# Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

## SECTION 1: Identification

### 1.1. Product identifier
3M™ Fastbond™ Contact Adhesive 30-NF, Neutral

**Product Identification Numbers**
62-4274-6530-7 62-4274-6535-6 62-4274-7530-6 62-4274-7535-5 62-4274-8530-5

62-4274-9530-4

### 1.2. Recommended use and restrictions on use

**Recommended use**
water based contact adhesive, Industrial use

### 1.3. Supplier's details
**ADDRESS:** 3M Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301 Petaling, Jaya, Selangor
**Telephone:** 03-7884 2888
**E Mail:** 3mmyehsr@mmm.com
**Website:** www.3M.com.my

### 1.4. Emergency telephone number
+60 03-7884 2888

## SECTION 2: Hazard identification

### 2.1. Classification of the substance or mixture
Reproductive Toxicity: Category 1B.
Specific Target Organ Toxicity (single exposure): Category 2.
Specific Target Organ Toxicity (repeated exposure): Category 2.
Chronic Aquatic Toxicity: Category 2.

### 2.2. Label elements
**Signal word**
Danger

**Symbols**
Health Hazard |Environment |

**Pictograms**

**Hazard Statements:**

| | |
|---|---|
| H360 | May damage fertility or the unborn child. |
| H371 | May cause damage to organs: sensory organs. |
| H373 | May cause damage to organs through prolonged or repeated exposure: nervous system \| sensory organs. |
| H411 | Toxic to aquatic life with long lasting effects. |

**Precautionary statements**

**Prevention:**

| | |
|---|---|
| P201 | Obtain special instructions before use. |
| P260 | Do not breathe dust/fume/gas/mist/vapors/spray. |
| P273 | Avoid release to the environment. |
| P281 | Use personal protective equipment as required. |

**Response:**

| | |
|---|---|
| P308 + P313 | IF exposed or concerned: Get medical attention. |

**Disposal:**

| | |
|---|---|
| P501 | Dispose of contents and container in accordance with applicable local, regional, national, and international regulations. |

**2.3. Other hazards**
None known

## SECTION 3: Composition/information on ingredients

This material is a mixture.

| Ingredient | C.A.S. No. | % by Wt |
|---|---|---|
| Water | 7732-18-5 | 40 - 60 |
| 2,3-Dichloro-1,3-Butadiene-chloroprene copolymer | 25067-95-2 | 20 - 40 |
| Glycerol Esters of Rosin Acids | 8050-31-5 | 5 - 10 |
| Rosin, Polymer with Phenol | Mixture | 5 - 10 |
| Sorbitol | 50-70-4 | 1 - 5 |
| Toluene | 108-88-3 | 1 - 3 |
| Potassium Rosinate | 61790-50-9 | 1 - 3 |
| Methyl Alcohol | 67-56-1 | 1 - 3 |
| Zinc Oxide | 1314-13-2 | < 2.5 |

| | | |
|---|---|---|
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | < 1 |
| Potassium Hydroxide | 1310-58-3 | 0.1 - 0.5 |

# 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:**
Wash with soap and water. If signs/symptoms develop, get medical attention.

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

**If Swallowed:**
Rinse mouth. If you feel unwell, get medical attention.

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

Target organ effects. See Section 11 for additional details. Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

**4.3. Indication of any immediate medical attention and special treatment required**
This product contains methanol. If there is a reasonable suspicion of methanol poisoning, intravenous (IV) administration with either fomepizole (preferred) or ethanol (if fomepizole is unavailable) should be considered as part of the medical management.

# SECTION 5: Fire-fighting measures

**5.1. Suitable extinguishing media**
Use a fire fighting agent suitable for the surrounding fire.

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

**Hazardous Decomposition or By-Products**

| Substance | Condition |
|---|---|
| Formaldehyde | During Combustion |
| Carbon monoxide | During Combustion |
| Carbon dioxide | During Combustion |
| Hydrogen Chloride | During Combustion |
| Oxides of Nitrogen | During Combustion |
| Oxides of Phosphorus | During Combustion |

**5.3. Special protective actions for fire-fighters**
No special protective actions for fire-fighters are anticipated.

# SECTION 6: Accidental release measures

**6.1. Personal precautions, protective equipment and emergency procedures**
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Use 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 dikes to prevent entry into sewer systems or bodies of water.

