Safety Data Sheet

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Document group:	08-7638-3	**Version number:**	1.01
Issue Date:	14/04/2021	**Supersedes date:**	31/05/2017

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

IDENTIFICATION

1.1. Product identifier
3M™ Scotch-Weld™ Epoxy Adhesive, DP420 Black

Product Identification Numbers
62-2778-1430-7 62-2778-1431-5 62-2778-1435-6 62-2778-1436-4 62-2778-3530-2
62-2778-3830-6

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

Recommended use
Structural adhesive.

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)

This product is a kit or a multipart product which consists of multiple, independently packaged components. A Safety Data Sheet for each of these components is included. Please do not separate the component Safety Data Sheets from this cover page. The document numbers of the MSDSs for components of this product are:

22-0521-9, 22-2132-3

TRANSPORT INFORMATION

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

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

Safety Data Sheet

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Document group:	22-0521-9	**Version number:**	1.03
Issue Date:	20/05/2026	**Supersedes date:**	14/04/2021

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™ Scotch-Weld™ Epoxy Adhesive DP420 Black, Part B or Epoxy Adhesive 420 Black, Part B

Product Identification Numbers
62-2778-8530-7 62-2778-9530-6

1.2. Recommended use and restrictions on use

Recommended use
Part B of 2 part Adhesive, Structural adhesive.

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
Skin Corrosion/Irritation: Category 3.
Serious Eye Damage/Irritation: Category 2B.
Skin Sensitizer: Category 1.
Acute Aquatic Toxicity: Category 2.
Chronic Aquatic Toxicity: Category 2.

2.2. Label elements
Signal Word
Warning

Symbols
Exclamation mark | Environment |

Pictograms



HAZARD STATEMENTS:

H316	Causes mild skin irritation.
H320	Causes eye irritation.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P273	Avoid release to the environment.
P280E	Wear protective gloves.

Response:

P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P391	Collect spillage.

2.3. Other hazards
None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Epoxy Resin	25068-38-6	70 - 90
Acrylic Polymer	Trade Secret	1 - 20
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	<= 0.5
Carbon black	1333-86-4	< 0.2

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, 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

Allergic skin reaction (redness, swelling, blistering, and itching).

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 ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes.	During combustion.
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Chloride	During combustion.

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Use PPE - Exposure Assessment
Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

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

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and 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
For industrial/occupational use only. Not for consumer sale or use. 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. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.)

7.2. Conditions for safe storage including any incompatibilities
Store away from heat. 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
Carbon black	1333-86-4	ACGIH	TWA(inhalable fraction):3 mg/m3	A3: Confirmed animal carcin.

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
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

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.
Indirect vented goggles.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: Polymer laminate

If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates
Half facepiece or full facepiece supplied-air respirator

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Paste
Color	Black
Odor	Mild Epoxy
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point: NA	*No data available.*
Boiling point/Initial boiling point/Boiling range	>=200 ºC
Flash point	>=171.1 ºC [*Test Method:*Closed Cup]
Evaporation rate	*Not applicable.*
Flammability	Not applicable.
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Vapour pressure	*Not applicable.*
Relative Vapor Density	*Not applicable.*
Density	1.14 g/ml
Relative density	1.14 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Kinematic Viscosity	29,386 mm²/sec
Volatile organic compounds (VOC)	*No data available.*
Percent volatile	*No data available.*
VOC less H2O & exempt solvents	0 g/l [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*when used as intended with Part A]
VOC less H2O & exempt solvents	6 g/l [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*as supplied]
VOC less H2O & exempt solvents	0 % [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*when used as intended with Part A]
Molecular weight	*No data available.*

Particle Characteristics	*Not applicable.*

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.

10.5 Incompatible materials
Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

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.

