Safety Data Sheet

Document group:	19-3248-2	**Version number:**	23.02
Revision date:	11/06/2019	**Supersedes date:**	03/05/2019

Transportation version number: 13.01 (02/07/2019)

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

3M™ Scotch-Weld™ DP-490 Black Structural Adhesive Kit

Product Identification Numbers

FS-9100-2418-1	FS-9100-2878-6	FS-9100-4034-4	UU-0101-3332-8	UU-0101-3334-4
7000079930	7000079900	7000006833	7100200499	7100200501

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

Identified uses

Structural adhesive.

1.3. Details of the supplier of the safety data sheet

Address: 3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone: +44 (0)1344 858 000
E Mail: tox.uk@mmm.com
Website: www.3M.com/uk

1.4. Emergency telephone number

+44 (0)1344 858 000

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:

19-2630-2, 19-2691-4

TRANSPORTATION INFORMATION

FS-9100-2418-1

Component 1

ADR/RID: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (EPOXY RESIN), 9, III, (-), ENVIRONMENTALLY HAZARDOUS, ADR Classification Code: M7.

IMDG-CODE: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (EPOXY RESIN), 9, III, IMDG-Code segregation code: NONE, Marine Pollutant, (EPOXY RESIN), EMS: FA,SF.
ICAO/IATA: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (EPOXY RESIN), 9, III, fish and tree marking may be required (> 5kg/l).

Component 2
ADR/RID: UN3263, CORRSOIVE SOLID, BASIC, ORGANIC, N.O.S., (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL), 8, II , (E), ADR Classification Code: C8.
IMDG-CODE: UN3263, CORROSIVE SOLID,BASIC,ORGANIC,N.O.S., (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL), 8., II , IMDG-Code segregation code: 18- ALKALIS, EMS: FA,SB.
ICAO/IATA: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL), 8., II .

FS-9100-2878-6

ADR/RID: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., LIMITED QUANTITY, (2,4,6-TRIS((DIMETHYLAMINO)METHYL) PHENOL), (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), 8, II , (E), ADR Classification Code: C8.
IMDG-CODE: UN3263, CORROSIVE SOLID,BASIC,ORGANIC,N.O.S., (2,4,6-TRIS((DIMETHYLAMINO)METHYL) PHENOL), (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), 8., II , IMDG-Code segregation code: 18- ALKALIS, LIMITED QUANTITY, EMS: FA,SB.
ICAO/IATA: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., (2,4,6-TRIS((DIMETHYLAMINO)METHYL) PHENOL), (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), 8., II .

FS-9100-4034-4

ADR/RID: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., LIMITED QUANTITY, (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (2,4,6-TRIS((DIMETHYLAMINO)METHYL) PHENOL), 8, II , (E), ADR Classification Code: C8.
IMDG-CODE: UN3263, CORROSIVE SOLID,BASIC,ORGANIC,N.O.S., (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (2,4,6-TRIS((DIMETHYLAMINO)METHYL) PHENOL), 8., II , IMDG-Code segregation code: 18- ALKALIS, LIMITED QUANTITY, EMS: FA,SB.
ICAO/IATA: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (2,4,6-TRIS((DIMETHYLAMINO)METHYL) PHENOL), 8., II .

UU-0101-3332-8, UU-0101-3334-4

Component 1
ADR/RID: UN3077, NOT RESTRICTED AS PER SPECIAL PROVISION 375, ENVIRONMENTALLY HAZARDOUS SUBSTANCE EXEMPTION, (EPOXY RESIN), III, --.
IMDG-CODE: UN3077, NOT RESTRICTED AS PER IMDG CODE 2.10.2.7, MARINE POLLUTANT EXCEPTION, (EPOXY RESIN), III, IMDG-Code segregation code: NONE, EMS: --.
ICAO/IATA: UN3077, NOT RESTRICTED AS PER SPECIAL PROVISION A197, ENVIRONMENTALLY HAZARDOUS SUBSTANCE EXCEPTION, (EPOXY RESIN), III.

Component 2
ADR/RID: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., LIMITED QUANTITY, (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL), 8, II , (E), ADR Classification Code: C8.
IMDG-CODE: UN3263, CORROSIVE SOLID,BASIC,ORGANIC,N.O.S., (3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL), 8., II , IMDG-Code segregation code: 18- ALKALIS, LIMITED QUANTITY, EMS: FA,SB.
ICAO/IATA: UN3263, CORROSIVE SOLID, BASIC, ORGANIC, N.O.S., (3,3'-

OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)), (TRIS(2,4,6-DIMETHYLAMINOMONOMETHYL)PHENOL), 8., II .

KIT LABEL

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:
Serious Eye Damage/Eye Irritation, Category 1 - Eye Dam. 1; H318
Skin Corrosion/Irritation, Category 1B - Skin Corr. 1B; H314
Skin Sensitization, Category 1 - Skin Sens. 1; H317
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

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

SIGNAL WORD
DANGER.

Symbols:
GHS05 (Corrosion) | GHS07 (Exclamation mark) |GHS09 (Environment) |

Pictograms

Contains:
2-Piperazin-1-ylethylamine; 1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane; 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane; 3,3'-Oxybis(ethyleneoxy)bis(propylamine); Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine); Tris(2,4,6-dimethylaminomonomethyl)phenol

HAZARD STATEMENTS:

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P260A	Do not breathe vapours.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353A	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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 CENTRE or doctor/physician.