**6.3. Methods and material for containment and cleaning up**
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a metal container approved for transportation by appropriate authorities. Clean up residue with water. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**
For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

**7.2. Conditions for safe storage including any incompatibilities**
Store away from heat. Store away from acids. Store away from oxidizing 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 | C.A.S. No. | Agency | Limit type | Additional Comments |
|---|---|---|---|---|
| Toluene | 108-88-3 | ACGIH | TWA:20 ppm | A4: Not class. as human carcin, Ototoxicant |
| Toluene | 108-88-3 | Malaysia OELs | TWA(8 hours):188 mg/m3(50 ppm) | SKIN |
| Potassium Hydroxide | 1310-58-3 | ACGIH | CEIL:2 mg/m3 | |
| Potassium Hydroxide | 1310-58-3 | Malaysia OELs | CEIL:2 mg/m3 | |
| Particulates not Otherwise Classified (PNOC), Inhalable particulate | 1314-13-2 | Malaysia OELs | TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3 | |
| Zinc Oxide | 1314-13-2 | ACGIH | TWA(respirable fraction):2 mg/m3;STEL(respirable fraction):10 mg/m3 | |
| Zinc Oxide | 1314-13-2 | Malaysia OELs | TWA(as fume)(8 hours):5 mg/m3;TWA(as dust)(8 hours):10 mg/m3 | |

| | | | | |
|---|---|---|---|---|
| Methyl Alcohol | 67-56-1 | ACGIH | TWA:200 ppm;STEL:250 ppm | Danger of cutaneous absorption |
| Methyl Alcohol | 67-56-1 | Malaysia OELs | TWA(8 hours):262 mg/m3(200 ppm) | SKIN |

ACGIH : American Conference of Governmental Industrial Hygienists
CMRG : Chemical Manufacturer's Recommended Guidelines
Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations
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/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

**8.2.2. Personal protective equipment (PPE)**

**Eye/face protection**

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety Glasses with side shields

**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): Polymer laminate

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

**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 vapors
Half facepiece or full facepiece air-purifying respirator suitable for particulates
Half facepiece or full facepiece supplied-air respirator

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

# SECTION 9: Physical and chemical properties

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

| | |
|---|---|
| **Physical state** | Liquid |
| **Color** | White |
| **Odor** | Slight Ammoniacal |
| **Odor threshold** | *No Data Available* |
| **pH** | 10 - 11.5 |

| | |
|---|---|
| **Melting point/Freezing point** | *Not Applicable* |
| **Boiling point/Initial boiling point/Boiling range** | >=64 ºC |
| **Flash Point** | No flash point |
| **Evaporation rate** | 1 [*Ref Std:*ETHER=1] |
| **Flammability** | Not Applicable |
| **Flammable Limits(LEL)** | *Not Applicable* |
| **Flammable Limits(UEL)** | *Not Applicable* |
| **Vapor Pressure** | <=38 mmHg [@ 68 ºF] |
| **Relative Vapor Density** | 1.1 [*Ref Std:*AIR=1] |
| **Density** | 1.1 g/ml |
| **Relative Density** | 1.1 [*Ref Std:*WATER=1] |
| **Water solubility** | Complete |
| **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** | 432 mm2/sec |
| **Volatile Organic Compounds** | *No Data Available* |
| **Percent volatile** | *No Data Available* |
| **VOC Less H2O & Exempt Solvents** | <=80 g/l [*Test Method:*tested per EPA method 24] |
| **Molecular weight** | *No Data Available* |
| **Solids Content** | 42.7 - 57 % |

| | |
|---|---|
| **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 polymerization will not occur.

**10.4. Conditions to avoid**
Heat

**10.5. Incompatible materials**
Strong acids
Strong oxidizing agents

**10.6. Hazardous decomposition products**

| Substance | Condition |
|---|---|
| None known. | |

Refer to section 5.2 for hazardous decomposition products during combustion.

## SECTION 11: Toxicological information

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

**11.1. Information on Toxicological effects**

**Signs and Symptoms of Exposure**

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

**Inhalation:**
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause additional health effects (see below).

**Skin Contact:**
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. May cause additional health effects (see below).

**Eye Contact:**
Contact with the eyes during product use is not expected to result in significant irritation.

**Ingestion:**
May be harmful if swallowed. Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea. May cause additional health effects (see below).

