



## Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

|                        |            |                         |            |
|------------------------|------------|-------------------------|------------|
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### SECTION 1: Identification

#### 1.1. Product identifier

3M™ VHB™ Tape Max Promoter Clear

#### 1.2. Recommended use and restrictions on use

##### Recommended use

Adhesion promoter.

#### 1.3. Supplier's details

**Address:** 3M Technologies (S) Pte Ltd, 10 Ang Mo Kio Street 65, Singapore 569059  
**Telephone:** +65 6450 8888  
**Website:** [www.3m.com.sg](http://www.3m.com.sg)

#### 1.4. Emergency telephone number

+65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

### SECTION 2: Hazard identification

#### 2.1. Classification of the substance or mixture

Flammable Liquid: Category 2.

Serious Eye Damage/Irritation: Category 2.

Skin Sensitizer: Category 1.

Specific Target Organ Toxicity (single exposure): Category 3.

#### 2.2. Label elements

##### SIGNAL WORD

DANGER!

##### Symbols

Flame | Exclamation mark |

##### Pictograms

**HAZARD STATEMENTS**

|      |                                      |
|------|--------------------------------------|
| H225 | Highly flammable liquid and vapour.  |
| H319 | Causes serious eye irritation.       |
| H317 | May cause an allergic skin reaction. |
| H336 | May cause drowsiness or dizziness.   |

**PRECAUTIONARY STATEMENTS****Prevention:**

|       |                                                                                                |
|-------|------------------------------------------------------------------------------------------------|
| P210  | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P261  | Avoid breathing dust/fume/gas/mist/vapours/spray.                                              |
| P280B | Wear protective gloves and eye/face protection.                                                |

**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 attention.                                                                        |
| P370 + P378        | In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.  |

**2.3. Other hazards**

None known.

## SECTION 3: Composition/information on ingredients

This material is a mixture.

| Ingredient             | CAS Nbr      | % by Wt   |
|------------------------|--------------|-----------|
| Propan-1-ol            | 71-23-8      | 45 - 80   |
| Dimethyl Carbonate     | 616-38-6     | 10 - 30   |
| (R)-p-mentha-1,8-diene | 5989-27-5    | 5 - 10    |
| Acrylate Resin         | Trade Secret | 1 - 5     |
| Polyamide Resin        | Trade Secret | 1 - 5     |
| Propan-2-ol            | 67-63-0      | 0.1 - 1.5 |

## SECTION 4: First aid measures

**4.1. Description of first aid measures****Inhalation**

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

**Skin contact**

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**

Allergic skin reaction (redness, swelling, blistering, and itching). Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness).

**4.3. Indication of any immediate medical attention and special treatment required**

Not applicable.

**SECTION 5: Fire-fighting measures****5.1. Suitable extinguishing media**

In case of fire: Use a fire fighting agent suitable for 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**

Hydrocarbons.

Carbon monoxide.

Carbon dioxide.

Irritant vapours or gases.

Oxides of nitrogen.

**Condition**

During combustion.

During combustion.

During combustion.

During combustion.

During combustion.

**5.3. Special protective actions 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 vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

**6.2. Environmental precautions**

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

**6.3. Methods and material for containment and cleaning up**

Contain spill. 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 in accordance with applicable local/regional/national/international regulations.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Wear low static or properly grounded shoes. 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 vapor 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 acids. Store away from oxidising agents.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

| Ingredient             | CAS Nbr   | Agency         | Limit type                                                                                     | Additional comments            |
|------------------------|-----------|----------------|------------------------------------------------------------------------------------------------|--------------------------------|
| (R)-p-mentha-1,8-diene | 5989-27-5 | AIHA           | TWA:165.5 mg/m <sup>3</sup> (30 ppm)                                                           |                                |
| Propan-2-ol            | 67-63-0   | ACGIH          | TWA:200 ppm;STEL:400 ppm                                                                       | A4: Not class. as human carcin |
| Propan-2-ol            | 67-63-0   | Singapore PELs | TWA(8 hours):983 mg/m <sup>3</sup> (400 ppm);STEL(15 minutes):1230 mg/m <sup>3</sup> (500 ppm) |                                |
| Propan-1-ol            | 71-23-8   | ACGIH          | TWA:100 ppm                                                                                    | A4: Not class. as human carcin |
| Propan-1-ol            | 71-23-8   | Singapore PELs | TWA(8 hours):492 mg/m <sup>3</sup> (200 ppm);STEL(15 minutes):614 mg/m <sup>3</sup> (250 ppm)  |                                |