Skin contact
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

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.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value

Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Epoxy Resin	Dermal	Rat	LD50 > 1,600 mg/kg
Epoxy Resin	Ingestion	Rat	LD50 > 1,000 mg/kg
Acrylic Polymer	Dermal	Rabbit	LD50 > 5,000 mg/kg
Acrylic Polymer	Ingestion	Rat	LD50 > 5,000 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Dermal	Rabbit	LD50 4,000 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.3 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Rat	LD50 7,010 mg/kg
Carbon black	Dermal	Rabbit	LD50 > 3,000 mg/kg
Carbon black	Ingestion	Rat	LD50 > 8,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Epoxy Resin	Rabbit	Mild irritant
Acrylic Polymer	Professional judgement	Minimal irritation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Rabbit	Mild irritant
Carbon black	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Epoxy Resin	Rabbit	Moderate irritant
Acrylic Polymer	Professional judgement	Mild irritant
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Rabbit	Corrosive
Carbon black	Rabbit	No significant irritation

Sensitization:

Skin Sensitisation

Name	Species	Value
Epoxy Resin	Human and animal	Sensitising
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Guinea pig	Not classified

Respiratory Sensitisation

Name	Species	Value
Epoxy Resin	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Epoxy Resin	In vivo	Not mutagenic
Epoxy Resin	In Vitro	Some positive data exist, but the data are not sufficient for classification
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	In Vitro	Some positive data exist, but the data are not sufficient for classification
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	In vivo	Some positive data exist, but the data are not sufficient for classification

Carbon black	In Vitro	Not mutagenic
Carbon black	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Epoxy Resin	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Dermal	Mouse	Not carcinogenic
Carbon black	Dermal	Mouse	Not carcinogenic
Carbon black	Ingestion	Mouse	Not carcinogenic
Carbon black	Inhalation	Rat	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Epoxy Resin	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Epoxy Resin	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Not classified for development	Rat	NOAEL 3,000 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Epoxy Resin	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Epoxy Resin	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Epoxy Resin	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Epoxy Resin	Ingestion	auditory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	hematopoietic	Not classified	Rat	NOAEL	28 days

		system			1,000 mg/kg/day	
Epoxy Resin	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	immune system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Carbon black	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure

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 2: Toxic to aquatic life.

Chronic aquatic hazard:
GHS Chronic 2: Toxic to aquatic life with long lasting effects.

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
Epoxy Resin	25068-38-6	Activated sludge	Estimated	3 hours	IC50	>100 mg/l
Epoxy Resin	25068-38-6	Green algae	Estimated	72 hours	EC50	>11 mg/l
Epoxy Resin	25068-38-6	Rainbow trout	Estimated	96 hours	LC50	2 mg/l
Epoxy Resin	25068-38-6	Water flea	Estimated	48 hours	EC50	1.8 mg/l
Epoxy Resin	25068-38-6	Green algae	Estimated	72 hours	NOEC	4.2 mg/l
Epoxy Resin	25068-38-6	Water flea	Estimated	21 days	NOEC	0.3 mg/l
Acrylic Polymer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Common Carp	Experimental	96 hours	LC50	55 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Green algae	Experimental	96 hours	ErC50	350 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Invertebrate	Experimental	48 hours	LC50	324 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Green algae	Experimental	96 hours	NOEC	130 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Water flea	Experimental	21 days	NOEC	100 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
Carbon black	1333-86-4	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Carbon black	1333-86-4	Zebra Fish	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Carbon black	1333-86-4	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Carbon black	1333-86-4	Activated sludge	Experimental	3 hours	NOEC	>800 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Epoxy Resin	25068-38-6	Estimated Biodegradation	28 days	BOD	5 %BOD/COD	OECD 301F - Manometric respirometry
Epoxy Resin	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	117 hours (t 1/2)	
Acrylic Polymer	Trade Secret	Data not available-insufficient	N/A	N/A	N/A	N/A
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	37 %removal of DOC	EC C.4.A. DOC Die-Away Test
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	6.5 hours (t 1/2)	OECD 111 Hydrolysis func of pH
Carbon black	1333-86-4	Data not available-insufficient	N/A	N/A	N/A	N/A

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol

Epoxy Resin	25068-38-6	Estimated Bioconcentration		Log Kow	3.242	
Acrylic Polymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Experimental Bioconcentration		Log Kow	0.5	Episuite™
Carbon black	1333-86-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

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 completely cured (or polymerised) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include 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

Air Transport (IATA)Regulations

UN No UN3082
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy Resin)
Hazard Classs/Division 9
Subsidiary Risk Not applicable
Other Dangerous Goods Descriptions: None assigned.

