Value
Methyl Nonafluoroisobutyl Ether	Guinea pig	Not classified
Methyl Nonafluorobutyl Ether	Guinea pig	Not classified

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
1,2-Trans-Dichloroethylene	In Vitro	Not mutagenic
1,2-Trans-Dichloroethylene	In vivo	Not mutagenic
Methyl Nonafluoroisobutyl Ether	In Vitro	Not mutagenic
Methyl Nonafluoroisobutyl Ether	In vivo	Not mutagenic
Methyl Nonafluorobutyl Ether	In Vitro	Not mutagenic
Methyl Nonafluorobutyl Ether	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
1,2-Trans-Dichloroethylene	Inhalation	Not classified for development	Rat	NOAEL 24 mg/l	during organogenesis
Methyl Nonafluoroisobutyl Ether	Inhalation	Not classified for female reproduction	Rat	NOAEL 129 mg/l	1 generation
Methyl Nonafluoroisobutyl Ether	Inhalation	Not classified for male reproduction	Rat	NOAEL 129 mg/l	1 generation
Methyl Nonafluoroisobutyl Ether	Inhalation	Not classified for development	Rat	NOAEL 307 mg/l	during gestation
Methyl Nonafluorobutyl Ether	Inhalation	Not classified for female reproduction	Rat	NOAEL 129 mg/l	1 generation
Methyl Nonafluorobutyl Ether	Inhalation	Not classified for male reproduction	Rat	NOAEL 129 mg/l	1 generation
Methyl Nonafluorobutyl Ether	Inhalation	Not classified for development	Rat	NOAEL 307 mg/l	during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
1,2-Trans-Dichloroethylene	Inhalation	central nervous system depression	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
1,2-Trans-Dichloroethylene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
1,2-Trans-Dichloroethylene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Rat	LOAEL 4,500 mg/kg	not applicable
Methyl Nonafluoroisobutyl	Inhalation	nervous system	Not classified	Dog	LOAEL 913	10 minutes

Ether					mg/l	
Methyl Nonafluoroisobutyl Ether	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL 913 mg/l	10 minutes
Methyl Nonafluorobutyl Ether	Inhalation	nervous system	Not classified	Dog	LOAEL 913 mg/l	10 minutes
Methyl Nonafluorobutyl Ether	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL 913 mg/l	10 minutes

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
1,2-Trans-Dichloroethylene	Inhalation	endocrine system | liver | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 16 mg/l	90 days
1,2-Trans-Dichloroethylene	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,000 mg/kg/day	14 weeks
1,2-Trans-Dichloroethylene	Ingestion	blood | liver	Not classified	Rat	NOAEL 125 mg/kg/day	14 weeks
1,2-Trans-Dichloroethylene	Ingestion	heart | immune system | respiratory system	Not classified	Rat	NOAEL 2,000 mg/kg/day	14 weeks
Methyl Nonafluoroisobutyl Ether	Inhalation	liver	Not classified	Rat	NOAEL 155 mg/l	13 weeks
Methyl Nonafluoroisobutyl Ether	Inhalation	bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 129 mg/l	11 weeks
Methyl Nonafluoroisobutyl Ether	Inhalation	heart | skin | endocrine system | gastrointestinal tract | hematopoietic system | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 155 mg/l	13 weeks
Methyl Nonafluoroisobutyl Ether	Ingestion	endocrine system | liver | heart | hematopoietic system | immune system | nervous system | eyes | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methyl Nonafluorobutyl Ether	Inhalation	liver	Not classified	Rat	NOAEL 155 mg/l	13 weeks
Methyl Nonafluorobutyl Ether	Inhalation	bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 129 mg/l	11 weeks
Methyl Nonafluorobutyl Ether	Inhalation	heart | skin | endocrine system | gastrointestinal tract | hematopoietic system | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 155 mg/l	13 weeks
Methyl Nonafluorobutyl Ether	Ingestion	endocrine system | liver | heart | hematopoietic system | immune system | nervous system | eyes | kidney and/or bladder | respiratory	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

		system				

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 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:
GHS Acute 3: Harmful to aquatic life.