**Additional Health Effects:**

**Single exposure may cause target organ effects:**
May cause blindness.

**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 odors and/or 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/or changes in blood pressure and heart rate.

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

**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 >50 mg/l |
| Overall product | Ingestion | | No data available; calculated ATE >2,000 - =5,000 mg/kg |
| Glycerol Esters of Rosin Acids | Dermal | Rabbit | LD50 > 5,000 mg/kg |
| Glycerol Esters of Rosin Acids | Ingestion | Rat | LD50 > 2,000 mg/kg |
| Sorbitol | Dermal | Professional | LD50 estimated to be > 5,000 mg/kg |

| | | | |
|---|---|---|---|
| | | judgement | |
| Sorbitol | Ingestion | Rat | LD50 15,900 mg/kg |
| Toluene | Dermal | Rat | LD50 12,000 mg/kg |
| Toluene | Inhalation-Vapor (4 hours) | Rat | LC50 30 mg/l |
| Toluene | Ingestion | Rat | LD50 5,550 mg/kg |
| Methyl Alcohol | Dermal | | LD50 estimated to be 1,000 - 2,000 mg/kg |
| Methyl Alcohol | Inhalation-Vapor | | LC50 estimated to be 10 - 20 mg/l |
| Methyl Alcohol | Ingestion | | LD50 estimated to be 50 - 300 mg/kg |
| Potassium Rosinate | Dermal | Rat | LD50 > 2,000 mg/kg |
| Potassium Rosinate | Ingestion | Rat | LD50 > 2,000 mg/kg |
| Zinc Oxide | Dermal | | LD50 estimated to be > 5,000 mg/kg |
| Zinc Oxide | Inhalation-Dust/Mist (4 hours) | Rat | LC50 > 5.7 mg/l |
| Zinc Oxide | Ingestion | Rat | LD50 > 5,000 mg/kg |
| Potassium Hydroxide | Dermal | Rabbit | LD50 > 1,260 mg/kg |
| Potassium Hydroxide | Ingestion | Rat | LD50 273 mg/kg |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Dermal | Rabbit | LD50 > 10,000 mg/kg |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | Rat | LD50 > 5,000 mg/kg |

ATE = acute toxicity estimate

**Skin Corrosion/Irritation**

| Name | Species | Value |
|---|---|---|
| Glycerol Esters of Rosin Acids | Rabbit | Minimal irritation |
| Toluene | Rabbit | Irritant |
| Methyl Alcohol | Rabbit | Mild irritant |
| Potassium Rosinate | Rabbit | No significant irritation |
| Zinc Oxide | Human and animal | No significant irritation |
| Potassium Hydroxide | Rabbit | Corrosive |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Rabbit | No significant irritation |

**Serious Eye Damage/Irritation**

| Name | Species | Value |
|---|---|---|
| Glycerol Esters of Rosin Acids | Rabbit | Mild irritant |
| Toluene | Rabbit | Moderate irritant |
| Methyl Alcohol | Rabbit | Moderate irritant |
| Potassium Rosinate | Rabbit | Moderate irritant |
| Zinc Oxide | Rabbit | Mild irritant |
| Potassium Hydroxide | Rabbit | Corrosive |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Rabbit | Mild irritant |

**Sensitization:**

**Skin Sensitization**

| Name | Species | Value |
|---|---|---|
| Glycerol Esters of Rosin Acids | Guinea pig | Not classified |
| Toluene | Guinea pig | Not classified |
| Methyl Alcohol | Guinea pig | Not classified |
| Potassium Rosinate | Mouse | Not classified |
| Zinc Oxide | Guinea | Not classified |

| | | |
|---|---|---|
| | pig | |
| Potassium Hydroxide | Guinea pig | Not classified |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Mouse | Not classified |

**Respiratory Sensitization**

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

**Germ Cell Mutagenicity**

| Name | Route | Value |
|---|---|---|
| Glycerol Esters of Rosin Acids | In Vitro | Not mutagenic |
| Toluene | In Vitro | Not mutagenic |
| Toluene | In vivo | Not mutagenic |
| Methyl Alcohol | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Methyl Alcohol | In vivo | Some positive data exist, but the data are not sufficient for classification |
| Zinc Oxide | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Zinc Oxide | In vivo | Some positive data exist, but the data are not sufficient for classification |
| Potassium Hydroxide | In Vitro | Not mutagenic |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | In Vitro | Not mutagenic |

