Safety Data Sheet

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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-Grip 2353 Fastener Adhesive Blue

Product Identification Numbers
62-2353-8501-0

7000000821

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
CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:
Flammable Liquid, Category 2 - Flam. Liq. 2; H225
Serious Eye Damage/Eye Irritation, Category 2 - Eye Irrit. 2; H319
Skin Corrosion/Irritation, Category 2 - Skin Irrit. 2; H315
Skin Sensitization, Category 1B - Skin Sens. 1B; H317
Reproductive Toxicity, Category 2 - Repr. 2; H361
Carcinogenicity, Category 2 - Carc. 2; H351
Germ Cell Mutagenicity, Category 2 - Muta. 2; H341

Specific Target Organ Toxicity-Single Exposure, Category 3 - STOT SE 3; H336
Specific Target Organ Toxicity-Repeated Exposure, Category 2 - STOT RE 2; H373
Hazardous to the Aquatic Environment (Chronic), Category 3 - Aquatic Chronic 3; H412

For full text of H phrases, see Section 16.

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

SIGNAL WORD
DANGER.

Symbols:
GHS02 (Flame) |GHS07 (Exclamation mark) | GHS08 (Health Hazard) |

Pictograms

Ingredients:

Ingredient	CAS Nbr	% by Wt
Toluene	108-88-3	30 - 40
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6	20 - 24.5
Butyl 2,3-epoxypropyl ether	2426-08-6	< 4
Formaldehyde	50-00-0	< 0.1

HAZARD STATEMENTS:

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H351	Suspected of causing cancer.
H341	Suspected of causing genetic defects.
H373	May cause damage to organs through prolonged or repeated exposure: nervous system | sensory organs |
H412	Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P210A	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260A	Do not breathe vapours.
P280E	Wear protective gloves.

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.

59% of the mixture consists of components of unknown acute inhalation toxicity.
Contains 29% of components with unknown hazards to the aquatic environment.

Notes on labelling
H304 is not required on the label due to the product's viscosity

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EU Inventory	% by Wt	Classification
Toluene (REACH Reg. No.:01-2119471310-51)	108-88-3	203-625-9	30 - 40	Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Repr. 2, H361d; STOT SE 3, H336; STOT RE 2, H373 (CLP) Aquatic Chronic 3, H412 (Vendor) Eye Irrit. 2, H319 (Self Classified)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane (REACH Reg. No.:01-2119456619-26)	25068-38-6	NLP 500-033-5	20 - 24.5	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; Aquatic Chronic 2, H411 (CLP)
4,4'-Trimethylenedipiperidine	16898-52-5	240-941-6	< 20	Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319 (Self Classified)
Urea Formaldehyde Melamine Resin	Trade Secret		10 - 20	Substance not classified as hazardous
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	27360-07-2		1 - 5	Substance not classified as hazardous
Silicon dioxide	7631-86-9	231-545-4	1 - 5	Substance with a Community level exposure limit in the workplace
Butyl 2,3-epoxypropyl ether	2426-08-6	219-376-4	< 4	Flam. Liq. 3, H226; Acute Tox. 4, H332; Acute Tox. 4, H302; Skin Sens. 1B, H317; Muta. 2, H341; Carc. 2, H351; STOT SE 3, H335; Aquatic Chronic 3, H412 (CLP) Repr. 2, H361d (Self Classified)
Formaldehyde	50-00-0	200-001-8	< 0.1	Acute Tox. 2, H330; Acute Tox. 3, H311; Acute Tox. 3, H301; Skin Corr. 1B, H314; Skin Sens. 1A, H317; Muta. 2, H341; Carc. 1B, H350; STOT SE 3, H335 - Nota B,D (CLP)

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 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

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

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. An appropriate aqueous film forming foam (AFFF) is recommended. 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 or professional use only. 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/m³ (50 ppm); STEL: 384 mg/m³ (100 ppm)	SKIN
Formaldehyde	50-00-0	UK HSC	TWA:2.5 mg/m3(2 ppm);STEL:2.5 mg/m3(2 ppm)	
Silicon dioxide	7631-86-9	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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	8.3 mg/kg bw/d
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Worker	Dermal, Short-term exposure, Systemic effects	8.3 mg/kg
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	12.3 mg/m³
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Worker	Inhalation, Short-term exposure, Systemic effects	12.3 mg/m³
Toluene		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	384 mg/kg bw/d
Toluene		Worker	Inhalation, Long-term exposure (8 hours), Local effects	192 mg/m³
Toluene		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	192 mg/m³
Toluene		Worker	Inhalation, Short-term exposure, Local effects	384 mg/m³
Toluene		Worker	Inhalation, Short-term exposure, Systemic effects	384 mg/m³

Predicted no effect concentrations (PNEC)

Ingredient	Degradation Product	Compartment	PNEC
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Freshwater	0.003 mg/l
4,4'-		Freshwater sediments	0.5 mg/kg w.w.

Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane			
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Intermittent releases to water	0.013 mg/l
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Marine water	0.0003 mg/l
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Marine water sediments	0.5 mg/kg w.w.
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane		Sewage Treatment Plant	10 mg/l
Toluene		Agricultural soil	2.89 mg/kg d.w.
Toluene		Sewage Treatment Plant	13.61 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. Use explosion-proof ventilation 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.

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

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.

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	Liquid.
Specific Physical Form:	Liquid.
Appearance/Odour	Toluene-like odour, blue
Odour threshold	*No data available.*
pH	*Not applicable.*
Boiling point/boiling range	approximately 110 ºC [*Details:*230 deg F (Toluene)]
Melting point	*No data available.*
Flammability (solid, gas)	Not applicable.
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	approximately 4 ºC [*Test Method:*Tagliabue closed cup] [*Details:*40 deg F]
Autoignition temperature	*No data available.*
Flammable Limits(LEL)	approximately 1.2 % volume
Flammable Limits(UEL)	approximately 7.1 % volume
Vapour pressure	approximately 5,066.2 Pa [*Details:*@ 20 deg C (68 deg F)]
Relative density	1 [*Ref Std:*WATER=1]
Water solubility	Slight (less than 10%)
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Evaporation rate	approximately 4.5 [*Ref Std:*BUOAC=1]
Vapour density	approximately 3.14 [*Ref Std:*AIR=1]
Decomposition temperature	*No data available.*
Viscosity	approximately 2,000 mPa-s
Density	1 g/ml

9.2. Other information

Molecular weight	*No data available.*
Percent volatile	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 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
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
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
May be harmful if swallowed.
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Central nervous system (CNS) depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination,

nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

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.

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 ATE20 - 50 mg/l
Overall product	Ingestion		No data available; calculated ATE2,000 - 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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Dermal	Rat	LD50 > 1,600 mg/kg
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	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
Urea Formaldehyde Melamine Resin	Dermal		LD50 estimated to be > 5,000 mg/kg
Urea Formaldehyde Melamine Resin	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Butyl 2,3-epoxypropyl ether	Dermal	Rabbit	LD50 estimated to be 1,000 - 2,000 mg/kg
Butyl 2,3-epoxypropyl ether	Inhalation-Vapour (4 hours)	Rat	LC50 > 21.3 mg/l
Butyl 2,3-epoxypropyl ether	Ingestion	Rat	LD50 1,800 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
Formaldehyde	Dermal	Rabbit	LD50 270 mg/kg
Formaldehyde	Inhalation-Gas (4 hours)	Rat	LC50 470 ppm
Formaldehyde	Ingestion	Rat	LD50 800 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value

Toluene	Rabbit	Irritant
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Rabbit	Mild irritant
4,4'-Trimethylenedipiperidine	Not available	Irritant
Butyl 2,3-epoxypropyl ether	Rabbit	Mild irritant
Silicon dioxide	Rabbit	No significant irritation
Formaldehyde	official classification	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Toluene	Rabbit	Moderate irritant
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Rabbit	Moderate irritant
4,4'-Trimethylenedipiperidine	Not available	Severe irritant
Butyl 2,3-epoxypropyl ether	Rabbit	Mild irritant
Silicon dioxide	Rabbit	No significant irritation
Formaldehyde	official classification	Corrosive

Skin Sensitisation

Name	Species	Value
Toluene	Guinea pig	Not sensitising
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Human and animal	Sensitising
4,4'-Trimethylenedipiperidine	Guinea pig	Not sensitising
Butyl 2,3-epoxypropyl ether	Mouse	Sensitising
Silicon dioxide	Human and animal	Not sensitising
Formaldehyde	Guinea pig	Sensitising

Respiratory Sensitisation

Name	Species	Value
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Human	Some positive data exist, but the data are not sufficient for classification
Formaldehyde	Human	Some positive data exist, but the data are not sufficient for classification