Chronic aquatic hazard:
GHS Chronic 3: Harmful to aquatic life with long lasting effects.

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
1,2-Trans-Dichloroethylene	156-60-5	Bluegill	Estimated	96 hours	LC50	140 mg/l
1,2-Trans-Dichloroethylene	156-60-5	Green Algae	Experimental	48 hours	EC50	36.36 mg/l
1,2-Trans-Dichloroethylene	156-60-5	Water flea	Experimental	48 hours	LC50	220 mg/l
Methyl Nonafluoroisobutyl Ether	163702-08-7	Fathead minnow	Endpoint not reached	96 hours	LC50	>100 mg/l
Methyl Nonafluoroisobutyl Ether	163702-08-7	Green Algae	Estimated	72 hours	EC50	>100 mg/l
Methyl Nonafluoroisobutyl Ether	163702-08-7	Water flea	Estimated	48 hours	EC50	>100 mg/l
Methyl Nonafluoroisobutyl Ether	163702-08-7	Green Algae	Estimated	72 hours	NOEC	100 mg/l
Methyl Nonafluorobutyl Ether	163702-07-6	Fathead minnow	Endpoint not reached	96 hours	LC50	>100 mg/l
Methyl Nonafluorobutyl Ether	163702-07-6	Green Algae	Estimated	72 hours	EC50	>100 mg/l
Methyl	163702-07-6	Water flea	Estimated	48 hours	EC50	>100 mg/l

Nonafluorobutyl Ether						
Methyl Nonafluorobutyl Ether	163702-07-6	Green Algae	Estimated	72 hours	NOEC	100 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
1,2-Trans-Dichloroethylene	156-60-5	Experimental Photolysis		Photolytic half-life (in air)	13 days (t 1/2)	Other methods
1,2-Trans-Dichloroethylene	156-60-5	Experimental Biodegradation	28 days	BOD	8 % weight	OECD 301D - Closed bottle test
Methyl Nonafluoroisobutyl Ether	163702-08-7	Estimated Biodegradation	28 days	BOD	22 % BOD/ThBOD	OECD 301D - Closed bottle test
Methyl Nonafluorobutyl Ether	163702-07-6	Estimated Biodegradation	28 days	BOD	22 % BOD/ThBOD	OECD 301D - Closed bottle test

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
1,2-Trans-Dichloroethylene	156-60-5	Experimental Bioconcentration		Log Kow	2.09	Other methods
Methyl Nonafluoroisobutyl Ether	163702-08-7	Estimated Bioconcentration		Log Kow	4.0	Other methods
Methyl Nonafluorobutyl Ether	163702-07-6	Estimated Bioconcentration		Log Kow	4.0	Other methods

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. 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 halogen acid (HCl/HF/HBr). 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.

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 Not applicable
Hazard Classs/Division Not applicable
Subsidiary Risk Not applicable
Packing Group: 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 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. 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.

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.

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 name information was modified.
Section 2: Hazard - Other information was modified.
Section 2: Ingredient table information was modified.
Section 5: Fire - Extinguishing media information information was modified.
Section 5: Fire - Special hazards information information was modified.
Section 5: Hazardous combustion products table information was modified.
Section 6: Accidental release clean-up information information was modified.
Section 6: Accidental release personal information information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Appropriate Engineering controls information information was modified.
Section 8: Personal Protection - Respiratory Information information was modified.
Section 8: Personal Protection - Skin/hand information information was modified.
Section 8: Personal Protection - Thermal hazards information information was added.
Section 8: Respiratory protection - recommended respirators information information was modified.
Section 09: Color information was added.
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 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: Conditions to avoid physical property information was modified.
Section 11: Health Effects - Inhalation information 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.
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 deleted.
Prints No Data if Persistence and Degradability information is not present information was deleted.
Section 12: Persistence and Degradability information information was added.
Section 12:Bioccumulative potential information information was added.
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.
Sectio 16: UK disclaimer information was deleted.

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