



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006), as amended for GB.

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

1.1. Product identifier

3M Scotch-Grip 2353 Fastener Adhesive Blue

Product Identification Numbers

62-2353-8501-0 70-0706-9888-4

7000000821 7100019789

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

Identified uses

Assembly of motored machinery

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

The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.

The aspiration hazard classification is not required due to the product's viscosity.

CLASSIFICATION:

Flammable Liquid, Category 2 - Flam. Liq. 2; H225
 Skin Corrosion/ Irritation, Category 1C - Skin Corr. 1C; H314
 Serious Eye Damage/Eye Irritation, Category 1 - Eye Dam. 1; H318
 Skin Sensitization, Category 1 - Skin Sens. 1; H317
 Germ Cell Mutagenicity, Category 2 - Muta. 2; H341
 Carcinogenicity, Category 2 - Carc. 2; H351
 Reproductive Toxicity, Category 2 - Repr. 2; H361d
 Specific Target Organ Toxicity-Repeated Exposure, Category 2 - STOT RE 2; H373
 Specific Target Organ Toxicity-Single Exposure, Category 3 - STOT SE 3; H336
 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

The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain

SIGNAL WORD

DANGER.

Symbols

GHS02 (Flame) |GHS05 (Corrosion) |GHS07 (Exclamation mark) |GHS08 (Health Hazard) |GHS09 (Environment) |

Pictograms

Ingredient	CAS Nbr	EC No.	% by Wt
toluene	108-88-3	203-625-9	15 - 40
4,4'-Trimethylenedipiperidine	16898-52-5	240-941-6	10 - 30
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	216-823-5	17 - 30
butyl glycidyl ether	2426-08-6	219-376-4	2 - 9

HAZARD STATEMENTS:

H225	Highly flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS**Prevention:**

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260A	Do not breathe vapours.

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 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.

2.3. Other hazards

None known.

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

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Ingredient	Identifier(s)	%	Classification according to Regulation (EC) No. 1272/2008 [CLP], as amended for GB
toluene	(CAS-No.) 108-88-3 (EC-No.) 203-625-9	15 - 40	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
4,4'-Trimethylenedipiperidine	(CAS-No.) 16898-52-5 (EC-No.) 240-941-6	10 - 30	Acute Tox. 4, H302 Skin Corr. 1C, H314 Eye Dam. 1, H318 Aquatic Chronic 3, H412
Urea Formaldehyde Melamine Resin	Trade Secret	10 - 30	Substance not classified as hazardous
bis-[4-(2,3-epoxipropoxy)phenyl]propane	(CAS-No.) 1675-54-3 (EC-No.) 216-823-5	17 - 30	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411
butyl glycidyl ether	(CAS-No.) 2426-08-6 (EC-No.) 219-376-4	2 - 9	Flam. Liq. 3, H226 Acute Tox. 4, H332 Acute Tox. 4, H302 Skin Sens. 1, H317 Muta. 2, H341 Carc. 2, H351 STOT SE 3, H335 Eye Irrit. 2, H319 Repr. 2, H361d Aquatic Chronic 2, H411
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	(CAS-No.) 27360-07-2	1 - 5	Substance not classified as hazardous
Silicon dioxide	(CAS-No.) 7631-86-9 (EC-No.) 231-545-4	1 - 5	Substance with a national occupational exposure limit

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copper flakes (coated with aliphatic acid)	(CAS-No.) 7440-50-8 (EC-No.) 231-159-6	< 0.1	Aquatic Acute 1, H400,M=10 Aquatic Chronic 1, H410,M=1

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

Specific Concentration Limits

Ingredient	Identifier(s)	Specific Concentration Limits
bis-[4-(2,3-epoxipropoxy)phenyl]propane	(CAS-No.) 1675-54-3 (EC-No.) 216-823-5	(C >= 5%) Skin Irrit. 2, H315 (C >= 5%) Eye Irrit. 2, H319

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

The most important symptoms and effects based on the GB CLP classification include:

Skin burns (localized redness, swelling, itching, intense pain, blistering, and tissue destruction). Allergic skin reaction (redness, swelling, blistering, and itching). Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision). Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness). Target organ effects. See Section 11 for additional details.

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 flammable liquids such as dry chemical or carbon dioxide to extinguish.

5.2. Special hazards arising from the substance or mixture

Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Aldehydes.	During combustion.
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Chloride	During combustion.

5.3. Advice for fire-fighters

Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. 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. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. 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. Warning! A motor could be an ignition source and could cause flammable gases or vapours in the spill area to burn or explode. 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. Cover spill area with a fire-extinguishing foam. 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 using non-sparking tools. Place in a metal 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.