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

Singapore PELs : Singapore, Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

### 8.2. Exposure controls

#### 8.2.1. Engineering controls

Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

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:

Safety glasses with side shields.

Indirect vented goggles.

### Skin/hand protection

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

For prolonged or repeated contact, gloves made from the following material(s) are recommended (breakthrough times are >4 hours): Nitrile rubber., Polymer laminate

Any glove recommended for prolonged/repeated contact is also suitable for short-term/splash contact.

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

### Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

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

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

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                                                          |                                          |
|----------------------------------------------------------|------------------------------------------|
| <b>Physical state</b>                                    | Liquid.                                  |
| <b>Specific Physical Form:</b>                           | Liquid.                                  |
| <b>Color</b>                                             | Yellow                                   |
| <b>Odor</b>                                              | Orange                                   |
| <b>Odour threshold</b>                                   | <i>No data available.</i>                |
| <b>pH</b>                                                | 6                                        |
| <b>Melting point/Freezing point</b>                      | <i>No data available.</i>                |
| <b>Boiling point/Initial boiling point/Boiling range</b> | 93.2 °C [ @ 101,324.72 Pa ]              |
| <b>Flash point</b>                                       | 19 °C [ <i>Test Method:</i> Closed Cup ] |
| <b>Evaporation rate</b>                                  | <i>No data available.</i>                |
| <b>Flammability</b>                                      | Flammable Liquid: Category 2.            |
| <b>Flammable Limits(LEL)</b>                             | <i>No data available.</i>                |
| <b>Flammable Limits(UEL)</b>                             | <i>No data available.</i>                |

|                                        |                                                                                         |
|----------------------------------------|-----------------------------------------------------------------------------------------|
| Vapour pressure                        | 25.00 mm Hg [@ 20 °C]                                                                   |
| Relative Vapor Density                 | No data available.                                                                      |
| Density                                | 0.85 g/ml                                                                               |
| Relative density                       | 0.85 [Ref Std: WATER=1]                                                                 |
| Water solubility                       | 1 %                                                                                     |
| Solubility- non-water                  | No data available.                                                                      |
| Partition coefficient: n-octanol/water | No data available.                                                                      |
| Autoignition temperature               | No data available.                                                                      |
| Decomposition temperature              | No data available.                                                                      |
| Kinematic Viscosity                    | 12.9 mm²/sec                                                                            |
| Volatile organic compounds (VOC)       | 630 g/l [Test Method:calculated SCAQMD rule 443.1]<br>[Details:Low Solids Calculation ] |
| Volatile organic compounds (VOC)       | 73 % [Test Method:calculated SCAQMD rule 443.1]<br>[Details:weight percent ]            |
| Percent volatile                       | 93 % weight [Details:measured ]                                                         |
| VOC less H2O & exempt solvents         | 745 g/l [Test Method:calculated SCAQMD rule 443.1]                                      |
| Molecular weight                       | No data available.                                                                      |
| Solids content                         | 7 %                                                                                     |

|                          |                 |
|--------------------------|-----------------|
| Particle Characteristics | Not applicable. |
|--------------------------|-----------------|

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

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

### 10.2 Chemical stability

Stable.

### 10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

### 10.4 Conditions to avoid

Sparks and/or flames.

### 10.5 Incompatible materials

None known.

### 10.6 Hazardous decomposition products

#### Substance

None known.

#### Condition

Refer to section 5.2 for hazardous decomposition products during combustion.

## SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

## 11.1 Information on Toxicological effects

### Signs and Symptoms of Exposure

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

#### Inhalation

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

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

#### Eye contact

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.

#### 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-Vapor(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 |
| Propan-1-ol            | Dermal                     | Rabbit                 | LD50 4,000 mg/kg                                        |
| Propan-1-ol            | Inhalation-Vapor (4 hours) | Rat                    | LC50 > 34 mg/l                                          |
| Propan-1-ol            | Ingestion                  | Rat                    | LD50 estimated to be 2,000 - 5,000 mg/kg                |
| Dimethyl Carbonate     | Dermal                     | Rabbit                 | LD50 > 2,000 mg/kg                                      |
| Dimethyl Carbonate     | Inhalation-Vapor (4 hours) | Rat                    | LC50 > 5.36 mg/l                                        |
| Dimethyl Carbonate     | Ingestion                  | Rat                    | LD50 > 5,000 mg/kg                                      |
| (R)-p-mentha-1,8-diene | Inhalation-Vapor (4 hours) | Mouse                  | LC50 > 3.14 mg/l                                        |
| (R)-p-mentha-1,8-diene | Dermal                     | Rabbit                 | LD50 > 5,000 mg/kg                                      |
| (R)-p-mentha-1,8-diene | Ingestion                  | Rat                    | LD50 4,400 mg/kg                                        |
| Polyamide Resin        | Dermal                     | Professional judgement | LD50 estimated to be > 5,000 mg/kg                      |
| Polyamide Resin        | Ingestion                  | Professional judgement | LD50 estimated to be > 5,000 mg/kg                      |

|                |                                   |                                   |                                    |
|----------------|-----------------------------------|-----------------------------------|------------------------------------|
|                |                                   | nal<br>judgeme<br>nt              |                                    |
| Acrylate Resin | Dermal                            | Professio<br>nal<br>judgeme<br>nt | LD50 estimated to be > 5,000 mg/kg |
| Acrylate Resin | Ingestion                         | Professio<br>nal<br>judgeme<br>nt | LD50 estimated to be > 5,000 mg/kg |
| Propan-2-ol    | Dermal                            | Rabbit                            | LD50 12,870 mg/kg                  |
| Propan-2-ol    | Inhalation-<br>Vapor (4<br>hours) | Rat                               | LC50 72.6 mg/l                     |
| Propan-2-ol    | Ingestion                         | Rat                               | LD50 4,710 mg/kg                   |

ATE = acute toxicity estimate

### Skin Corrosion/Irritation

| Name                   | Species                           | Value                     |
|------------------------|-----------------------------------|---------------------------|
| Propan-1-ol            | Rabbit                            | Minimal irritation        |
| Dimethyl Carbonate     | Rabbit                            | Minimal irritation        |
| (R)-p-mentha-1,8-diene | Rabbit                            | Irritant                  |
| Polyamide Resin        | Professio<br>nal<br>judgemen<br>t | No significant irritation |
| Acrylate Resin         | Professio<br>nal<br>judgemen<br>t | No significant irritation |
| Propan-2-ol            | Multiple<br>animal<br>species     | No significant irritation |

### Serious Eye Damage/Irritation

| Name                   | Species                           | Value                     |
|------------------------|-----------------------------------|---------------------------|
| Propan-1-ol            | Rabbit                            | Severe irritant           |
| Dimethyl Carbonate     | Rabbit                            | Mild irritant             |
| (R)-p-mentha-1,8-diene | Rabbit                            | Mild irritant             |
| Polyamide Resin        | Professio<br>nal<br>judgemen<br>t | No significant irritation |
| Acrylate Resin         | Professio<br>nal<br>judgemen<br>t | No significant irritation |
| Propan-2-ol            | Rabbit                            | Severe irritant           |