Germ Cell Mutagenicity

Name	Route	Value
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	In vivo	Not mutagenic
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Butyl 2,3-epoxypropyl ether	In Vitro	Some positive data exist, but the data are not sufficient for classification
Butyl 2,3-epoxypropyl ether	In vivo	Mutagenic
Silicon dioxide	In Vitro	Not mutagenic
Formaldehyde	In Vitro	Some positive data exist, but the data are not

		sufficient for classification
Formaldehyde	In vivo	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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Silicon dioxide	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Formaldehyde	Not specified.	Human and animal	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Toluene	Inhalation	Some positive female reproductive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	Some positive male reproductive data exist, but the data are not sufficient for classification	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
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Ingestion	Not toxic to female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Ingestion	Not toxic to male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Dermal	Not toxic to development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Ingestion	Not toxic to development	Rat	NOAEL 750 mg/kg/day	2 generation
Butyl 2,3-epoxypropyl ether	Inhalation	Some positive male reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.2 mg/l	10 weeks
Butyl 2,3-epoxypropyl ether	Ingestion	Toxic to development	Rat	NOAEL 100 mg/kg/day	during gestation
Silicon dioxide	Ingestion	Not toxic to female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Silicon dioxide	Ingestion	Not toxic to male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Silicon dioxide	Ingestion	Not toxic to development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Formaldehyde	Ingestion	Some positive male reproductive data exist, but the data are not sufficient for classification	Rat	NOAEL 100 mg/kg	not applicable
Formaldehyde	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 10 ppm	during gestation

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	Some positive data exist, but the data are not sufficient for classification	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		NOAEL Not available	
Butyl 2,3-epoxypropyl ether	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
Butyl 2,3-epoxypropyl ether	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
Formaldehyde	Inhalation	respiratory system	Causes damage to organs	Rat	LOAEL 128 ppm	6 hours
Formaldehyde	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	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	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 11.3 mg/l	15 weeks
Toluene	Inhalation	endocrine system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.1 mg/l	4 weeks
Toluene	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL Not available	20 days
Toluene	Inhalation	bone, teeth, nails, and/or hair	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.1 mg/l	8 weeks
Toluene	Inhalation	hematopoietic system | vascular system	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
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	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
Toluene	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 600 mg/kg/day	14 days
Toluene	Ingestion	endocrine system	Some positive data exist, but the	Mouse	NOAEL 105	28 days

			data are not sufficient for classification		mg/kg/day	
Toluene	Ingestion	immune system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 105 mg/kg/day	4 weeks
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Dermal	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	2 years
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Dermal	nervous system	All data are negative	Rat	NOAEL 1,000 mg/kg/day	13 weeks
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	All data are negative	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-Trimethylenedipiperidine	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	similar compounds	NOAEL Not available	
Butyl 2,3-epoxypropyl ether	Dermal	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 100 mg/kg/day	28 days
Butyl 2,3-epoxypropyl ether	Inhalation	kidney and/or bladder | respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.6 mg/l	50 days
Butyl 2,3-epoxypropyl ether	Inhalation	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1 mg/l	28 days
Butyl 2,3-epoxypropyl ether	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.8 mg/l	50 days
Silicon dioxide	Inhalation	respiratory system | silicosis	All data are negative	Human	NOAEL Not available	occupational exposure
Formaldehyde	Dermal	respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 80 mg/kg/day	60 weeks
Formaldehyde	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 0.3 ppm	28 months
Formaldehyde	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 20 ppm	13 weeks
Formaldehyde	Inhalation	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 15 ppm	3 weeks
Formaldehyde	Inhalation	nervous system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 10 ppm	13 weeks
Formaldehyde	Inhalation	endocrine system | immune system | muscles | kidney and/or bladder	All data are negative	Rat	NOAEL 15 ppm	28 months
Formaldehyde	Inhalation	eyes | vascular system	All data are negative	Rat	NOAEL 14.3 ppm	2 years
Formaldehyde	Inhalation	heart	All data are negative	Mouse	NOAEL 14.3 ppm	2 years
Formaldehyde	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 300 mg/kg/day	2 years
Formaldehyde	Ingestion	immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 20 mg/kg/day	4 weeks
Formaldehyde	Ingestion	kidney and/or	Some positive data exist, but the	Rat	NOAEL 15	24 months

		bladder	data are not sufficient for classification		mg/kg/day	
Formaldehyde	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 109 mg/kg/day	2 years
Formaldehyde	Ingestion	heart | endocrine system | hematopoietic system | respiratory system | vascular system	All data are negative	Rat	NOAEL 300 mg/kg/day	2 years
Formaldehyde	Ingestion	skin | muscles | eyes	All data are negative	Rat	NOAEL 109 mg/kg/day	2 years