Packing Group: III

Marine Transport (IMDG)
UN No UN3082
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy Resin)
Hazard Classs/Division 9
Subsidiary Risk Not applicable
Other Dangerous Goods Descriptions: None assigned.

Packing Group: III
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 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.

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: 2 **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:
Label: GHS Classification information was modified.
Label: GHS Precautionary - Disposal information was deleted.
Label: GHS Precautionary - Prevention information was modified.
Label: GHS Precautionary - Response information was modified.
Label: Graphic information was modified.
Label: Signal Word information was modified.
Label: Symbol information was modified.
Section 2: Ingredient table information was modified.
Section 6: Accidental release personal information information was modified.
Section 7: Conditions safe storage information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Eye/face protection information information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 08: Personal Protection - Apron Statement information was added.
Section 8: Respiratory protection - recommended respirators information information was modified.
Section 8: Skin protection - recommended gloves information information was modified.
Section 8: Skin protection - recommended gloves text information was added.

Section 8: Skin protection - recommended gloves text information was deleted.
Section 9: Flammability (solid, gas) information information was deleted.
Section 09: Flammability information information was added.
Section 09: Kinematic Viscosity information information was added.
Section 09: Nanoparticle information was deleted.
Section 09: Odor information was modified.
Section 09: Particle Characteristics N/A information was added.
Section 09: Percent Volatile information was modified.
Section 09: Vapor Density Value information was modified.
Section 09: Viscosity information was deleted.
Section 09: Volatile Organic Compounds information was modified.
Section 11: Acute Toxicity table information was modified.
Section 11: Aspiration Hazard Table information was deleted.
Section 11: Aspiration Hazard text information was added.
Section 11: Carcinogenicity Table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Health Effects - Ingestion information information was modified.
Section 11: Health Effects - Inhalation information information was modified.
Section 11: Reproductive Hazards information information was deleted.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Serious Eye Damage/Irritation Table information was modified.
Section 11: Skin Corrosion/Irritation 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: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.
Section 13: Standard Phrase Category Waste GHS information was modified.
Section 14: Air Transport - Other Dangerous Goods Descriptions heading information was added.
Section 14: Marine Transport - Other Dangerous Goods Descriptions heading information was added.
Section 14: Other Dangerous Goods Descriptions (IATA) information was added.
Section 14: Other Dangerous Goods Descriptions (IMO) information was added.
Section 15: MSIHC Ingredients information was modified.

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Safety Data Sheet

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Document group:	22-2132-3	**Version number:**	2.02
Issue Date:	14/04/2021	**Supersedes date:**	23/07/2018

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™ Scotch-Weld™ Epoxy Adhesive DP420 Black, Part A

1.2. Recommended use and restrictions on use

Recommended use
Part A in two-part epoxy , Structural adhesive.

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 1.
Skin Corrosion/Irritation: Category 1B.

2.2. Label elements
Signal Word
DANGER!

Symbols
Corrosion |

Pictograms



HAZARD STATEMENTS:

H314	Causes severe skin burns and eye damage.

PRECAUTIONARY STATEMENTS

Prevention:

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.

2.3. Other hazards

- May cause chemical gastrointestinal burns.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Modified Epoxy Resin (NJTS Reg. No. 04499600-6839)	Trade Secret	40 - 80
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	10 - 50
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	1 - 5
Silane, trimethoxyoctyl-, hydrolysis products with silica	67762-90-7	1 - 5
Calcium triflate	55120-75-7	1 - 5
methylene chloride	75-09-2	< 0.01

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact

Immediately flush with large amounts of water for at least 15 minutes. Remove contaminated clothing. Get immediate medical attention. Wash clothing before reuse.

Eye contact

Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If swallowed

Rinse mouth. Do not induce vomiting. Get immediate medical attention.

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

Skin burns (localized redness, swelling, itching, intense pain, blistering, and tissue destruction). Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision).

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable Extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes.	During combustion.
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Fluoride	During combustion.
Irritant vapours or gases.	During combustion.
Oxides of nitrogen.	During combustion.