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

For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. 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. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Wear low static or properly grounded shoes. Use personal protective equipment (eg. gloves, respirators...) as required. To minimize the risk of ignition, determine applicable electrical classifications for the process using this product and select specific local exhaust ventilation equipment to avoid flammable vapour accumulation. Ground/bond container and receiving equipment if there is potential for static electricity accumulation during transfer.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep cool. 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
toluene	108-88-3	UK HSC	TWA: 191 mg/m ³ (50 ppm); STEL: 384 mg/m ³ (100 ppm)	SKIN
copper flakes (coated with aliphatic acid)	7440-50-8	UK HSC	TWA(as fume):0.2 mg/m ³ ;TWA(as Cu, inhalable dusts/mists):1 mg/m ³ ;STEL(as Cu, inhalable dusts/mists):2 mg/m ³	
DUST, INERT OR NUISANCE	7631-86-9	UK HSC	TWA(as respirable dust):4 mg/m ³ ;TWA(as inhalable dust):10 mg/m ³	

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 explosion-proof ventilation equipment. 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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Blue
Odor	toluene
Odour threshold	No data available.
Melting point/freezing point	No data available.
Boiling point/boiling range	approximately 110 °C [Details:230 deg F (Toluene)]
Flammability	Flammable Liquid: Category 2.
Flammable Limits(LEL)	approximately 1.2 % volume
Flammable Limits(UEL)	approximately 7.1 % volume
Flash point	approximately 4 °C [Test Method:Tagliabue closed cup] [Details:40 deg F]
Autoignition temperature	No data available.
Decomposition temperature	No data available.
pH	substance/mixture is non-polar/aprotic
Kinematic Viscosity	No data available.
Water solubility	Slight (less than 10%)
Solubility- non-water	No data available.
Partition coefficient: n-octanol/water	No data available.
Vapour pressure	approximately 5,066.2 Pa [Details:@ 20 deg C (68 deg F)]
Density	1 g/ml
Relative density	1 [Ref Std: WATER=1]
Relative Vapour Density	approximately 3.14 Units not available or not applicable. [Ref Std: AIR=1]
Particle Characteristics	Not applicable.

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds

No data available.

Evaporation rate

approximately 4.5 Units not available or not applicable. [Ref
Std:BUOAC=1]

Molecular weight

No data available.

Percent volatile

35 - 37 % weight

SECTION 10: Stability and reactivity

10.1 Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

Heat.

Sparks and/or flames.

10.5 Incompatible materials

None known.

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 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 hazard classes as defined in the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain.

Signs and Symptoms of Exposure

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

Inhalation

May be harmful if inhaled. 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

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. May cause additional health effects (see below).

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:

Single exposure may cause target organ effects:

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

Prolonged or repeated exposure may cause target organ effects:

Ocular effects: Signs/symptoms may include blurred or significantly impaired vision. Auditory effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears. Olfactory effects: Signs/symptoms may include decreased ability to detect odours and complete loss of smell. Neurological effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and changes in blood pressure and heart rate.

Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Genotoxicity:

Genotoxicity and Mutagenicity: May interact with genetic material and possibly alter gene expression.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

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	Inhalation-Vapour(4 hr)		No data available; calculated ATE >20 - =50 mg/l
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 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
bis-[4-(2,3-epoxypropoxy)phenyl]propane	Dermal	Rat	LD50 > 1,600 mg/kg
bis-[4-(2,3-epoxypropoxy)phenyl]propane	Ingestion	Rat	LD50 > 1,000 mg/kg
4,4'-Trimethylenedipiperidine	Dermal	Rabbit	LD50 > 2,000 mg/kg
4,4'-Trimethylenedipiperidine	Ingestion	Rat	LD50 440 mg/kg
butyl glycidyl ether	Dermal	Professional judgement	LD50 estimated to be 1,000 - 2,000 mg/kg
butyl glycidyl ether	Inhalation-	Rat	LC50 14 mg/l