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

For containers not exceeding 125 ml the following Hazard and Precautionary statements may be used:

<=125 ml Hazard statements

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

<=125 ml Precautionary statements

Prevention:

P260A	Do not breathe vapours.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353A	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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 CENTRE or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Refer to Safety Data Sheet for component % unknown values (www.3M.com/msds).

Revision information:
Kit: Component document group number(s) information was modified.
Section 1: Product identification numbers information was modified.
Section 01: SAP Material Numbers information was modified.

Safety Data Sheet

Document group:	19-2630-2	**Version number:**	20.01
Revision date:	10/05/2019	**Supersedes date:**	12/11/2018

Transportation version number: 1.00 (01/03/2011)

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

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

1.1. Product identifier
3M™ Scotch-Weld™ DP-490 Black Structural Adhesive Part B

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

Identified uses
Structural adhesive.

1.3. Details of the supplier of the safety data sheet

Address:	3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone:	+44 (0)1344 858 000
E Mail:	tox.uk@mmm.com
Website:	www.3M.com/uk

1.4. Emergency telephone number
+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:
Serious Eye Damage/Eye Irritation, Category 2 - Eye Irrit. 2; H319
Skin Corrosion/Irritation, Category 2 - Skin Irrit. 2; H315
Skin Sensitization, Category 1 - Skin Sens. 1; H317
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

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

SIGNAL WORD
WARNING.

Symbols:
GHS07 (Exclamation mark) |GHS09 (Environment) |

Pictograms

Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	500-033-5	40 - 70
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	238-098-4	10 - 20

HAZARD STATEMENTS:

H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

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

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Disposal:

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

For containers not exceeding 125 ml the following Hazard and Precautionary statements may be used:

<=125 ml Hazard statements

H317	May cause an allergic skin reaction.

<=125 ml Precautionary statements

Prevention:

P280E	Wear protective gloves.

Response:

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

17% of the mixture consists of components of unknown acute oral toxicity.

Contains 39% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	500-033-5		40 - 70	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; Aquatic Chronic 2, H411
Acrylic butadiene styrene copolymer	Trade Secret			10 - 20	Substance not classified as hazardous
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	238-098-4		10 - 20	Aquatic Chronic 3, H412 Acute Tox. 4, H302; Skin Irrit. 2, H315; Skin Sens. 1B, H317
Acrylate/methacrylate/butadiene/styrene polymer	Trade Secret			< 20	Substance not classified as hazardous
Glass, oxide, chemicals	65997-17-3	266-046-0		1 - 5	Substance with a Community level exposure limit in the workplace
Carbon black	1333-86-4	215-609-9	01-2119384822-32	1 - 5	Substance with a Community level exposure limit in the workplace
Titanium dioxide	13463-67-7	236-675-5	01-2119489379-17	1 - 5	Substance with a Community level exposure limit in the workplace
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7			1 - 5	Substance with a Community level exposure limit in the workplace
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	220-011-6		< 2	Substance not classified as hazardous
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	2530-83-8	219-784-2	01-2119513212-58	0.5 - 1.5	Eye Dam. 1, H318

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

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

SECTION 4: First aid measures

4.1. Description of first aid measures

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

Skin contact

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye contact
Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

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

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1 Information on toxicological effects

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

SECTION 5: Fire-fighting measures

5.1. Extinguishing media
In case of fire: Use a carbon dioxide or dry chemical extinguisher 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. Advice 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 vapours, 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.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid breathing of vapours created during the cure cycle. For industrial/occupational use only. Not for consumer sale or use. Decontaminate work surfaces frequently to avoid exposure by contact. 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
Keep container tightly closed. Store away from heat. Store away from acids. Store away from oxidising agents.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
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	UK HSC	TWA: 3.5 mg/m³; STEL: 7 mg/m³	
Titanium dioxide	13463-67-7	UK HSC	TWA(Inhalable):10 mg/m3;TWA(respirable):4 mg/m³	
Glass, oxide, chemicals	65997-17-3	UK HSC	TWA(as fiber):5 mg/m3(1 fibers/ml)	
Silicon dioxide	67762-90-7	UK HSC	TWA(as inhalable dust):6 mg/m3;TWA(as respirable dust):2.4 mg/m3	

UK HSC : UK Health and Safety Commission
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

8.2. Exposure controls

8.2.1. Engineering controls
Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. 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:
Indirect vented goggles.

Applicable Norms/Standards
Use eye protection conforming to EN 166

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:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	No data available	No data available

Applicable Norms/Standards
Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - 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.

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136: filter types A & P

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Specific Physical Form:	Thixotropic paste
Appearance/Odour	Mild epoxy odour; black
Odour threshold	*No data available.*
pH	*No data available.*
Boiling point/boiling range	*No data available.*
Melting point	*No data available.*
Flammability (solid, gas)	Not classified
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	>=93.3 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*No data available.*
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	< 0.01 Pa [@ 20 ºC]
Relative density	0.97 - 1.1 [@ 23 ºC] [*Ref Std:*WATER=1]
Water solubility	*No data available.*
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*Not applicable.*

Evaporation rate	*Not applicable.*
Vapour density	*Not applicable.*
Decomposition temperature	*No data available.*
Viscosity	300 - 900 Pa-s [@ 23 ºC] [*Test Method:*Brookfield]
Density	*No data available.*

9.2. Other information

EU Volatile Organic Compounds	11.2 g/l [*Test Method:*Estimated]
Molecular weight	*Not applicable.*
Percent volatile	1 % [*Test Method:*Estimated]