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. 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
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
For industrial/occupational use only. Not for consumer sale or use. Do not breathe 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. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.)

7.2. Conditions for safe storage including any incompatibilities
Store away from acids. 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
methylene chloride	75-09-2	ACGIH	TWA:50 ppm	A3: Confirmed animal carcin.

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
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

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Full face shield.
Indirect vented goggles.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Fluoroelastomer
Polymer laminate

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:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Paste
Color	Amber
Odor	Very Mild Odor, Pungent Odor
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point: NA	*No data available.*
Boiling point/Initial boiling point/Boiling range	>=175 ºC
Flash point	>=171.1 ºC [*Test Method:*Closed Cup]
Evaporation rate	*Not applicable.*
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Vapour pressure	*Not applicable.*
Vapor Density and/or Relative Vapor Density	*Not applicable.*
Density	1.12 g/ml
Relative density	1.12 [*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	*No data available.*
Decomposition temperature	*No data available.*
Viscosity/Kinematic Viscosity	8,000 - 14,000 mPa-s [@ 23 ºC]
Volatile organic compounds (VOC)	
Percent volatile	
VOC less H2O & exempt solvents	0 g/l [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*when used as intended with Part B]
VOC less H2O & exempt solvents	0 g/l [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*as supplied]
VOC less H2O & exempt solvents	0 % [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*when used as intended with Part B]
Molecular weight	*No data available.*

Nanoparticles
This material contains 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 is generated during cure. Do not cure a mass larger than 50 grams in a confined space to prevent a premature exothermic

reaction with production of intense heat and smoke.

10.5 Incompatible materials
Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

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.

Skin contact
Corrosive (skin burns): Signs/symptoms may include localised redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.

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

Ingestion
Gastrointestinal corrosion: Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea; blood in the faeces and/or vomitus may also be seen.

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	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
4,7,10-Trioxatridecane-1,13-Diamine	Dermal	Rabbit	LD50 2,500 mg/kg
4,7,10-Trioxatridecane-1,13-Diamine	Ingestion	Rat	LD50 3,160 mg/kg
Silane, trimethoxyoctyl-, hydrolysis products with silica	Dermal	Rabbit	LD50 > 5,000 mg/kg

Silane, trimethoxyoctyl-, hydrolysis products with silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Silane, trimethoxyoctyl-, hydrolysis products with silica	Ingestion	Rat	LD50 > 5,110 mg/kg
2,4,6-tris((Dimethylamino)Methyl)Phenol	Dermal	Rat	LD50 1,280 mg/kg
2,4,6-tris((Dimethylamino)Methyl)Phenol	Ingestion	Rat	LD50 1,000 mg/kg
Calcium triflate	Dermal	Professional judgement	LD50 estimated to be 2,000 - 5,000 mg/kg
Calcium triflate	Ingestion	Rat	LD50 > 2,000 mg/kg
methylene chloride	Dermal	Rat	LD50 > 2,000 mg/kg
methylene chloride	Inhalation-Vapor (4 hours)	Rat	LC50 63.7 mg/l
methylene chloride	Ingestion	Rat	LD50 1,410 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
4,7,10-Trioxatridecane-1,13-Diamine	Rabbit	Corrosive
Silane, trimethoxyoctyl-, hydrolysis products with silica	Rabbit	No significant irritation
2,4,6-tris((Dimethylamino)Methyl)Phenol	Rabbit	Corrosive
Calcium triflate	Rabbit	Minimal irritation
methylene chloride	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
4,7,10-Trioxatridecane-1,13-Diamine	similar health hazards	Corrosive
Silane, trimethoxyoctyl-, hydrolysis products with silica	Rabbit	No significant irritation
2,4,6-tris((Dimethylamino)Methyl)Phenol	Rabbit	Corrosive
Calcium triflate	Rabbit	Corrosive
methylene chloride	Rabbit	Severe irritant

Sensitization:

