

# **Safety Data Sheet**

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 Document Group:
 07-1193-7
 Version Number:
 26.00

 Issue Date:
 10/20/23
 Supercedes Date:
 12/06/22

# **SECTION 1: Identification**

#### 1.1. Product identifier

3M<sup>TM</sup> Adhesion Promoter 4298

### 1.2. Recommended use and restrictions on use

#### Recommended use

Automotive, Adhesion Promoter

1.3. Supplier's details

MANUFACTURER: 3M

**DIVISION:** Automotive and Aerospace Solutions Division

Automotive Aftermarket

ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA

**Telephone:** 1-888-3M HELPS (1-888-364-3577)

### 1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

## **SECTION 2: Hazard identification**

## 2.1. Hazard classification

Flammable Liquid: Category 2. Skin Sensitizer: Category 1A. Aspiration Hazard: Category 1. Reproductive Toxicity: Category 1B.

Carcinogenicity: Category 2.

Specific Target Organ Toxicity (single exposure): Category 1. Specific Target Organ Toxicity (single exposure): Category 3. Specific Target Organ Toxicity (repeated exposure): Category 1.

### 2.2. Label elements

### Signal word

Danger

#### Symbols

Flame | Exclamation mark | Health Hazard |

## **Pictograms**







#### **Hazard Statements**

Highly flammable liquid and vapor.

May be fatal if swallowed and enters

May be fatal if swallowed and enters airways.

May cause drowsiness or dizziness.

May damage fertility or the unborn child.

Suspected of causing cancer.

Causes damage to organs:

sensory organs

Causes damage to organs through prolonged or repeated exposure:

nervous system

May cause damage to organs through prolonged or repeated exposure:

sensory organs

## **Precautionary Statements**

#### **Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Use explosion-proof electrical/ventilating/lighting equipment.

Do not breathe vapor or spray.

Use only outdoors or in a well-ventilated area.

Wear protective gloves and eye/face protection.

Do not eat, drink or smoke when using this product.

Wash thoroughly after handling.

Contaminated work clothing must not be allowed out of the workplace.

### **Response:**

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

Wash contaminated clothing before reuse.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Do NOT induce vomiting.

IF exposed or concerned: Get medical advice/attention.

In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

## Storage:

Keep cool.

Keep container tightly closed.

Store locked up in a well-ventilated place.

#### Disposal:

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

2% of the mixture consists of ingredients of unknown acute oral toxicity.

2% of the mixture consists of ingredients of unknown acute dermal toxicity.

# **SECTION 3: Composition/information on ingredients**

| Ingredient                               | C.A.S. No.    | % by Wt                |
|--|---------------|------------------------|
| CYCLOHEXANE                              | 110-82-7      | 45 - 50 Trade Secret * |
| Xylene                                   | 1330-20-7     | 20 - 35 Trade Secret * |
| Ethyl Alcohol                            | 64-17-5       | 5 - 10                 |
| Ethylbenzene                             | 100-41-4      | < 10 Trade Secret *    |
| CHLORINATED RUBBER                       | 68609-36-9    | 1 - 5                  |
| ACRYLATE POLYMER (NJTSRN 04499600-5984P) | Trade Secret* | 1 - 5                  |
| ETHYL ACETATE                            | 141-78-6      | < 4                    |
| Isopropyl Alcohol                        | 67-63-0       | < 2                    |
| 2-ETHYLHEXYL EPOXYTALLATES               | 61789-01-3    | < 0.5                  |
| BETA-(3,4-                               | 3388-04-3     | < 0.5 Trade Secret *   |
| EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY          |               |                        |
| SILANE                                   |               |                        |
| EPOXY RESIN                              | 25068-38-6    | < 0.5 Trade Secret *   |
| Methyl Alcohol                           | 67-56-1       | < 0.5 Trade Secret *   |
| Toluene                                  | 108-88-3      | < 0.3 Trade Secret *   |
| CHLOROBENZENE                            | 108-90-7      | < 0.15                 |
| MALEIC ANHYDRIDE                         | 108-31-6      | < 0.02 Trade Secret *  |

NJTS or NJTSRN: New Jersey Trade Secret Registry Number.

# **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 for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

## If Swallowed:

Do not induce vomiting. Get immediate medical attention.