SECTION 10: Stability and reactivity

10.1 Reactivity
This material is considered to be non reactive under normal use conditions

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

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

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

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

Eye contact
Severe eye irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired 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	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	Rat	LD50 > 1,600 mg/kg
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Rat	LD50 > 1,000 mg/kg
Acrylate/methacrylate/butadiene/styrene polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Acrylate/methacrylate/butadiene/styrene polymer	Ingestion	Rat	LD50 > 5,000 mg/kg
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Dermal	Rabbit	LD50 > 2,000 mg/kg
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.19 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Rat	LD50 1,098 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Rat	LD50 > 5,110 mg/kg
Carbon black	Dermal	Rabbit	LD50 > 3,000 mg/kg
Carbon black	Ingestion	Rat	LD50 > 8,000 mg/kg
Glass, oxide, chemicals	Dermal		LD50 estimated to be > 5,000 mg/kg
Glass, oxide, chemicals	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Titanium dioxide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Titanium dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 6.82 mg/l
Titanium dioxide	Ingestion	Rat	LD50 > 10,000 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

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Rabbit	Mild irritant
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vitro data	Irritant
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Carbon black	Rabbit	No significant irritation
Glass, oxide, chemicals	Professio	No significant irritation

	nal judgemen t	
Titanium dioxide	Rabbit	No significant irritation
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Rabbit	Moderate irritant
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vitro data	No significant irritation
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Carbon black	Rabbit	No significant irritation
Glass, oxide, chemicals	Professio nal judgemen t	No significant irritation
Titanium dioxide	Rabbit	No significant irritation
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	Rabbit	Corrosive

Skin Sensitisation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Human and animal	Sensitising
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Mouse	Sensitising
Siloxanes and Silicones, di-Me, reaction products with silica	Human and animal	Not classified
Titanium dioxide	Human and animal	Not classified
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	Guinea pig	Not classified

Respiratory Sensitisation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	In vivo	Not mutagenic
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	In Vitro	Some positive data exist, but the data are not sufficient for classification
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vivo	Not mutagenic
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Siloxanes and Silicones, di-Me, reaction products with silica	In Vitro	Not mutagenic
Carbon black	In Vitro	Not mutagenic
Carbon black	In vivo	Some positive data exist, but the data are not sufficient for classification
Glass, oxide, chemicals	In Vitro	Some positive data exist, but the data are not sufficient for classification
Titanium dioxide	In Vitro	Not mutagenic
Titanium dioxide	In vivo	Not mutagenic
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	In vivo	Not mutagenic
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	In Vitro	Some positive data exist, but the data are not

		sufficient for classification

Carcinogenicity

Name	Route	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Siloxanes and Silicones, di-Me, reaction products with silica	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Carbon black	Dermal	Mouse	Not carcinogenic
Carbon black	Ingestion	Mouse	Not carcinogenic
Carbon black	Inhalation	Rat	Carcinogenic.
Glass, oxide, chemicals	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Titanium dioxide	Ingestion	Multiple animal species	Not carcinogenic
Titanium dioxide	Inhalation	Rat	Carcinogenic.
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	Dermal	Mouse	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Not classified for female reproduction	Rat	NOAEL 300 mg/kg/day	premating into lactation
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Not classified for male reproduction	Rat	NOAEL 300 mg/kg/day	33 days
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Not classified for development	Rat	NOAEL 300 mg/kg/day	premating into lactation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
[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

1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	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
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	endocrine system | gastrointestinal tract | liver | heart | hematopoietic system | immune system | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 300 mg/kg/day	33 days
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Carbon black	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure
Glass, oxide, chemicals	Inhalation	respiratory system	Not classified	Human	NOAEL not available	occupational exposure
Titanium dioxide	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 0.01 mg/l	2 years
Titanium dioxide	Inhalation	pulmonary fibrosis	Not classified	Human	NOAEL Not available	occupational exposure
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	Ingestion	heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

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

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

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

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Water flea	Estimated	48 hours	LC50	0.95 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Green Algae	Experimental	72 hours	EC50	>11 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Rainbow trout	Experimental	96 hours	LC50	1.2 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Green Algae	Experimental	72 hours	NOEC	4.2 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Water flea	Experimental	21 days	NOEC	0.3 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Green algae	Estimated	72 hours	EC50	26.7 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Rainbow trout	Estimated	96 hours	LC50	10.1 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Water flea	Estimated	48 hours	EC50	16.3 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Green algae	Estimated	72 hours	Effect Concentration 10%	21.4 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Water flea	Estimated	21 days	NOEC	11.7 mg/l
Acrylate/methacrylate/butadiene/styrene polymer	Trade Secret		Data not available or insufficient for classification			
Carbon black	1333-86-4		Data not available or insufficient for classification			
Glass, oxide, chemicals	65997-17-3	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
Glass, oxide, chemicals	65997-17-3	Water flea	Experimental	72 hours	EC50	>1,000 mg/l