### Sensitization:

#### Skin Sensitisation

| Name                   | Species          | Value          |
|------------------------|------------------|----------------|
| Propan-1-ol            | Guinea<br>pig    | Not classified |
| Dimethyl Carbonate     | Guinea<br>pig    | Not classified |
| (R)-p-mentha-1,8-diene | Mouse            | Sensitising    |
| Polyamide Resin        | Professio<br>nal | Not classified |

|                |                        |                |
|----------------|------------------------|----------------|
|                | judgement              |                |
| Acrylate Resin | Professional judgement | Not classified |
| Propan-2-ol    | Guinea pig             | Not classified |

### Respiratory Sensitisation

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

### Germ Cell Mutagenicity

| Name                   | Route    | Value                                                                        |
|------------------------|----------|------------------------------------------------------------------------------|
| Propan-1-ol            | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Dimethyl Carbonate     | In Vitro | Not mutagenic                                                                |
| Dimethyl Carbonate     | In vivo  | Not mutagenic                                                                |
| (R)-p-mentha-1,8-diene | In Vitro | Not mutagenic                                                                |
| (R)-p-mentha-1,8-diene | In vivo  | Not mutagenic                                                                |
| Propan-2-ol            | In Vitro | Not mutagenic                                                                |
| Propan-2-ol            | In vivo  | Not mutagenic                                                                |

### Carcinogenicity

| Name                   | Route      | Species | Value                                                                        |
|------------------------|------------|---------|------------------------------------------------------------------------------|
| Propan-1-ol            | Ingestion  | Rat     | Some positive data exist, but the data are not sufficient for classification |
| (R)-p-mentha-1,8-diene | Ingestion  | Rat     | Some positive data exist, but the data are not sufficient for classification |
| Propan-2-ol            | Inhalation | Rat     | 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              |
|------------------------|------------|----------------------------------------|-------------------------|-----------------------|--------------------------------|
| Propan-1-ol            | Inhalation | Not classified for male reproduction   | Rat                     | NOAEL 8.6 mg/l        | 6 weeks                        |
| Propan-1-ol            | Inhalation | Not classified for development         | Rat                     | NOAEL 8.6 mg/l        | during gestation               |
| Dimethyl Carbonate     | Ingestion  | Not classified for female reproduction | Rat                     | NOAEL 500 mg/kg/day   | 1 generation                   |
| Dimethyl Carbonate     | Ingestion  | Not classified for male reproduction   | Rat                     | NOAEL 500 mg/kg/day   | 1 generation                   |
| Dimethyl Carbonate     | Ingestion  | Not classified for development         | Rabbit                  | NOAEL 1,000 mg/kg/day | during gestation               |
| (R)-p-mentha-1,8-diene | Ingestion  | Not classified for female reproduction | Rat                     | NOAEL 750 mg/kg/day   | prematuring & during gestation |
| (R)-p-mentha-1,8-diene | Ingestion  | Not classified for development         | Multiple animal species | NOAEL 591 mg/kg/day   | during organogenesis           |
| Propan-2-ol            | Ingestion  | Not classified for female reproduction | Rat                     | NOAEL 1,000 mg/kg/day | 2 generation                   |
| Propan-2-ol            | Ingestion  | Not classified for male reproduction   | Rat                     | NOAEL 500 mg/kg/day   | 2 generation                   |
| Propan-2-ol            | Ingestion  | Not classified for development         | Rat                     | NOAEL 400 mg/kg/day   | during organogenesis           |
| Propan-2-ol            | Inhalation | Not classified for development         | Rat                     | LOAEL 9 mg/l          | during gestation               |