**Carcinogenicity**

| Name | Route | Species | Value |
|---|---|---|---|
| Toluene | Dermal | Mouse | Some positive data exist, but the data are not sufficient for classification |
| Toluene | Ingestion | Rat | Some positive data exist, but the data are not sufficient for classification |
| Toluene | Inhalation | Mouse | Some positive data exist, but the data are not sufficient for classification |
| Methyl Alcohol | Inhalation | Multiple animal species | Not carcinogenic |

**Reproductive Toxicity**

**Reproductive and/or Developmental Effects**

| Name | Route | Value | Species | Test Result | Exposure Duration |
|---|---|---|---|---|---|
| Toluene | Inhalation | Not classified for female reproduction | Human | NOAEL Not available | occupational exposure |
| Toluene | Inhalation | Not classified for male reproduction | Rat | NOAEL 2.3 mg/l | 1 generation |
| Toluene | Ingestion | Toxic to development | Rat | LOAEL 520 mg/kg/day | during gestation |
| Toluene | Inhalation | Toxic to development | Human | NOAEL Not available | poisoning and/or abuse |
| Methyl Alcohol | Ingestion | Not classified for male reproduction | Rat | NOAEL 1,600 mg/kg/day | 21 days |
| Methyl Alcohol | Ingestion | Toxic to development | Mouse | LOAEL 4,000 mg/kg/day | during organogenesis |
| Methyl Alcohol | Inhalation | Toxic to development | Mouse | NOAEL 1.3 mg/l | during organogenesis |
| Zinc Oxide | Ingestion | Not classified for reproduction and/or development | Multiple animal species | NOAEL 125 mg/kg/day | premating & during gestation |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | Not classified for female reproduction | Rat | NOAEL 50 mg/kg/day | premating into lactation |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | Not classified for development | Rat | NOAEL 50 | premating |

| | | | | | |
|---|---|---|---|---|---|
| | | | | mg/kg/day | into lactation |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | Toxic to male reproduction | Rat | NOAEL 12.5 mg/kg/day | 50 days |

## Target Organ(s)

### Specific Target Organ Toxicity - single exposure

| Name | Route | Target Organ(s) | Value | Species | Test Result | Exposure Duration |
|---|---|---|---|---|---|---|
| Toluene | Inhalation | central nervous system depression | May cause drowsiness or dizziness | Human | NOAEL Not available | |
| Toluene | Inhalation | respiratory irritation | Some positive data exist, but the data are not sufficient for classification | Human | NOAEL Not available | |
| Toluene | Inhalation | immune system | Not classified | Mouse | NOAEL 0.004 mg/l | 3 hours |
| Toluene | Ingestion | central nervous system depression | May cause drowsiness or dizziness | Human | NOAEL Not available | poisoning and/or abuse |
| Methyl Alcohol | Inhalation | blindness | Causes damage to organs | Human | NOAEL Not available | occupational exposure |
| Methyl Alcohol | Inhalation | central nervous system depression | May cause drowsiness or dizziness | Human | NOAEL Not available | not available |
| Methyl Alcohol | Inhalation | respiratory irritation | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL Not available | 6 hours |
| Methyl Alcohol | Ingestion | blindness | Causes damage to organs | Human | NOAEL Not available | poisoning and/or abuse |
| Methyl Alcohol | Ingestion | central nervous system depression | May cause drowsiness or dizziness | Human | NOAEL Not available | poisoning and/or abuse |
| Potassium Rosinate | Inhalation | respiratory irritation | Some positive data exist, but the data are not sufficient for classification | similar health hazards | NOAEL Not available | |
| Potassium Hydroxide | Inhalation | respiratory irritation | May cause respiratory irritation | Human | NOAEL not available | |