Glass, oxide, chemicals	65997-17-3	Zebra Fish	Experimental	96 hours	LC50	>1,000 mg/l
Glass, oxide, chemicals	65997-17-3	Green algae	Experimental	72 hours	NOEC	>=1,000 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7		Data not available or insufficient for classification			
Titanium dioxide	13463-67-7	Diatom	Experimental	72 hours	EC50	>10,000 mg/l
Titanium dioxide	13463-67-7	Fathead minnow	Experimental	96 hours	LC50	>100 mg/l
Titanium dioxide	13463-67-7	Water flea	Experimental	48 hours	EC50	>100 mg/l
Titanium dioxide	13463-67-7	Diatom	Experimental	72 hours	NOEC	5,600 mg/l
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Green algae	Experimental	72 hours	EC50	>100 mg/l
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Water flea	Experimental	48 hours	EC50	>100 mg/l
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Zebra Fish	Experimental	96 hours	LC50	>100 mg/l
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Green algae	Experimental	72 hours	NOEC	100 mg/l
[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	Crustacea other	Experimental	48 hours	LC50	324 mg/l
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	2530-83-8	Green algae	Experimental	96 hours	EC50	350 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

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	<2 days (t 1/2)	Other methods
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Experimental Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301C - MITI test (I)
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Estimated Biodegradation	28 days	Dissolv. Organic Carbon Deplet	16.6 %removal of DOC	OECD 301F - Manometric respirometry
Acrylate/methacrylate/butadiene/styrene polymer	Trade Secret	Data not availbl-insufficient			N/A	
Carbon black	1333-86-4	Data not availbl-insufficient			N/A	
Glass, oxide, chemicals	65997-17-3	Data not availbl-			N/A	

		insufficient				
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not availbl-insufficient			N/A	
Titanium dioxide	13463-67-7	Data not availbl-insufficient			N/A	
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Experimental Hydrolysis		Hydrolytic half-life	36 hours (t 1/2)	Other methods
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Experimental Biodegradation	28 days	BOD	53 % BOD/ThBOD	OECD 301F - Manometric respirometry
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	2530-83-8	Experimental Hydrolysis		Hydrolytic half-life	6.5 hours (t 1/2)	Other methods
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	2530-83-8	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	37 % weight	Other methods

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Experimental BCF-Carp	28 days	Bioaccumulation factor	<=42	OECD 305E - Bioaccumulation flow-through fish test
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Estimated Bioconcentration		Bioaccumulation factor	3	Estimated: Bioconcentration factor
Acrylate/methacrylate/butadiene/styrene polymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Carbon black	1333-86-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Glass, oxide, chemicals	65997-17-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Titanium dioxide	13463-67-7	Experimental BCF-Carp	42 days	Bioaccumulation factor	9.6	Other methods
Silane, triethoxy[3-(oxiranylmethoxy)propyl]-	2602-34-8	Estimated Bioconcentration		Bioaccumulation factor	2.5	Estimated: Bioconcentration factor
[3-(2,3-Epoxypropoxy)propyl] trimethoxysilane	2530-83-8	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. Results of the PBT and vPvB assessment

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

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

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

EU waste code (product as sold)

08 04 09*	Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27*	Paint, inks, adhesives and resins containing dangerous substances

SECTION 14: Transportation information

Exemption: For vessels containing a net quantity of 5 l or a net mass of 5 kg or less per single or inner packaging , special provision 375 (ADR), exemption per 2.10.2.7 (IMDG) or special provision A197 (IATA) may be applied, if applicable
ADR: UN3077; Environmentally Hazardous Substance, Solid, N.O.S. (Solid Epoxy Resin); 9; III; (-); M7.
IATA: UN3077; Environmentally Hazardous Substance, Solid, N.O.S. (Solid Epoxy Resin); 9; III.
IMDG: UN3077; Environmentally Hazardous Substance, Solid, N.O.S. (Solid Epoxy Resin); 9; III; (Marine Pollutant: Solid Epoxy Resin; EMS: FA, SF.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Carcinogenicity

Ingredient	CAS Nbr	Classification	Regulation
Carbon black	1333-86-4	Grp. 2B: Possible human carc.	International Agency for Research on Cancer
Titanium dioxide	13463-67-7	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Global inventory status
Contact 3M for more 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.

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Revision information:
Section 3: Composition/ Information of ingredients table information was modified.
Section 5: Hazardous combustion products table information was modified.
Section 9: Property description for optional properties information was modified.
Section 11: Acute Toxicity table information was modified.
Section 11: Health Effects - Skin information information was modified.
Section 11: Reproductive and/or Developmental Effects text information was deleted.
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: Transportation classification information was modified.
Section 15: Regulations - Inventories information was modified.

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

3M United Kingdom MSDSs are available at www.3M.com/uk

Safety Data Sheet

Document group:	19-2691-4	**Version number:**	17.00
Revision date:	19/02/2019	**Supersedes date:**	06/06/2018

Transportation version number: 1.00 (01/03/2011)

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

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

1.1. Product identifier
3M™ Scotch-Weld™ DP-490 Black Structural Adhesive Part A

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

Identified uses
Structural adhesive.

1.3. Details of the supplier of the safety data sheet

Address:	3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone:	+44 (0)1344 858 000
E Mail:	tox.uk@mmm.com
Website:	www.3M.com/uk

1.4. Emergency telephone number
+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:
Serious Eye Damage/Eye Irritation, Category 1 - Eye Dam. 1; H318
Skin Corrosion/Irritation, Category 1B - Skin Corr. 1B; H314
Skin Sensitization, Category 1 - Skin Sens. 1; H317

For full text of H phrases, see Section 16.

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

SIGNAL WORD
DANGER.