Skin Sensitisation

Name	Species	Value
Silane, trimethoxyoctyl-, hydrolysis products with silica	Human and animal	Not classified
2,4,6-tris((Dimethylamino)Methyl)Phenol	Guinea pig	Not classified
Calcium triflate	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
Silane, trimethoxyoctyl-, hydrolysis products with silica	In Vitro	Not mutagenic
2,4,6-tris((Dimethylamino)Methyl)Phenol	In Vitro	Not mutagenic
Calcium triflate	In Vitro	Not mutagenic
methylene chloride	In vivo	Not mutagenic
methylene chloride	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Silane, trimethoxyoctyl-, hydrolysis products with silica	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
methylene chloride	Inhalation	Multiple animal species	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Silane, trimethoxyoctyl-, hydrolysis products with silica	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Silane, trimethoxyoctyl-, hydrolysis products with silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Silane, trimethoxyoctyl-, hydrolysis products with silica	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
methylene chloride	Inhalation	Not classified for female reproduction	Rat	NOAEL 5.2 mg/l	2 generation
methylene chloride	Inhalation	Not classified for male reproduction	Rat	NOAEL 5.2 mg/l	2 generation
methylene chloride	Inhalation	Not classified for development	Multiple animal species	NOAEL 4.3 mg/l	during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
4,7,10-Trioxatridecane-1,13-Diamine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
2,4,6-tris((Dimethylamino)Methyl)Phenol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Calcium triflate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
methylene chloride	Dermal	blood	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	4 hours
methylene chloride	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	occupational exposure
methylene chloride	Inhalation	blood	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
methylene chloride	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Silane, trimethoxyoctyl-, hydrolysis products with silica	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
2,4,6-tris((Dimethylamino)Methyl)Phenol	Dermal	skin | liver | nervous system | auditory system | hematopoietic	Not classified	Rat	NOAEL 125 mg/kg/day	28 days

		system | eyes				
methylene chloride	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 6.95 mg/l	2 years
methylene chloride	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.17 mg/l	2 years
methylene chloride	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	LOAEL 35 mg/l	8 weeks
methylene chloride	Inhalation	heart	Not classified	Human	NOAEL Not available	
methylene chloride	Inhalation	immune system	Not classified	Rat	NOAEL 18 mg/l	28 days
methylene chloride	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 1,200 mg/kg/day	3 months
methylene chloride	Ingestion	blood	Not classified	Rat	NOAEL 249 mg/kg/day	2 years
methylene chloride	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,469 mg/kg/day	3 months
methylene chloride	Ingestion	eyes	Not classified	Rat	NOAEL 249 mg/kg/day	104 weeks

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:
Not acutely toxic to aquatic life by GHS criteria.

Chronic aquatic hazard:
Not chronically toxic to aquatic life by GHS criteria.

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Bacteria	Experimental	17 hours	EC50	4,000 mg/l
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Golden Orfe	Experimental	96 hours	LC50	>1,000 mg/l
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Green algae	Experimental	72 hours	EC50	>500 mg/l

4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Water flea	Experimental	48 hours	EC50	218.16 mg/l
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Green algae	Experimental	72 hours	EC10	5.4 mg/l
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2		Experimental	96 hours	LC50	718 mg/l
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	Common Carp	Experimental	96 hours	LC50	>100 mg/l
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	Green algae	Experimental	72 hours	EC50	46.7 mg/l
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	Water flea	Experimental	48 hours	EC50	>100 mg/l
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	Green algae	Experimental	72 hours	NOEC	6.44 mg/l
Silane, trimethoxyoctyl-, hydrolysis products with silica	67762-90-7		Data not available or insufficient for classification			N/A
Calcium triflate	55120-75-7	Green Algae	Estimated	72 hours	EC50	54 mg/l
Calcium triflate	55120-75-7	Rainbow trout	Estimated	96 hours	LC50	>100 mg/l
Calcium triflate	55120-75-7	Water flea	Estimated	48 hours	EC50	>100 mg/l
Calcium triflate	55120-75-7	Green Algae	Estimated	72 hours	NOEC	6.4 mg/l
methylene chloride	75-09-2	Fathead minnow	Experimental	96 hours	LC50	193 mg/l
methylene chloride	75-09-2	Green Algae	Experimental	72 hours	EC50	242 mg/l
methylene chloride	75-09-2	Water flea	Experimental	48 hours	LC50	27 mg/l
methylene chloride	75-09-2	Fathead minnow	Experimental	28 days	NOEC	83 mg/l
methylene chloride	75-09-2	Green Algae	Experimental	72 hours	EC10	115 mg/l
methylene chloride	75-09-2	Activated sludge	Experimental	40 minutes	EC50	2,590 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Estimated Photolysis		Photolytic half-life (in air)	2.96 hours (t 1/2)	Non-standard method