### Specific Target Organ Toxicity - repeated exposure

| Name | Route | Target Organ(s) | Value | Species | Test Result | Exposure Duration |
|---|---|---|---|---|---|---|
| Glycerol Esters of Rosin Acids | Ingestion | liver | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | heart | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | skin | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | endocrine system | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | bone, teeth, nails, and/or hair | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | blood | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | bone marrow | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | hematopoietic system | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | immune system | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin | Ingestion | muscles | Not classified | Rat | NOAEL | 90 days |

| | | | | | | |
|---|---|---|---|---|---|---|
| Acids | | | | | 5,000 mg/kg/day | |
| Glycerol Esters of Rosin Acids | Ingestion | nervous system | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | eyes | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | kidney and/or bladder | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Glycerol Esters of Rosin Acids | Ingestion | respiratory system | Not classified | Rat | NOAEL 5,000 mg/kg/day | 90 days |
| Toluene | Inhalation | auditory system | Causes damage to organs through prolonged or repeated exposure | Human | NOAEL Not available | poisoning and/or abuse |
| Toluene | Inhalation | nervous system | Causes damage to organs through prolonged or repeated exposure | Human | NOAEL Not available | poisoning and/or abuse |
| Toluene | Inhalation | eyes | Causes damage to organs through prolonged or repeated exposure | Human | NOAEL Not available | poisoning and/or abuse |
| Toluene | Inhalation | 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 | Not classified | Rat | NOAEL 11.3 mg/l | 15 weeks |
| Toluene | Inhalation | liver | Not classified | Rat | NOAEL 11.3 mg/l | 15 weeks |
| Toluene | Inhalation | kidney and/or bladder | Not classified | Rat | NOAEL 11.3 mg/l | 15 weeks |
| Toluene | Inhalation | endocrine system | Not classified | Rat | NOAEL 1.1 mg/l | 4 weeks |
| Toluene | Inhalation | immune system | Not classified | Mouse | NOAEL Not available | 20 days |
| Toluene | Inhalation | bone, teeth, nails, and/or hair | Not classified | Mouse | NOAEL 1.1 mg/l | 8 weeks |
| Toluene | Inhalation | hematopoietic system | Not classified | Human | NOAEL Not available | occupational exposure |
| Toluene | Inhalation | vascular system | Not classified | Human | NOAEL Not available | occupational exposure |
| Toluene | Inhalation | gastrointestinal tract | Not classified | Multiple animal species | NOAEL 11.3 mg/l | 15 weeks |
| Toluene | Ingestion | nervous system | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL 625 mg/kg/day | 13 weeks |
| Toluene | Ingestion | heart | Not classified | Rat | NOAEL 2,500 mg/kg/day | 13 weeks |
| Toluene | Ingestion | liver | Not classified | Multiple animal species | NOAEL 2,500 mg/kg/day | 13 weeks |
| Toluene | Ingestion | kidney and/or bladder | Not classified | Multiple animal species | NOAEL 2,500 mg/kg/day | 13 weeks |
| Toluene | Ingestion | hematopoietic system | Not classified | Mouse | NOAEL 600 mg/kg/day | 14 days |
| Toluene | Ingestion | endocrine system | Not classified | Mouse | NOAEL 105 mg/kg/day | 28 days |
| Toluene | Ingestion | immune system | Not classified | Mouse | NOAEL 105 mg/kg/day | 4 weeks |
| Methyl Alcohol | Inhalation | liver | Not classified | Rat | NOAEL 6.55 mg/l | 4 weeks |
| Methyl Alcohol | Inhalation | respiratory system | Not classified | Rat | NOAEL 13.1 mg/l | 6 weeks |
| Methyl Alcohol | Ingestion | liver | Not classified | Rat | NOAEL | 90 days |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | 2,500 mg/kg/day | |
| Methyl Alcohol | Ingestion | nervous system | Not classified | Rat | NOAEL 2,500 mg/kg/day | 90 days |
| Zinc Oxide | Ingestion | nervous system | Not classified | Rat | NOAEL 600 mg/kg/day | 10 days |
| Zinc Oxide | Ingestion | endocrine system | Not classified | Other | NOAEL 500 mg/kg/day | 6 months |
| Zinc Oxide | Ingestion | hematopoietic system | Not classified | Other | NOAEL 500 mg/kg/day | 6 months |
| Zinc Oxide | Ingestion | kidney and/or bladder | Not classified | Other | NOAEL 500 mg/kg/day | 6 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | liver | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | heart | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | endocrine system | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | gastrointestinal tract | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | hematopoietic system | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | immune system | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | muscles | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | nervous system | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | kidney and/or bladder | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | Ingestion | respiratory system | Not classified | Rat | NOAEL 42 mg/kg/day | 18 months |

**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 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 labeling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.**