Symbols:
GHS05 (Corrosion) | GHS07 (Exclamation mark) |

Pictograms

Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	68911-25-1		40 - 70
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	224-207-2	10 - 30
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	202-013-9	7 - 13
2-Piperazin-1-ylethylamine	140-31-8	205-411-0	0.1 - 1

HAZARD STATEMENTS:

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

PRECAUTIONARY STATEMENTS

Prevention:

P260A	Do not breathe vapours.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353A	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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 CENTRE or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

For containers not exceeding 125 ml the following Hazard and Precautionary statements may be used:

<=125 ml Hazard statements

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

<=125 ml Precautionary statements

Prevention:

P260A	Do not breathe vapours.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353A	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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 CENTRE or doctor/physician.

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

49% of the mixture consists of components of unknown acute oral toxicity.
51% of the mixture consists of components of unknown acute dermal toxicity.

Contains 60% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

Persons previously sensitised to amines may develop a cross-sensitisation reaction to certain other amines.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	68911-25-1			40 - 70	Skin Irrit. 2, H315; Eye Dam. 1, H318; Skin Sens. 1, H317
Amine terminated butadiene-acrylonitrile polymer	Trade Secret			10 - 30	Substance not classified as hazardous
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	224-207-2	01-2119963377-26	10 - 30	Skin Sens. 1, H317 Skin Corr. 1B, H314
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	202-013-9	01-2119560597-27	7 - 13	Acute Tox. 4, H302 Skin Corr. 1C, H314; Eye Dam. 1, H318
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7			7 - 13	Substance with a Community level exposure limit in the workplace
Titanium dioxide	13463-67-7	236-675-5	01-2119489379-17	1 - 5	Substance with a Community level exposure limit in the workplace
Bis[(dimethylamino)methyl]phenol	71074-89-0	275-162-0		< 2	Acute Tox. 4, H302; Skin Corr. 1B, H314
2-Piperazin-1-ylethylamine	140-31-8	205-411-0		0.1 - 1	Acute Tox. 3, H311; Acute Tox. 4, H302; Skin Corr. 1B, H314; Skin Sens. 1B, H317; Aquatic Chronic 3, H412
Toluene	108-88-3	203-625-9		< 1	Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Repr. 2, H361d; STOT SE 3, H336; STOT RE 2, H373 Aquatic Chronic 3, H412 Eye Irrit. 2, H319

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

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

SECTION 4: First aid measures

4.1. Description of first aid measures

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

Skin contact
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
See Section 11.1 Information on toxicological effects

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

SECTION 5: Fire-fighting measures

5.1. Extinguishing media
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
Amine compounds.	During combustion.
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Oxides of nitrogen.	During combustion.
Toxic vapour, gas, particulate.	During combustion.

5.3. Advice 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 vapours, 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.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate

authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid breathing of vapours created during the cure cycle. For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. 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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Store away from heat. Store away from acids.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
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
Toluene	108-88-3	UK HSC	TWA: 191 mg/m³ (50 ppm); STEL: 384 mg/m³ (100 ppm)	SKIN
Titanium dioxide	13463-67-7	UK HSC	TWA(Inhalable):10 mg/m3;TWA(respirable):4 mg/m³	
Silicon dioxide	67762-90-7	UK HSC	TWA(as inhalable dust):6 mg/m3;TWA(as respirable dust):2.4 mg/m3	

UK HSC : UK Health and Safety Commission
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Derived no effect level (DNEL)

Ingredient	Degradation Product	Population	Human exposure pattern	DNEL
2,4,6-Tris(dimethylaminomethyl)phenol		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	0.31 mg/m³

Predicted no effect concentrations (PNEC)

Ingredient	Degradation Product	Compartment	PNEC
2,4,6-		Freshwater	0.084 mg/l

Tris(dimethylaminomethyl) phenol			
2,4,6-Tris(dimethylaminomethyl) phenol		Intermittent releases to water	0.84 mg/l
2,4,6-Tris(dimethylaminomethyl) phenol		Marine water	0.0084 mg/l
2,4,6-Tris(dimethylaminomethyl) phenol		Sewage Treatment Plant	0.2 mg/l

8.2. Exposure controls

In addition, refer to the annex for more information.

8.2.1. Engineering controls
Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. 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.

Applicable Norms/Standards
Use eye/face protection conforming to EN 166

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:

Material	**Thickness (mm)**	**Breakthrough Time**
Polymer laminate	No data available	No data available

Applicable Norms/Standards
Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - 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.

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136: filter types A & P

8.2.3. Environmental exposure controls
Refer to Annex

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Specific Physical Form:	Thixotropic paste
Appearance/Odour	Off-white paste; typical amine odour
Odour threshold	*No data available.*
pH	*Not applicable.*
Boiling point/boiling range	*Not applicable.*
Melting point	*Not applicable.*
Flammability (solid, gas)	Not classified
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	>=100 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*Not applicable.*
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Vapour pressure	86,659.3 Pa
Relative density	0.97 - 1.1 [*Ref Std:*WATER=1]
Water solubility	*No data available.*
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*Not applicable.*
Evaporation rate	Negligible
Vapour density	*Not applicable.*
Decomposition temperature	*No data available.*
Viscosity	70 - 155 Pa-s [@ 23 ºC] [*Test Method:*Brookfield]
Density	*No data available.*

9.2. Other information

EU Volatile Organic Compounds	*No data available.*
Percent volatile	<= 1 % [*Test Method:*Estimated]

SECTION 10: Stability and reactivity

10.1 Reactivity
This material is considered to be non reactive under normal use conditions

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.4 Conditions to avoid
Heat.
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 acids.