**Target Organ(s)****Specific Target Organ Toxicity - single exposure**

| Name                   | Route      | Target Organ(s)                   | Value                                                                        | Species                | Test result         | Exposure Duration      |
|------------------------|------------|-----------------------------------|------------------------------------------------------------------------------|------------------------|---------------------|------------------------|
| Propan-1-ol            | Inhalation | central nervous system depression | May cause drowsiness or dizziness                                            | Mouse                  | NOAEL 5 mg/l        | 4 hours                |
| Propan-1-ol            | Inhalation | respiratory irritation            | Some positive data exist, but the data are not sufficient for classification | Mouse                  | NOAEL Not available |                        |
| Propan-1-ol            | Ingestion  | central nervous system depression | May cause drowsiness or dizziness                                            | Professional judgement | NOAEL Not available |                        |
| (R)-p-mentha-1,8-diene | Inhalation | respiratory irritation            | Some positive data exist, but the data are not sufficient for classification | similar health hazards | NOAEL Not available |                        |
| (R)-p-mentha-1,8-diene | Ingestion  | nervous system                    | Not classified                                                               |                        | NOAEL Not available |                        |
| Propan-2-ol            | Inhalation | central nervous system depression | May cause drowsiness or dizziness                                            | Human                  | NOAEL Not available |                        |
| Propan-2-ol            | Inhalation | respiratory irritation            | Some positive data exist, but the data are not sufficient for classification | Human                  | NOAEL Not available |                        |
| Propan-2-ol            | Inhalation | auditory system                   | Not classified                                                               | Guinea pig             | NOAEL 13.4 mg/l     | 24 hours               |
| Propan-2-ol            | Ingestion  | central nervous system depression | May cause drowsiness or dizziness                                            | Human                  | NOAEL Not available | poisoning and/or abuse |

**Specific Target Organ Toxicity - repeated exposure**

| Name                   | Route     | Target Organ(s)                 | Value          | Species | Test result         | Exposure Duration |
|------------------------|-----------|---------------------------------|----------------|---------|---------------------|-------------------|
| Propan-1-ol            | Ingestion | hematopoietic system            | Not classified | Rat     | NOAEL 70 mg/kg/day  | 83 weeks          |
| Propan-1-ol            | Ingestion | liver                           | Not classified | Rat     | LOAEL 70 mg/kg/day  | 83 weeks          |
| Dimethyl Carbonate     | Ingestion | heart                           | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | skin                            | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | endocrine system                | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | gastrointestinal tract          | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | bone, teeth, nails, and/or hair | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | hematopoietic system            | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | liver                           | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | immune system                   | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | nervous system                  | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | eyes                            | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | kidney and/or bladder           | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | respiratory system              | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| Dimethyl Carbonate     | Ingestion | vascular system                 | Not classified | Rat     | NOAEL 500 mg/kg/day | 13 weeks          |
| (R)-p-mentha-1,8-diene | Ingestion | kidney and/or bladder           | Not classified | Rat     | LOAEL 75 mg/kg/day  | 103 weeks         |
| (R)-p-mentha-1,8-diene | Ingestion | liver                           | Not classified | Mouse   | NOAEL               | 103 weeks         |

|                        |            |                                 |                |     |                     |           |
|------------------------|------------|---------------------------------|----------------|-----|---------------------|-----------|
|                        |            |                                 |                |     | 1,000 mg/kg/day     |           |
| (R)-p-mentha-1,8-diene | Ingestion  | heart                           | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | endocrine system                | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | bone, teeth, nails, and/or hair | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | hematopoietic system            | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | immune system                   | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | muscles                         | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | nervous system                  | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| (R)-p-mentha-1,8-diene | Ingestion  | respiratory system              | Not classified | Rat | NOAEL 600 mg/kg/day | 103 weeks |
| Propan-2-ol            | Inhalation | kidney and/or bladder           | Not classified | Rat | NOAEL 12.3 mg/l     | 24 months |
| Propan-2-ol            | Inhalation | nervous system                  | Not classified | Rat | NOAEL 12 mg/l       | 13 weeks  |
| Propan-2-ol            | Ingestion  | kidney and/or bladder           | Not classified | Rat | NOAEL 400 mg/kg/day | 12 weeks  |

**Aspiration Hazard**

| Name                   | Value             |
|------------------------|-------------------|
| (R)-p-mentha-1,8-diene | 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 be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

**12.1. Toxicity****Acute aquatic hazard:**

GHS Acute 2: Toxic to aquatic life.