**12.1. Toxicity**

**Acute aquatic hazard:**
GHS Acute 2: Toxic to aquatic life.

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

No product test data available

| Material | Cas # | Organism | Type | Exposure | Test Endpoint | Test Result |
|---|---|---|---|---|---|---|
| 2,3-Dichloro-1,3- | 25067-95-2 | N/A | Data not available | N/A | N/A | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| Butadiene-chloroprene copolymer | | | or insufficient for classification | | | |
| Glycerol Esters of Rosin Acids | 8050-31-5 | Green algae | Analogous Compound | 72 hours | No tox obs at lmt of water sol | >100 mg/l |
| Glycerol Esters of Rosin Acids | 8050-31-5 | Rainbow Trout | Analogous Compound | 96 hours | No tox obs at lmt of water sol | >100 mg/l |
| Glycerol Esters of Rosin Acids | 8050-31-5 | Water flea | Analogous Compound | 48 hours | EL50 | 27 mg/l |
| Glycerol Esters of Rosin Acids | 8050-31-5 | Green algae | Analogous Compound | 72 hours | No tox obs at lmt of water sol | >100 mg/l |
| Sorbitol | 50-70-4 | N/A | Data not available or insufficient for classification | N/A | N/A | N/A |
| Methyl Alcohol | 67-56-1 | Algae or other aquatic plants | Experimental | 96 hours | EC50 | 16.9 mg/l |
| Methyl Alcohol | 67-56-1 | Bay mussel | Experimental | 96 hours | LC50 | 15,900 mg/l |
| Methyl Alcohol | 67-56-1 | Bluegill | Experimental | 96 hours | LC50 | 15,400 mg/l |
| Methyl Alcohol | 67-56-1 | Green algae | Experimental | 96 hours | ErC50 | 22,000 mg/l |
| Methyl Alcohol | 67-56-1 | Sediment organism | Experimental | 96 hours | LC50 | 54,890 mg/l |
| Methyl Alcohol | 67-56-1 | Water flea | Experimental | 48 hours | LC50 | 3,289 mg/l |
| Methyl Alcohol | 67-56-1 | Green algae | Experimental | 96 hours | NOEC | 9.96 mg/l |
| Methyl Alcohol | 67-56-1 | Medaka | Experimental | 8.33 days | NOEC | 158,000 mg/l |
| Methyl Alcohol | 67-56-1 | Water flea | Experimental | 21 days | NOEC | 122 mg/l |
| Methyl Alcohol | 67-56-1 | Activated sludge | Experimental | 3 hours | IC50 | >1,000 mg/l |
| Methyl Alcohol | 67-56-1 | Barley | Experimental | 14 days | EC50 | 15,492 mg/kg (Dry Weight) |
| Methyl Alcohol | 67-56-1 | Redworm | Experimental | 63 days | EC50 | 26,646 mg/kg (Dry Weight) |
| Methyl Alcohol | 67-56-1 | Springtail | Experimental | 28 days | EC50 | 5,683 mg/kg (Dry Weight) |
| Potassium Rosinate | 61790-50-9 | Fathead Minnow | Analogous Compound | 96 hours | LC50 | 1.7 mg/l |
| Potassium Rosinate | 61790-50-9 | Green algae | Analogous Compound | 72 hours | ErC50 | 39.6 mg/l |
| Potassium Rosinate | 61790-50-9 | Water flea | Analogous Compound | 48 hours | EC50 | 1.6 mg/l |
| Potassium Rosinate | 61790-50-9 | Green algae | Analogous Compound | 72 hours | NOEC | 6.25 mg/l |
| Potassium Rosinate | 61790-50-9 | Activated sludge | Analogous Compound | 3 hours | EC50 | >10,000 mg/l |
| Potassium Rosinate | 61790-50-9 | Bacteria | Analogous Compound | N/A | EC50 | 76.1 mg/l |
| Toluene | 108-88-3 | Coho Salmon | Experimental | 96 hours | LC50 | 5.5 mg/l |
| Toluene | 108-88-3 | Grass Shrimp | Experimental | 96 hours | LC50 | 9.5 mg/l |
| Toluene | 108-88-3 | Green algae | Experimental | 72 hours | EC50 | 12.5 mg/l |
| Toluene | 108-88-3 | Leopard frog | Experimental | 9 days | LC50 | 0.39 mg/l |
| Toluene | 108-88-3 | Pink Salmon | Experimental | 96 hours | LC50 | 6.41 mg/l |
| Toluene | 108-88-3 | Water flea | Experimental | 48 hours | EC50 | 3.78 mg/l |
| Toluene | 108-88-3 | Coho Salmon | Experimental | 40 days | NOEC | 1.39 mg/l |
| Toluene | 108-88-3 | Diatom | Experimental | 72 hours | NOEC | 10 mg/l |
| Toluene | 108-88-3 | Water flea | Experimental | 7 days | NOEC | 0.74 mg/l |
| Toluene | 108-88-3 | Activated sludge | Experimental | 12 hours | IC50 | 292 mg/l |
| Toluene | 108-88-3 | Bacteria | Experimental | 16 hours | NOEC | 29 mg/l |
| Toluene | 108-88-3 | Bacteria | Experimental | 24 hours | EC50 | 84 mg/l |
| Toluene | 108-88-3 | Redworm | Experimental | 28 days | LC50 | >150 mg per kg of bodyweight |
| Toluene | 108-88-3 | Soil microbes | Experimental | 28 days | NOEC | <26 mg/kg (Dry Weight) |
| Zinc Oxide | 1314-13-2 | Activated sludge | Estimated | 3 hours | EC50 | 6.5 mg/l |
| Zinc Oxide | 1314-13-2 | Green algae | Estimated | 72 hours | EC50 | 0.052 mg/l |
| Zinc Oxide | 1314-13-2 | Rainbow Trout | Estimated | 96 hours | LC50 | 0.21 mg/l |
| Zinc Oxide | 1314-13-2 | Water flea | Estimated | 48 hours | EC50 | 0.07 mg/l |
| Zinc Oxide | 1314-13-2 | Green algae | Estimated | 72 hours | NOEC | 0.006 mg/l |
| Zinc Oxide | 1314-13-2 | Water flea | Estimated | 7 days | NOEC | 0.02 mg/l |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | Green algae | Endpoint not reached | 72 hours | EC50 | >100 mg/l |
| 2,2'-Methylenebis(6- | 119-47-1 | Water flea | Endpoint not reached | 48 hours | EC50 | >100 mg/l |