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

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
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
May be harmful in contact with skin. Corrosive (skin burns): Signs/symptoms may include localised redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

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
May be harmful if swallowed.
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. May cause additional health effects (see below).

Additional Health Effects:

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Additional information:

Persons previously sensitised to amines may develop a cross-sensitisation reaction to certain other amines.

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 ATE2,000 - 5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE2,000 - 5,000 mg/kg
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Dermal	Rabbit	LD50 2,500 mg/kg
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Rat	LD50 3,160 mg/kg
Amine terminated butadiene-acrylonitrile polymer	Dermal	Rabbit	LD50 > 3,000 mg/kg
Amine terminated butadiene-acrylonitrile polymer	Ingestion	Rat	LD50 > 15,300 mg/kg
2,4,6-Tris(dimethylaminomethyl)phenol	Dermal	Rat	LD50 1,280 mg/kg
2,4,6-Tris(dimethylaminomethyl)phenol	Ingestion	Rat	LD50 1,000 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Rat	LD50 > 5,110 mg/kg
Bis[(dimethylamino)methyl]phenol	Ingestion		LD50 estimated to be 300 - 2,000 mg/kg
Titanium dioxide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Titanium dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 6.82 mg/l
Titanium dioxide	Ingestion	Rat	LD50 > 10,000 mg/kg
2-Piperazin-1-ylethylamine	Dermal	Rabbit	LD50 865 mg/kg
2-Piperazin-1-ylethylamine	Ingestion	Rat	LD50 1,470 mg/kg
Toluene	Dermal	Rat	LD50 12,000 mg/kg
Toluene	Inhalation-Vapour (4 hours)	Rat	LC50 30 mg/l
Toluene	Ingestion	Rat	LD50 5,550 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	Rabbit	Irritant
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Rabbit	Corrosive
2,4,6-Tris(dimethylaminomethyl)phenol	Rabbit	Corrosive
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Bis[(dimethylamino)methyl]phenol	similar compounds	Corrosive
Titanium dioxide	Rabbit	No significant irritation
2-Piperazin-1-ylethylamine	Rabbit	Corrosive
Toluene	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	similar health hazards	Corrosive
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	similar health hazards	Corrosive
2,4,6-Tris(dimethylaminomethyl)phenol	Rabbit	Corrosive
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Bis[(dimethylamino)methyl]phenol	similar	Corrosive

	compoun ds	
Titanium dioxide	Rabbit	No significant irritation
2-Piperazin-1-ylethylamine	Rabbit	Corrosive
Toluene	Rabbit	Moderate irritant

Skin Sensitisation

Name	Species	Value
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	Guinea pig	Sensitising
Amine terminated butadiene-acrylonitrile polymer	Guinea pig	Not classified
2,4,6-Tris(dimethylaminomethyl)phenol	Guinea pig	Not classified
Siloxanes and Silicones, di-Me, reaction products with silica	Human and animal	Not classified
Titanium dioxide	Human and animal	Not classified
2-Piperazin-1-ylethylamine	Guinea pig	Sensitising
Toluene	Guinea pig	Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
2,4,6-Tris(dimethylaminomethyl)phenol	In Vitro	Not mutagenic
Siloxanes and Silicones, di-Me, reaction products with silica	In Vitro	Not mutagenic
Titanium dioxide	In Vitro	Not mutagenic
Titanium dioxide	In vivo	Not mutagenic
2-Piperazin-1-ylethylamine	In vivo	Not mutagenic
2-Piperazin-1-ylethylamine	In Vitro	Some positive data exist, but the data are not sufficient for classification
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Siloxanes and Silicones, di-Me, reaction products with silica	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Titanium dioxide	Ingestion	Multiple animal species	Not carcinogenic
Titanium dioxide	Inhalation	Rat	Carcinogenic.
Toluene	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Toluene	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Toluene	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Siloxanes and Silicones, di-Me, reaction	Ingestion	Not classified for female reproduction	Rat	NOAEL 509	1 generation

products with silica				mg/kg/day	
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
2-Piperazin-1-ylethylamine	Ingestion	Not classified for female reproduction	Rat	NOAEL 598 mg/kg/day	premating & during gestation
2-Piperazin-1-ylethylamine	Ingestion	Not classified for male reproduction	Rat	NOAEL 409 mg/kg/day	32 days
2-Piperazin-1-ylethylamine	Ingestion	Not classified for development	Rat	NOAEL 899 mg/kg/day	premating & during gestation
Toluene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	Not classified for male reproduction	Rat	NOAEL 2.3 mg/l	1 generation
Toluene	Ingestion	Toxic to development	Rat	LOAEL 520 mg/kg/day	during gestation
Toluene	Inhalation	Toxic to development	Human	NOAEL Not available	poisoning and/or abuse