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	Dust/Mist (4 hours)		
butyl glycidyl ether	Inhalation- Vapour (4 hours)	Rat	LC50 7.7 mg/l
butyl glycidyl ether	Ingestion	Rat	LD50 1,530 mg/kg
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	Dermal	Rabbit	LD50 > 7,940 mg/kg
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	Ingestion	Rat	LD50 > 10,000 mg/kg
Silicon dioxide	Dermal	Rabbit	LD50 > 5,000 mg/kg
Silicon dioxide	Inhalation- Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Silicon dioxide	Ingestion	Rat	LD50 > 5,110 mg/kg
copper flakes (coated with aliphatic acid)	Dermal	Rat	LD50 > 2,000 mg/kg
copper flakes (coated with aliphatic acid)	Inhalation- Dust/Mist (4 hours)	Rat	LC50 > 5.11 mg/l
copper flakes (coated with aliphatic acid)	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
toluene	Rabbit	Irritant
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Rabbit	Mild irritant
4,4'-Trimethylenedipiperidine	Rabbit	Corrosive
butyl glycidyl ether	Rabbit	Mild irritant
Silicon dioxide	Rabbit	No significant irritation
copper flakes (coated with aliphatic acid)	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
toluene	Rabbit	Moderate irritant
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Rabbit	Moderate irritant
4,4'-Trimethylenedipiperidine	similar health hazards	Corrosive
butyl glycidyl ether	Rabbit	Severe irritant
Silicon dioxide	Rabbit	No significant irritation
copper flakes (coated with aliphatic acid)	Rabbit	Mild irritant

Skin Sensitisation

Name	Species	Value
toluene	Guinea pig	Not classified
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Human and animal	Sensitising
4,4'-Trimethylenedipiperidine	Guinea pig	Not classified
butyl glycidyl ether	Multiple animal species	Sensitising
Silicon dioxide	Human and animal	Not classified

Respiratory Sensitisation

Name	Species	Value

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bis-[4-(2,3-epoxipropoxy)phenyl]propane	Human	Not classified
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Germ Cell Mutagenicity

Name	Route	Value
toluene	In Vitro	Not mutagenic
toluene	In vivo	Not mutagenic
bis-[4-(2,3-epoxipropoxy)phenyl]propane	In vivo	Not mutagenic
bis-[4-(2,3-epoxipropoxy)phenyl]propane	In Vitro	Some positive data exist, but the data are not sufficient for classification
4,4'-Trimethylenedipiperidine	In Vitro	Not mutagenic
butyl glycidyl ether	In Vitro	Some positive data exist, but the data are not sufficient for classification
butyl glycidyl ether	In vivo	Mutagenic
Silicon dioxide	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
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
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
butyl glycidyl ether	Ingestion	Multiple animal species	Carcinogenic.
Silicon dioxide	Not specified.	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
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
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
bis-[4-(2,3-epoxipropoxy)phenyl]propane	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
butyl glycidyl ether	Inhalation	Not classified for male reproduction	Rat	NOAEL 0.2 mg/l	10 weeks
butyl glycidyl ether	Ingestion	Toxic to development	Rat	NOAEL 100 mg/kg/day	during gestation
Silicon dioxide	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Silicon dioxide	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Silicon dioxide	Ingestion	Not classified for development	Rat	NOAEL 1,350 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
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
4,4'-Trimethylenedipiperidine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
butyl glycidyl ether	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
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
bis-[4-(2,3-epoxypropoxy)phenyl]propane	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
bis-[4-(2,3-epoxypropoxy)phenyl]propane	Dermal	nervous system	Not classified	Rat	NOAEL 1,000	13 weeks

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ane					mg/kg/day	
bis-[4-(2,3-epoxypropoxy)phenyl]propane	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
butyl glycidyl ether	Dermal	liver	Not classified	Rat	LOAEL 100 mg/kg/day	28 days
butyl glycidyl ether	Inhalation	kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 1.6 mg/l	50 days
butyl glycidyl ether	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 1 mg/l	28 days
butyl glycidyl ether	Inhalation	liver	Not classified	Rat	NOAEL 0.8 mg/l	50 days
Silicon dioxide	Inhalation	respiratory system silicosis	Not classified	Human	NOAEL Not available	occupational exposure

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.

11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

SECTION 12: Ecological information

The information below may not agree with the 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
toluene	108-88-3	Coho Salmon	Experimental	96 hours	LC50	5.5 mg/l
toluene	108-88-3	Grass Shrimp	Experimental	96 hours	LC50	9.5 mg/l
toluene	108-88-3	Green algae	Experimental	72 hours	EC50	12.5 mg/l
toluene	108-88-3	Leopard frog	Experimental	9 days	LC50	0.39 mg/l
toluene	108-88-3	Pink Salmon	Experimental	96 hours	LC50	6.41 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	Diatom	Experimental	72 hours	NOEC	10 mg/l
toluene	108-88-3	Water flea	Experimental	7 days	NOEC	0.74 mg/l
toluene	108-88-3	Activated sludge	Experimental	12 hours	IC50	292 mg/l