**Chronic aquatic hazard:**

Not chronically toxic to aquatic life by GHS criteria.

No product test data available.

| Material           | CAS Nbr  | Organism         | Type         | Exposure | Test endpoint | Test result |
|--------------------|----------|------------------|--------------|----------|---------------|-------------|
| Propan-1-ol        | 71-23-8  | Bleak            | Experimental | 96 hours | LC50          | 3,000 mg/l  |
| Propan-1-ol        | 71-23-8  | Fathead minnow   | Experimental | 96 hours | LC50          | 4,555 mg/l  |
| Propan-1-ol        | 71-23-8  | Green algae      | Experimental | 48 hours | ErC50         | 9,170 mg/l  |
| Propan-1-ol        | 71-23-8  | Water flea       | Experimental | 48 hours | EC50          | 3,644 mg/l  |
| Propan-1-ol        | 71-23-8  | Green algae      | Experimental | 48 hours | NOEC          | 1,150 mg/l  |
| Propan-1-ol        | 71-23-8  | Water flea       | Experimental | 21 days  | NOEC          | >3.22 mg/l  |
| Propan-1-ol        | 71-23-8  | Zebra Fish       | Experimental | 35 days  | NOEC          | >11.58 mg/l |
| Propan-1-ol        | 71-23-8  | Activated sludge | Experimental | 3 hours  | IC50          | >1,000 mg/l |
| Dimethyl Carbonate | 616-38-6 | Activated sludge | Experimental | 3 hours  | EC50          | >1,000 mg/l |

|                        |              |                |                                                       |          |       |              |
|------------------------|--------------|----------------|-------------------------------------------------------|----------|-------|--------------|
| Dimethyl Carbonate     | 616-38-6     | Green algae    | Experimental                                          | 72 hours | ErC50 | >100 mg/l    |
| Dimethyl Carbonate     | 616-38-6     | Water flea     | Experimental                                          | 48 hours | EC50  | >100 mg/l    |
| Dimethyl Carbonate     | 616-38-6     | Zebra Fish     | Experimental                                          | 96 hours | LC50  | >100 mg/l    |
| Dimethyl Carbonate     | 616-38-6     | Green algae    | Experimental                                          | 72 hours | NOEC  | 100 mg/l     |
| Dimethyl Carbonate     | 616-38-6     | Water flea     | Experimental                                          | 21 days  | NOEC  | 25 mg/l      |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Fathead minnow | Experimental                                          | 96 hours | LC50  | 0.702 mg/l   |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Green algae    | Experimental                                          | 72 hours | ErC50 | 0.32 mg/l    |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Water flea     | Experimental                                          | 48 hours | EC50  | 0.307 mg/l   |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Fathead minnow | Experimental                                          | 8 days   | EC10  | 0.32 mg/l    |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Green algae    | Experimental                                          | 72 hours | ErC10 | 0.174 mg/l   |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Water flea     | Experimental                                          | 21 days  | NOEC  | 0.153 mg/l   |
| Acrylate Resin         | Trade Secret | N/A            | Data not available or insufficient for classification | N/A      | N/A   | N/A % weight |
| Polyamide Resin        | Trade Secret | N/A            | Data not available or insufficient for classification | N/A      | N/A   | N/A          |
| Propan-2-ol            | 67-63-0      | Bacteria       | Experimental                                          | 16 hours | LOEC  | 1,050 mg/l   |
| Propan-2-ol            | 67-63-0      | Green algae    | Experimental                                          | 72 hours | EC50  | >1,000 mg/l  |
| Propan-2-ol            | 67-63-0      | Invertebrate   | Experimental                                          | 24 hours | LC50  | >10,000 mg/l |
| Propan-2-ol            | 67-63-0      | Medaka         | Experimental                                          | 96 hours | LC50  | >100 mg/l    |
| Propan-2-ol            | 67-63-0      | Water flea     | Experimental                                          | 48 hours | EC50  | >1,000 mg/l  |
| Propan-2-ol            | 67-63-0      | Green algae    | Experimental                                          | 72 hours | NOEC  | 1,000 mg/l   |
| Propan-2-ol            | 67-63-0      | Water flea     | Experimental                                          | 21 days  | NOEC  | 100 mg/l     |