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
2,4,6-Tris(dimethylaminomethyl)phenol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
2-Piperazin-1-ylethylamine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Toluene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Toluene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL 0.004 mg/l	3 hours
Toluene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
2,4,6-Tris(dimethylaminomethyl)phenol	Dermal	skin | liver | nervous system | auditory system | hematopoietic system | eyes	Not classified	Rat	NOAEL 125 mg/kg/day	28 days
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Titanium dioxide	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 0.01 mg/l	2 years
Titanium dioxide	Inhalation	pulmonary fibrosis	Not classified	Human	NOAEL Not available	occupational exposure
2-Piperazin-1-ylethylamine	Ingestion	heart | endocrine system | hematopoietic	Not classified	Rat	NOAEL 598 mg/kg/day	28 days

		system | liver | nervous system | kidney and/or bladder				
Toluene	Inhalation	auditory system | nervous system | eyes | olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 2.3 mg/l	15 months
Toluene	Inhalation	heart | liver | kidney and/or bladder	Not classified	Rat	NOAEL 11.3 mg/l	15 weeks
Toluene	Inhalation	endocrine system	Not classified	Rat	NOAEL 1.1 mg/l	4 weeks
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL Not available	20 days
Toluene	Inhalation	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1.1 mg/l	8 weeks
Toluene	Inhalation	hematopoietic system | vascular system	Not classified	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 11.3 mg/l	15 weeks
Toluene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 625 mg/kg/day	13 weeks
Toluene	Ingestion	heart	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	liver | kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 600 mg/kg/day	14 days
Toluene	Ingestion	endocrine system	Not classified	Mouse	NOAEL 105 mg/kg/day	28 days
Toluene	Ingestion	immune system	Not classified	Mouse	NOAEL 105 mg/kg/day	4 weeks

Aspiration Hazard

Name	Value
Toluene	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

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

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-	68911-25-1		Data not available or insufficient for classification			

oxybis(ethyleneoxy)bis (propylamine)						
Amine terminated butadiene-acrylonitrile polymer	Trade Secret		Data not available or insufficient for classification			
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Golden Orfe	Experimental	96 hours	LC50	>1,000 mg/l
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Green algae	Experimental	72 hours	EC50	>500 mg/l
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Water flea	Experimental	48 hours	EC50	220 mg/l
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Green algae	Experimental	72 hours	Effect Concentration 10%	5.4 mg/l
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	Common Carp	Experimental	96 hours	LC50	175 mg/l
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	Grass Shrimp	Experimental	96 hours	LC50	718 mg/l
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	Green algae	Experimental	72 hours	EC50	84 mg/l
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	Green algae	Experimental	72 hours	NOEC	6.25 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7		Data not available or insufficient for classification			
Titanium dioxide	13463-67-7	Diatom	Experimental	72 hours	EC50	>10,000 mg/l
Titanium dioxide	13463-67-7	Fathead minnow	Experimental	96 hours	LC50	>100 mg/l
Titanium dioxide	13463-67-7	Water flea	Experimental	48 hours	EC50	>100 mg/l
Titanium dioxide	13463-67-7	Diatom	Experimental	72 hours	NOEC	5,600 mg/l
Bis[(dimethylamino)methyl]phenol	71074-89-0		Data not available or insufficient for classification			
2-Piperazin-1-ylethylamine	140-31-8	Golden Orfe	Experimental	96 hours	LC50	368 mg/l
2-Piperazin-1-ylethylamine	140-31-8	Green Algae	Experimental	72 hours	EC50	>1,000 mg/l
2-Piperazin-1-ylethylamine	140-31-8	Water flea	Experimental	48 hours	EC50	58 mg/l
2-Piperazin-1-ylethylamine	140-31-8	Green Algae	Experimental	72 hours	NOEC	31 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	96 hours	LC50	5.5 mg/l
Toluene	108-88-3	Fish other	Experimental	96 hours	LC50	6.41 mg/l
Toluene	108-88-3	Green Algae	Experimental	72 hours	EC50	12.5 mg/l
Toluene	108-88-3	Water flea	Experimental	48 hours	EC50	3.78 mg/l
Toluene	108-88-3	Coho salmon	Experimental	40 days	NOEC	1.39 mg/l
Toluene	108-88-3	Water flea	Experimental	7 days	NOEC	0.74 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	68911-25-1	Data not availbl-insufficient			N/A	
Amine terminated butadiene-acrylonitrile polymer	Trade Secret	Data not availbl-insufficient			N/A	
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Experimental Biodegradation	25 days	CO2 evolution	-8 % weight	OECD 301B - Modified sturm or CO2
2,4,6-Tris(dimethylaminomethyl) phenol	90-72-2	Experimental Biodegradation	28 days	BOD	4 % weight	OECD 301D - Closed bottle test
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not availbl-insufficient			N/A	
Titanium dioxide	13463-67-7	Data not availbl-insufficient			N/A	
Bis[(dimethylamino)methyl]phenol	71074-89-0	Estimated Biodegradation	28 days	BOD	20 % weight	OECD 301C - MITI test (I)
2-Piperazin-1-ylethylamine	140-31-8	Experimental Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301C - MITI test (I)
Toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	Other methods
Toluene	108-88-3	Experimental Biodegradation	20 days	BOD	80 % weight	

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Fatty acids, C18-unsaturated, dimers, polymers with 3,3'-oxybis(ethyleneoxy)bis(propylamine)	68911-25-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Amine terminated butadiene-acrylonitrile polymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Estimated Bioconcentration		Log Kow	-1.46	Estimated: Octanol-water partition coefficient
2,4,6-Tris(dimethylaminomethyl) phenol	90-72-2	Experimental Bioconcentration		Log Kow	-0.66	Other methods
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Titanium dioxide	13463-67-7	Experimental BCF-Carp	42 days	Bioaccumulation factor	9.6	Other methods
Bis[(dimethylamino)methyl]phenol	71074-89-0	Estimated Bioconcentration		Log Kow	-2.34	Estimated: Octanol-water partition coefficient
2-Piperazin-1-ylethylamine	140-31-8	Experimental Bioconcentration		Log Kow	0.3	Other methods
Toluene	108-88-3	Experimental Bioconcentration		Log Kow	2.73	Other methods