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 Nbr	Organism	Type	Exposure	Test endpoint	Test result
Vinyl butyral - vinyl acetate - vinyl alcohol polymer	27360-07-2		Data not available or insufficient for classification			
4,4'-Trimethylenedi piperidine	16898-52-5		Data not available or insufficient for classification			
Butyl 2,3-epoxypropyl ether	2426-08-6	Water flea	Experimental	48 hours	EC50	3.9 mg/l
Butyl 2,3-epoxypropyl ether	2426-08-6	Rainbow trout	Experimental	96 hours	LC50	65 mg/l
Butyl 2,3-epoxypropyl ether	2426-08-6	Green algae	Experimental	96 hours	EC50	35 mg/l
Urea Formaldehyde Melamine Resin	Trade Secret		Data not available or insufficient for classification			
Formaldehyde	50-00-0	Rainbow trout	Experimental	96 hours	LC50	1.41 mg/l
Formaldehyde	50-00-0	Water flea	Experimental	48 hours	EC50	5.8 mg/l
Silicon dioxide	7631-86-9		Data not			

			available or insufficient for classification			
4,4'-Isopropylidene diphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6	Ricefish	Experimental	96 hours	LC50	1.41 mg/l
4,4'-Isopropylidene diphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6	Water flea	Estimated	21 days	NOEC	0.3 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	96 hours	LC50	5.5 mg/l
Toluene	108-88-3	Water flea	Experimental	48 hours	EC50	3.78 mg/l
Toluene	108-88-3	Green Algae	Experimental	72 hours	EC50	12.5 mg/l
Toluene	108-88-3	Sheepshead Minnow	Experimental	28 days	NOEC	3.2 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	Grass Shrimp	Experimental	48 hours	EC50	15.5 mg/l
Toluene	108-88-3	Fish other	Experimental	96 hours	LC50	6.41 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Toluene	108-88-3	Experimental Biodegradation	14 days	BOD	100 % weight	OECD 301C - MITI test (I)
Toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	Other methods
4,4'-Trimethylenedi piperidine	16898-52-5	Estimated Biodegradation	28 days	CO2 evolution	91 % weight	OECD 301B - Modified sturm or CO2
Butyl 2,3-epoxypropyl ether	2426-08-6	Experimental Biodegradation	28 days	BOD	40 % weight	OECD 301C - MITI test (I)
Urea Formaldehyde Melamine Resin	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
4,4'-Isopropylidene diphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6	Experimental Biodegradation	28 days	BOD	0 % weight	OECD 301C - MITI test (I)

4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	<2 days (t 1/2)	Other methods
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
Formaldehyde	50-00-0	Experimental Biodegradation	28 days	BOD	90 % weight	OECD 301D - Closed bottle test
Formaldehyde	50-00-0	Experimental Photolysis		Photolytic half-life (in air)	3.21 days (t 1/2)	Other methods
Formaldehyde	50-00-0	Experimental Photolysis		Photolytic half-life(in water)	1-2 hours (t 1/2)	Other methods
Silicon dioxide	7631-86-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Toluene	108-88-3	Experimental BCF - Other	72 hours	Bioaccumulation factor	90	Other methods
4,4'-Trimethylenedipiperidine	16898-52-5	Estimated Bioconcentration		Bioaccumulation factor	3.0	Estimated: Bioconcentration factor
Butyl 2,3-epoxypropyl ether	2426-08-6	Experimental Bioconcentration		Log Kow	0.63	Other methods
Urea Formaldehyde Melamine Resin	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6	Experimental BCF-Carp	28 days	Bioaccumulation factor	<=42	Other methods
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
Formaldehyde	50-00-0	Experimental Bioconcentration		Log Kow	0.35	Other methods
Silicon dioxide	7631-86-9	Data not available or	N/A	N/A	N/A	N/A

		insufficient for classification				

12.4. Mobility in soil
Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

No information available at this time, contact manufacturer for more details

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
See Section 11.1 Information on toxicological effects

Incinerate uncured product in a permitted waste incineration facility. As a disposal alternative, utilize an acceptable permitted waste disposal 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

62-2353-8501-0

ADR/RID: UN1133, ADHESIVES, 3., II , (D/E), ADR Classification Code: F1.
IMDG-CODE: UN1133, ADHESIVES, 3., II , IMDG-Code segregation code: NONE, EMS: FE,SD.
ICAO/IATA: UN1133, ADHESIVES, 3., 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
Formaldehyde	50-00-0	Carc. 1B	Regulation (EC) No. 1272/2008, Table 3.1
Formaldehyde	50-00-0	Grp. 1: Carcinogenic to humans	International Agency for Research on Cancer
Butyl 2,3-epoxypropyl ether	2426-08-6	Carc. 2	Regulation (EC) No. 1272/2008, Table 3.1
Silicon dioxide	7631-86-9	Gr. 3: Not classifiable	International Agency

Toluene	108-88-3	Gr. 3: Not classifiable	for Research on Cancer International Agency for Research on Cancer

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.