## 12.2. Persistence and degradability

| Material               | CAS Nbr      | Test type                       | Duration | Study Type                     | Test result           | Protocol                       |
|------------------------|--------------|---------------------------------|----------|--------------------------------|-----------------------|--------------------------------|
| Propan-1-ol            | 71-23-8      | Experimental Biodegradation     | 20 days  | BOD                            | 75 %BOD/ThOD          | APHA Std Meth Water/Wastewater |
| Dimethyl Carbonate     | 616-38-6     | Experimental Biodegradation     | 28 days  | BOD                            | 86 %BOD/ThOD          | OECD 301C - MITI test (I)      |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Experimental Biodegradation     | 14 days  | BOD                            | 98 %BOD/ThOD          | OECD 301C - MITI test (I)      |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Experimental Biodegradation     | 14 days  | Dissolv. Organic Carbon Deplet | >93.8 %removal of DOC | OECD 303A - Simulated Aerobic  |
| Acrylate Resin         | Trade Secret | Data not available-insufficient | N/A      | N/A                            | N/A                   | N/A                            |
| Polyamide Resin        | Trade Secret | Data not available-insufficient | N/A      | N/A                            | N/A                   | N/A                            |
| Propan-2-ol            | 67-63-0      | Experimental Biodegradation     | 14 days  | BOD                            | 86 %BOD/ThOD          | OECD 301C - MITI test (I)      |

## 12.3 : Bioaccumulative potential

| Material    | CAS Nbr | Test type                     | Duration | Study Type | Test result | Protocol                     |
|-------------|---------|-------------------------------|----------|------------|-------------|------------------------------|
| Propan-1-ol | 71-23-8 | Experimental Bioconcentration |          | Log Kow    | 0.2         | OECD 117 log Kow HPLC method |

|                        |              |                                                       |     |                        |       |                                 |
|------------------------|--------------|-------------------------------------------------------|-----|------------------------|-------|---------------------------------|
| Dimethyl Carbonate     | 616-38-6     | Experimental Bioconcentration                         |     | Log Kow                | 0.354 | OECD 107 log Kow shke flask mtd |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Modeled Bioconcentration                              |     | Bioaccumulation factor | 2100  | Catalogic™                      |
| (R)-p-mentha-1,8-diene | 5989-27-5    | Experimental Bioconcentration                         |     | Log Kow                | 4.57  |                                 |
| Acrylate Resin         | Trade Secret | Data not available or insufficient for classification | N/A | N/A                    | N/A   | N/A                             |
| Polyamide Resin        | Trade Secret | Data not available or insufficient for classification | N/A | N/A                    | N/A   | N/A                             |
| Propan-2-ol            | 67-63-0      | Experimental Bioconcentration                         |     | Log Kow                | 0.05  |                                 |

#### 12.4. Mobility in soil

Please contact manufacturer for more details

#### 12.5 Other adverse effects

No information available.

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

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

Incinerate 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.

### SECTION 14: Transport Information

#### International Regulations

UN No.: UN1133

UN Proper shipping name: ADHESIVES CONTAINING FLAMMABLE LIQUID

Transportation Class (IMO): 3-3 Flammable liquid

Transportation Class (IATA): 3-3 Flammable liquid

Other Dangerous Goods Descriptions (IMO): None assigned

Other Dangerous Goods Descriptions (IATA): None assigned

Packing Group: II

Marine pollutant: Yes

### SECTION 15: Regulatory information

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

##### Global inventory status

Contact 3M for more information.

##### This product may contain component(s) that are regulated by the following:

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: this product is subject to SDS, labelling, PEL and other requirements in the Act/Regulations.

## **SECTION 16: Other information**

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

**3M Singapore SDSs are available at [www.3m.com.sg](http://www.3m.com.sg)**