| | | | | | | |
|---|---|---|---|---|---|---|
| tert-butyl-p-cresol) | | | | | | |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | Activated sludge | Experimental | 3 hours | EC50 | >10,000 mg/l |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | Medaka | Experimental | 96 hours | No tox obs at lmt of water sol | >100 mg/l |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | Green algae | Experimental | 72 hours | NOEC | 1.3 mg/l |
| Potassium Hydroxide | 1310-58-3 | N/A | Data not available or insufficient for classification | N/A | N/A | N/A |

### 12.2. Persistence and degradability

| Material | CAS No. | Test Type | Duration | Study Type | Test Result | Protocol |
|---|---|---|---|---|---|---|
| 2,3-Dichloro-1,3-Butadiene-chloroprene copolymer | 25067-95-2 | Data not availbl-insufficient | N/A | N/A | N/A | N/A |
| Glycerol Esters of Rosin Acids | 8050-31-5 | Analogous Compound Biodegradation | 28 days | Carbon dioxide evolution | 0 %CO2 evolution/THCO2 evolution | OECD 301B - Mod. Sturm or CO2 |
| Sorbitol | 50-70-4 | Experimental Biodegradation | 14 days | Biological Oxygen Demand | 81 %BOD/ThOD | OECD 301C - MITI (I) |
| Methyl Alcohol | 67-56-1 | Experimental Biodegradation | 3 days | Percent degraded | 91 %degraded | |
| Methyl Alcohol | 67-56-1 | Experimental Biodegradation | 14 days | Biological Oxygen Demand | 92 %BOD/ThOD | OECD 301C - MITI (I) |
| Methyl Alcohol | 67-56-1 | Experimental Photolysis | | Photolytic half-life (in air) | 35 days (t 1/2) | |
| Methyl Alcohol | 67-56-1 | Experimental Soil Metabolism Aerobic | 5 days | Carbon dioxide evolution | 53.4 %CO2 evolution/THCO2 evolution | |
| Potassium Rosinate | 61790-50-9 | Analogous Compound Biodegradation | 28 days | Carbon dioxide evolution | 66 %CO2 evolution/THCO2 evolution | OECD 301B - Mod. Sturm or CO2 |
| Toluene | 108-88-3 | Experimental Biodegradation | 20 days | Biological Oxygen Demand | 80 %BOD/ThOD | APHA Std Meth Water/Wastewater |
| Toluene | 108-88-3 | Experimental Photolysis | | Photolytic half-life (in air) | 5.2 days (t 1/2) | |
| Zinc Oxide | 1314-13-2 | Data not availbl-insufficient | N/A | N/A | N/A | N/A |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | Experimental Biodegradation | 28 days | Biological Oxygen Demand | 0 %BOD/ThOD | OECD 301C - MITI (I) |
| Potassium Hydroxide | 1310-58-3 | Data not availbl-insufficient | N/A | N/A | N/A | N/A |