15.2. Chemical Safety Assessment
A chemical safety assessment has been carried out for the relevant substances in this material by the registrant in accordance with regulation REGULATION (EC) No 1907/2006

SECTION 16: Other information

List of relevant H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
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.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Revision information:

Industrial Application of Adhesives and Sealants: Section 16: Annex information was modified.
Industrial Application of Adhesives: Section 16: Annex information was modified.
Professional Application of Adhesives and Sealants: Section 16: Annex information was modified.
Section 01: SAP Material Numbers information was added.
Section 12: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.

Annex

1. Title	
Substance identification	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane; EC No. 500-033-5; CAS Nbr 25068-38-6;

Exposure Scenario Name	Industrial Application of Adhesives
Identified uses	PROC 07, ERC 05, SU 03 ; PROC 08b, ERC 05, SU 03 ; PROC 10, ERC 05, SU 03 ; PROC 13, ERC 05, SU 03 ;
Processes, tasks and activities covered	Application of product with a roller or brush. Screw adhesive application. Spraying of substances/mixtures.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Duration of use: 8 hours/day; Emission days per year: 365 days/year;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; **Environmental:** None needed; ; The following task-specific risk management measures apply in addition to those listed above: **Task: PROC07**; **Human Health**; Provide extract ventilation to points where emissions occur; Half-facepiece air-purifying respirator; **Task: PROC10**; **Human Health**; Provide extract ventilation to points where emissions occur;
Waste management measures	Do not apply industrial sludge to natural soils; Prevent discharge of undissolved substance to or recover from wastewater; Prevent leaks and prevent soil / water pollution caused by leaks; Sludge should be incinerated, contained or reclaimed;
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	Toluene; EC No. 203-625-9; CAS Nbr 108-88-3;
Exposure Scenario Name	Industrial Application of Adhesives and Sealants
Identified uses	PROC 05, ERC 04, SU 03 ; PROC 08b, ERC 04, SU 03 ; PROC 09, ERC 04, SU 03 ; PROC 10, ERC 04, SU 03 ; PROC 13, ERC 04, SU 03 ;
Processes, tasks and activities covered	Application of product with a roller or brush. Application of product. Mixing operations (open systems). Transfer of substance/mixture with dedicated engineering controls. Transfer of substances/mixtures into small containers e.g. tubes , bottles or small reservoirs.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:**

	Assumes use at not more than 20°C above ambient temperature; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Duration of use: 5 days/week; Emission days per year: 300 days/year;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour); **Environmental:** Air abatement;
Waste management measures	Do not apply industrial sludge to natural soils; Send to an industrial sewage treatment plant;
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	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane; EC No. 500-033-5; CAS Nbr 25068-38-6;
Exposure Scenario Name	Professional Application of Adhesives and Sealants
Identified uses	PROC 08a, ERC 08c, SU 22 ; PROC 10, ERC 08c, SU 22 ; PROC 11, ERC 08c, SU 22 ; PROC 13, ERC 08c, SU 22 ;
Processes, tasks and activities covered	Application of product with a roller or brush. Screw adhesive application. Spraying of substances/mixtures. Transfers without dedicated controls, including loading, filling, dumping, bagging.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Duration of use: 8 hours/day; Emission days per year: 365 days/year;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; **Environmental:** None needed; ; The following task-specific risk management measures apply in addition to those listed above: **Task: PROC11**; **Human Health**; Air-purifying Full-Face (with gas/vapour cartridge, that can be combined with a particulate filter);
Waste management measures	Prevent discharge of undissolved substance to or recover from wastewater; Prevent leaks and prevent soil / water pollution caused by leaks;
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	Toluene; EC No. 203-625-9; CAS Nbr 108-88-3;
Exposure Scenario Name	Professional Application of Adhesives and Sealants
Identified uses	PROC 05, ERC 08a, SU 22 ; PROC 10, ERC 08a, SU 22 ; PROC 10, ERC 08d, SU 22 ; PROC 13, ERC 08a, SU 22 ; PROC 13, ERC 08d, SU 22 ;
Processes, tasks and activities covered	Application of product. Mixing operations (open systems).
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Assumes use at not more than 20°C above ambient temperature; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: 300 days/year; Outdoor use;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Air-purifying Full-Face (with gas/vapour cartridge, that can be combined with a particulate filter); Air-purifying Half-Mask (with gas/vapour-cartridge, that can be combined with a particulate filter) (APF 10); Protective Gloves - Chemical resistant; **Environmental:** Municipal Sewage Treatment Plant;
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.

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