12.4. Mobility in soil

Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

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

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of completely cured (or polymerized) 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. If no other disposal options are available, waste product that has been completely cured or polymerised may be placed in a landfill properly designed for industrial waste. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

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

EU waste code (product as sold)

08 04 09*	Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27*	Paint, inks, adhesives and resins containing dangerous substances

SECTION 14: Transportation information

ADR: UN3263; Corrosive Solid, Basic, Organic, N.O.S. (3,3'-Oxybis(Ethyleneoxy)Bis(Propylamine) and 2,4,6-Tris((Dimehtylamino)Methyl)Phenol)); 8; II; (E); C8.
IMDG: UN3263; Corrosive Solid, Basic, Organic, N.O.S. (3,3'-Oxybis(Ethyleneoxy)Bis(Propylamine) and 2,4,6-Tris((Dimehtylamino)Methyl)Phenol)); 8; II; EMS: FA, SB.
IATA: UN3263; Corrosive Solid, Basic, Organic, N.O.S. (3,3'-Oxybis(Ethyleneoxy)Bis(Propylamine) and 2,4,6-Tris((Dimehtylamino)Methyl)Phenol)); 8; II.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Carcinogenicity

Ingredient	CAS Nbr	Classification	Regulation
Titanium dioxide	13463-67-7	Grp. 2B: Possible human carc.	International Agency for Research on Cancer
Toluene	108-88-3	Gr. 3: Not classifiable	International Agency for Research on Cancer

Global inventory status
Contact 3M for more information. The components of this product are in compliance with the chemical notification requirements of TSCA.

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Revision information:
Formulation: Section 16: Annex information was added.
Industrial Use of Adhesives: Section 16: Annex information was added.
Professional Mixing and Application: Section 16: Annex information was added.
Section 3: Composition/ Information of ingredients table information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: 8.2. Exposure controls information information was added.
Section 8: 8.2.3. Environmental exposure controls information information was added.
Section 8: DNEL table row information was added.
Section 8: PNEC table row information was added.
Section 11: Reproductive and/or Developmental Effects text information was deleted.
Section 13: 13.1. Waste disposal note information was modified.
Annex: Prediction of exposure statement information was added.

Annex

1. Title	
Substance identification	2,4,6-Tris(dimethylaminomethyl)phenol; EC No. 202-013-9; CAS Nbr 90-72-2;
Exposure Scenario Name	Formulation
Lifecycle Stage	Formulation or re-packing
Contributing activities	PROC 08b -Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC 09 -Transfer of substance or mixture into small containers (dedicated filling line, including weighing) ERC 02 -Formulation into mixture
Processes, tasks and activities covered	Transfer of substances/mixtures into small containers e.g. tubes , bottles or small reservoirs. Transfers with dedicated controls, including loading, filling, dumping, bagging.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Air exchange rate:: >= 3 times per hour; Indoor use; Partially open and partially closed process;

	Processing Temperature:: <= 40 degree Celsius; **Task: PROC08b**; Duration of exposure per day at workplace [for one worker]: 8 hours/day; **Task: PROC09**; Duration of exposure per day at workplace [for one worker]: <= 4 hour(s);
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Local exhaust ventilation; Protective Gloves - Chemical resistant. Refer to Section 8 of the SDS for specific glove material.; **Environmental:** None needed;
Waste management measures	No use-specific waste management measures are required for this product. Refer to Section 13 of main SDS for disposal instructions:
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	2,4,6-Tris(dimethylaminomethyl)phenol; EC No. 202-013-9; CAS Nbr 90-72-2;
Exposure Scenario Name	Industrial Use of Adhesives
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 05 -Mixing or blending in batch processes PROC 08a -Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC 10 -Roller application or brushing PROC 13 -Treatment of articles by dipping and pouring ERC 05 -Use at industrial site leading to inclusion into/onto article
Processes, tasks and activities covered	Application of product with a roller or brush. Application of product with applicator gun. Mixing operations (open systems). Transfers without dedicated controls, including loading, filling, dumping, bagging.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Air exchange rate:: >= 3 times per hour; Duration of exposure per day at workplace [for one worker]: <= 4 hour(s); Indoor use; Processing Temperature:: <= 40 degree Celsius; **Task: PROC05**; Duration of exposure per day at workplace [for one worker]: 8 hours/day;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Local exhaust ventilation; Protective Gloves - Chemical resistant. Refer to Section 8 of the SDS for specific glove material.; **Environmental:** None needed;
Waste management measures	Do not release to waterways or sewers;

3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	2,4,6-Tris(dimethylaminomethyl)phenol; EC No. 202-013-9; CAS Nbr 90-72-2;
Exposure Scenario Name	Hand-mixing of preparations, e.g. plasters, resins, two-component adhesives.
Lifecycle Stage	Widespread use by professional workers
Contributing activities	PROC 10 -Roller application or brushing ERC 08c -Widespread use leading to inclusion into/onto article (indoor)
Processes, tasks and activities covered	Application of product.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Duration of exposure per day at workplace [for one worker]: 8 hours/day; Indoor use; Processing Temperature:: <= 40 degree Celsius;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Local exhaust ventilation; Protective Gloves - Chemical resistant. Refer to Section 8 of the SDS for specific glove material.; **Environmental:** None needed;
Waste management measures	Do not release directly to waterways;
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

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