### 12.3. Bioaccumulative potential

| Material | CAS No. | Test Type | Duration | Study Type | Test Result | Protocol |
|---|---|---|---|---|---|---|
| 2,3-Dichloro-1,3-Butadiene-chloroprene copolymer | 25067-95-2 | Data not available or insufficient for classification | N/A | N/A | N/A | N/A |
| Glycerol Esters of Rosin Acids | 8050-31-5 | Data not available or insufficient for classification | N/A | N/A | N/A | N/A |
| Sorbitol | 50-70-4 | Experimental Bioconcentration | | Log of Octanol/H2O part. | -2.20 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | coeff | | |
| Methyl Alcohol | 67-56-1 | Experimental BCF - Fish | 3 days | Bioaccumulation Factor | <4.5 | |
| Methyl Alcohol | 67-56-1 | Experimental Bioconcentration | | Log of Octanol/H2O part. coeff | -0.77 | |
| Potassium Rosinate | 61790-50-9 | Analogous Compound BCF - Fish | 20 days | Bioaccumulation Factor | ≤129 | |
| Potassium Rosinate | 61790-50-9 | Experimental Bioconcentration | | Log of Octanol/H2O part. coeff | 5.9 | OECD 117 log Kow HPLC method |
| Toluene | 108-88-3 | Experimental BCF - Other | 72 hours | Bioaccumulation Factor | 90 | |
| Toluene | 108-88-3 | Experimental Bioconcentration | | Log of Octanol/H2O part. coeff | 2.73 | |
| Zinc Oxide | 1314-13-2 | Experimental BCF - Fish | 56 days | Bioaccumulation Factor | ≤217 | OECD305-Bioconcentration |
| 2,2'-Methylenebis(6-tert-butyl-p-cresol) | 119-47-1 | Experimental BCF - Fish | 60 days | Bioaccumulation Factor | 840 | OECD305-Bioconcentration |
| Potassium Hydroxide | 1310-58-3 | Data not available or insufficient for classification | N/A | N/A | N/A | N/A |

**12.4. Mobility in soil**
Please contact manufacturer for more details

**12.5 Other adverse effects**
No information available

## SECTION 13: Disposal considerations

**13.1. Disposal methods**

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

## SECTION 14: Transport Information

**Marine Transport (IMDG)**

**UN Number:**UN3082
**Proper Shipping Name:**ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
**Technical Name:**(Zinc Oxide, 2,2-Methylenebis(6-tert-butyl-p-cresol))
**Hazard Class/Division:**9
**Subsidiary Risk:**None assigned.
**Packing Group:**III
**Limited Quantity:**None assigned.
**Marine Pollutant:** None assigned.
**Marine Pollutant Technical Name:** None assigned.
**Other Dangerous Goods Descriptions:**
None assigned.

**Air Transport (IATA)**

**UN Number:**UN3082

**Proper Shipping Name:**ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
**Technical Name:**(Zinc Oxide, 2,2-Methylenebis(6-tert-butyl-p-cresol))
**Hazard Class/Division:**9
**Subsidiary Risk:**None assigned.
**Packing Group:**III
**Limited Quantity:**None assigned.
**Marine Pollutant:** None assigned.
**Marine Pollutant Technical Name:** None assigned.
**Other Dangerous Goods Descriptions:**
None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

## SECTION 15: Regulatory information

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

**Global inventory status**
Contact 3M for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

## SECTION 16: Other information

DISCLAIMER: The information in this Safety Data Sheet (SDS) 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 SDS or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own evaluation to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into Malaysia, you are responsible for all applicable regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration/notification.

**3M Malaysia SDSs are available at www.3M.com.my**