4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Experimental Biodegradation	25 days	CO2 evolution	-8 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	Experimental Biodegradation	28 days	BOD	4 % BOD/ThBOD	OECD 301D - Closed bottle test
Silane, trimethoxyoctyl-, hydrolysis products with silica	67762-90-7	Data not available-insufficient			N/A	
Calcium triflate	55120-75-7	Estimated Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301D - Closed bottle test
methylene chloride	75-09-2	Experimental Photolysis		Photolytic half-life (in air)	226 days (t 1/2)	
methylene chloride	75-09-2	Experimental Biodegradation	28 days	BOD	68 % BOD/ThBOD	OECD 301D - Closed bottle test

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
4,7,10-Trioxatridecane-1,13-Diamine	4246-51-9	Experimental Bioconcentration		Log Kow	-1.25	Non-standard method
2,4,6-tris((Dimethylamino)Methyl)Phenol	90-72-2	Experimental Bioconcentration		Log Kow	-0.66	830.7550 Part.Coef Shake Flask
Silane, trimethoxyoctyl-, hydrolysis products with silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Calcium triflate	55120-75-7	Estimated Bioconcentration	35 days	Bioaccumulation factor	0.03	OECD 305E - Bioaccumulation flow-through fish test
methylene chloride	75-09-2	Experimental BCF-Carp	42 days	Bioaccumulation factor	≤40	OECD305-Bioconcentration
methylene chloride	75-09-2	Experimental Bioconcentration		Log Kow	1.25	

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 completely cured (or polymerised) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information

Air Transport (IATA)Regulations

UN No UN2735
Proper Shipping Name AMINES, LIQUID, CORROSIVE, N.O.S. (4,7,10-Trioxatridecane-1,13-Diamine and 2,4,6-tris((Dimethylamino)Methyl)Phenol)
Hazard Classs/Division 8
Subsidiary Risk Not applicable
Packing Group: II

Marine Transport (IMDG)
UN No UN2735
Proper Shipping Name AMINES, LIQUID, CORROSIVE, N.O.S. (4,7,10-Trioxatridecane-1,13-Diamine and 2,4,6-tris((Dimethylamino)Methyl)Phenol)
Hazard Classs/Division 8
Subsidiary Risk Not applicable
Packing Group: II
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 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 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
methylene chloride

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:
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 modified.
Company Telephone information was modified.
Section 1: Emergency telephone information was modified.
US Section 01 Product Use - Recommended Use information was modified.
Label: GHS Precautionary - Prevention information was modified.
Section 2: Ingredient table information was modified.
Section 04: First Aid - Symptoms and Effects (GHS) information was added.
Section 04: Information on toxicological effects information was deleted.
Section 5: Hazardous combustion products table information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Occupational exposure limit table information was added.
Section 8: Occupational exposure limit table information was modified.
OEL Reg Agency Desc information was added.
Section 8: Skin protection - recommended gloves information information was modified.
Section 8: STEL key information was added.
Section 8: TWA key information was added.
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: Hazardous Decomposition Products information information was added.
Section 11: Acute Toxicity table information was modified.
Section 11: Carcinogenicity Table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Serious Eye Damage/Irritation Table information was modified.
Section 11: Skin Corrosion/Irritation 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: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.
Section 13: Standard Phrase Category Waste GHS information was modified.
Section 14: IMO transport hazard classes information was modified.
Section 14: Proper Shipping Name (IMO) information was modified.
Section 14: UN Number (IMO) information was modified.
Section 15: Applicable Environmental, Health and Safety Regulations information was modified.
Section 15: MSIHC Ingredients information was modified.
Section 15: Regulations - Inventories 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