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toluene	108-88-3	Bacteria	Experimental	16 hours	NOEC	29 mg/l
toluene	108-88-3	Bacteria	Experimental	24 hours	EC50	84 mg/l
toluene	108-88-3	Redworm	Experimental	28 days	LC50	>150 mg per kg of bodyweight
toluene	108-88-3	Soil microbes	Experimental	28 days	NOEC	<26 mg/kg (Dry Weight)
4,4'-Trimethylenedipiperidine	16898-52-5	Green algae	Experimental	72 hours	EC50	22 mg/l
4,4'-Trimethylenedipiperidine	16898-52-5	Water flea	Experimental	48 hours	EC50	28 mg/l
4,4'-Trimethylenedipiperidine	16898-52-5	Green algae	Experimental	72 hours	NOEC	10 mg/l
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Activated sludge	Analogous Compound	3 hours	IC50	>100 mg/l
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Rainbow trout	Estimated	96 hours	LC50	2 mg/l
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Water flea	Estimated	48 hours	EC50	1.8 mg/l
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Green algae	Experimental	72 hours	ErC50	>11 mg/l
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Green algae	Experimental	72 hours	NOEC	4.2 mg/l
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Water flea	Experimental	21 days	NOEC	0.3 mg/l
Urea Formaldehyde Melamine Resin	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
butyl glycidyl ether	2426-08-6	Green algae	Experimental	96 hours	ErC50	35 mg/l
butyl glycidyl ether	2426-08-6	Rainbow trout	Experimental	96 hours	LC50	65 mg/l
butyl glycidyl ether	2426-08-6	Water flea	Experimental	48 hours	EC50	9.2 mg/l
Silicon dioxide	7631-86-9	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	27360-07-2	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
copper flakes (coated with aliphatic acid)	7440-50-8	Green algae	Analogous Compound	72 hours	ErC50	0.1049 mg/l
copper flakes (coated with aliphatic acid)	7440-50-8	Water flea	Analogous Compound	48 hours	EC50	0.0126 mg/l
copper flakes (coated with aliphatic acid)	7440-50-8	Zebra Fish	Analogous Compound	96 hours	LC50	0.0117 mg/l
copper flakes (coated with aliphatic acid)	7440-50-8	Fathead minnow	Analogous Compound	32 days	EC10	0.0059 mg/l
copper flakes (coated with aliphatic acid)	7440-50-8	Green algae	Analogous Compound	N/A	NOEC	0.022 mg/l
copper flakes (coated with aliphatic acid)	7440-50-8	Water flea	Analogous Compound	7 days	NOEC	0.004 mg/l

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copper flakes (coated with aliphatic acid)	7440-50-8	Activated sludge	Analogous Compound	N/A	EC50	7 mg/l
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12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
toluene	108-88-3	Experimental Biodegradation	20 days	BOD	80 %BOD/ThOD	APHA Std Meth Water/Wastewater
toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	
4,4'- Trimethylenedipiperidine	16898-52-5	Experimental Biodegradation	28 days	CO2 evolution	5 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
bis-[4-(2,3- epoxipropoxy)phen yl]propane	1675-54-3	Experimental Biodegradation	28 days	BOD	5 %BOD/COD	OECD 301F - Manometric respirometry
bis-[4-(2,3- epoxipropoxy)phen yl]propane	1675-54-3	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	117 hours (t 1/2)	OECD 111 Hydrolysis func of pH
Urea Formaldehyde Melamine Resin	Trade Secret	Data not availbl- insufficient	N/A	N/A	N/A	N/A
butyl glycidyl ether	2426-08-6	Experimental Biodegradation	28 days	BOD	25 %BOD/ThOD	OECD 301D - Closed bottle test
Silicon dioxide	7631-86-9	Data not availbl- insufficient	N/A	N/A	N/A	N/A
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	27360-07-2	Data not availbl- insufficient	N/A	N/A	N/A	N/A
copper flakes (coated with aliphatic acid)	7440-50-8	Data not availbl- insufficient	N/A	N/A	N/A	N/A

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
toluene	108-88-3	Experimental BCF - Other	72 hours	Bioaccumulation factor	90	
toluene	108-88-3	Experimental Bioconcentration		Log Kow	2.73	
4,4'- Trimethylenedipiperidine	16898-52-5	Estimated Bioconcentration		Bioaccumulation factor	3.0	
bis-[4-(2,3- epoxipropoxy)phen yl]propane	1675-54-3	Experimental Bioconcentration		Log Kow	3.242	OECD 117 log Kow HPLC method
Urea Formaldehyde Melamine Resin	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
butyl glycidyl ether	2426-08-6	Experimental Bioconcentration		Log Kow	0.63	
Silicon dioxide	7631-86-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	27360-07-2	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
copper flakes (coated with aliphatic acid)	7440-50-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil

Material	Cas No.	Test type	Study Type	Test result	Protocol
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toluene	108-88-3	Experimental Mobility in Soil	Koc	37-160 l/kg	
4,4'-Trimethylenedipiperidine	16898-52-5	Estimated Mobility in Soil	Koc	<1 l/kg	ACD/Labs ChemSketch™
bis-[4-(2,3-epoxypropoxy)phenyl]propane	1675-54-3	Modeled Mobility in Soil	Koc	450 l/kg	Episuite™

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

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

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

	Ground Transport (ADR)	Air Transport (IATA)	Marine Transport (IMDG)
14.1 UN number	UN1133	UN1133	UN1133
14.2 UN proper shipping name	ADHESIVES	ADHESIVES	ADHESIVES
14.3 Transport hazard class(es)	3	3	3
14.4 Packing group	II	II	II
14.5 Environmental hazards	Not Environmentally Hazardous	Not applicable	Not a Marine Pollutant
14.6 Special precautions for user	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.

14.7 Transport in bulk according to Annex II of Marpol 73/78 and IBC Code	No data available.	No data available.	No data available.
Control Temperature	No data available.	No data available.	No data available.
Emergency Temperature	No data available.	No data available.	No data available.
ADR Classification Code	F1	Not applicable.	Not applicable.
IMDG Segregation Code	Not applicable.	Not applicable.	NONE

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

SECTION 15: Regulatory information

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

Carcinogenicity

<u>Ingredient</u>	<u>CAS Nbr</u>	<u>Classification</u>	<u>Regulation</u>
bis-[4-(2,3-epoxipropoxy)phenyl]propane	1675-54-3	Gr. 3: Not classifiable	International Agency for Research on Cancer
butyl glycidyl ether	2426-08-6	Carc. 2	The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain, UK Mandatory Classification and Labelling list
butyl glycidyl ether	2426-08-6	Grp. 2B: Possible human carc.	International Agency for Research on Cancer
Silicon dioxide	7631-86-9	Gr. 3: Not classifiable	International Agency for Research on Cancer
toluene	108-88-3	Gr. 3: Not classifiable	International Agency for Research on Cancer

Restrictions on the manufacture, placing on the market and use:

The following substance(s) contained in this product is/are subject to Annex XVII of regulation (EC) 1907/2006, as amended for GB, with regard to restrictions on the manufacture, placing on the market and use when present in certain dangerous conditions. Users of this product are required to comply with the restrictions placed upon it by the aforementioned provision.

<u>Ingredient</u>	<u>CAS Nbr</u>
bis-[4-(2,3-epoxipropoxy)phenyl]propane	1675-54-3

toluene

108-88-3

Restriction status: listed in UK REACH Annex XVII

Restricted uses: See Annex XVII to Regulation (EC) No 1907/2006 as amended for Great Britain for Conditions of Restriction

Global inventory status

Contact 3M for more information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

COMAH Regulation, SI 2015/483

Seveso hazard categories, Annex 1, Part 1

None

Seveso named dangerous substances, Annex 1, Part 2

Dangerous Substances	Identifier(s)	Qualifying quantity (tonnes) for the application of	
		Lower-tier requirements	Upper-tier requirements
copper flakes (coated with aliphatic acid)	7440-50-8	50	200
butyl glycidyl ether	2426-08-6	50	200
toluene	108-88-3	10	50

Regulation (EU) No 649/2012, as amended for GB

No chemicals listed

15.2. Chemical Safety Assessment

A chemical safety assessment has not been carried out for this substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended for GB.

SECTION 16: Other information

List of relevant H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
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.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.

H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Revision information:

GB Section 02: CLP Ingredient table information was modified.

GB Section 15: Carcinogenicity information information was modified.

Label: CLP Target Organ Hazard Statement information was modified.

Section 02: Label Elements: GB Percent Unknown information was deleted.

Section 3: Composition/ Information of ingredients table information was modified.

Section 9: Flammability (solid, gas) information information was deleted.

Section 09: Flammability information information was added.

Section 09: Particle Characteristics N/A information was added.

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

Section 12: Component ecotoxicity information information was modified.

Two-column table displaying the unique list of H Codes and statements (std phrases) for all components of the given material. 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. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

3M SDSs for Great Britain are available at www.3M.com/uk

For Northern Ireland documents, please contact your 3M representative to obtain a copy.