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

Allergic skin reaction (redness, swelling, blistering, and itching). Aspiration pneumonitis (coughing, gasping, choking, burning of the

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<sup>\*</sup>The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

mouth, and difficulty breathing). Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness). 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

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**

| <u>Substance</u>  | <u>Condition</u>  |
|-------------------|-------------------|
| Aldehydes         | During Combustion |
| Formaldehyde      | During Combustion |
| Carbon monoxide   | During Combustion |
| Carbon dioxide    | During Combustion |
| Hydrogen Chloride | 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. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

#### 6.2. Environmental precautions

Avoid release to the environment. For larger spills, cover drains and build dikes 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 that is resistant to polar solvents. 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 authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. 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. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/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. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Wear low static or properly grounded shoes. Use personal protective equipment (gloves, respirators, etc.) as required. To minimize the risk of ignition, determine applicable electrical classifications for the process using this product and select specific local exhaust ventilation equipment to avoid flammable 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 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   |
|-------------------|------------|--------|--|---|
| Ethylbenzene      | 100-41-4   | ACGIH  | TWA:20 ppm                                   | A3: Confirmed animal  |
|                   |            |        |  | carcin., Ototoxicant  |
| Ethylbenzene      | 100-41-4   | OSHA   | TWA:435 mg/m3(100 ppm)                       |   |
| MALEIC ANHYDRIDE  | 108-31-6   | ACGIH  | TWA(inhalable fraction and vapor):0.01 mg/m3 | A4: Not class. as human carcin, Dermal/Respiratory Sensitizer |
| MALEIC ANHYDRIDE  | 108-31-6   | OSHA   | TWA:1 mg/m3(0.25 ppm)                        |   |
| Toluene           | 108-88-3   | ACGIH  | TWA:20 ppm                                   | A4: Not class. as human carcin, Ototoxicant                   |
| Toluene           | 108-88-3   | OSHA   | TWA:200 ppm;CEIL:300 ppm                     |   |
| CHLOROBENZENE     | 108-90-7   | ACGIH  | TWA:10 ppm                                   | A3: Confirmed animal carcin.                                  |
| CHLOROBENZENE     | 108-90-7   | OSHA   | TWA:350 mg/m3(75 ppm)                        |   |
| CYCLOHEXANE       | 110-82-7   | ACGIH  | TWA:100 ppm                                  |   |
| CYCLOHEXANE       | 110-82-7   | OSHA   | TWA:1050 mg/m3(300 ppm)                      |   |
| Xylene            | 1330-20-7  | ACGIH  | TWA:20 ppm                                   | A4: Not class. as human carcin                                |
| Xylene            | 1330-20-7  | OSHA   | TWA:435 mg/m3(100 ppm)                       |   |
| ETHYL ACETATE     | 141-78-6   | ACGIH  | TWA:400 ppm                                  |   |
| ETHYL ACETATE     | 141-78-6   | OSHA   | TWA:1400 mg/m3(400 ppm)                      |   |
| Ethyl Alcohol     | 64-17-5    | ACGIH  | STEL:1000 ppm                                | A3: Confirmed animal carcin.                                  |
| Ethyl Alcohol     | 64-17-5    | OSHA   | TWA:1900 mg/m3(1000 ppm)                     |   |
| Methyl Alcohol    | 67-56-1    | ACGIH  | TWA:200 ppm;STEL:250 ppm                     | Danger of cutaneous absorption                                |
| Methyl Alcohol    | 67-56-1    | OSHA   | TWA:260 mg/m3(200 ppm)                       |   |
| Isopropyl Alcohol | 67-63-0    | ACGIH  | TWA:200 ppm;STEL:400 ppm                     | A4: Not class. as human carcin                                |
| Isopropyl Alcohol | 67-63-0    | OSHA   | TWA:980 mg/m3(400 ppm)                       |   |

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

CMRG: Chemical Manufacturer's Recommended Guidelines

OSHA: United States Department of Labor - Occupational Safety and Health Administration

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. Use explosion-proof ventilation equipment.

## 8.2.2. Personal protective equipment (PPE)

## Eye/face protection

None required.

#### Skin/hand protection

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

Gloves made from the following material(s) are recommended: Polymer laminate

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

#### Respiratory protection

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

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

Half facepiece or full facepiece supplied-air respirator

Organic vapor respirators may have short service life.

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

**Appearance** 

Physical state Liquid Color Yellow

Odor Solvent

**Odor threshold** No Data Available

Approximately 5.5 [Details:@23°C]

Melting point Not Applicable

**Boiling Point** 73.1 °C [Test Method: Tested per ASTM protocol]

[Details:@760mmHg]

**Flash Point** 34 °F [Test Method:SETAFLASH]

**Specific Gravity** 

**Solubility In Water** 

**Evaporation rate** Approximately 6.4 Units not avail. or not appl. [Ref

Std:XYLENE=1] [Details:CONDITIONS: calculated]
Flammability (solid, gas)

Not Applicable

Flammable Limits(LEL)

1 % [Details:CONDITIONS: calculated]
Flammable Limits(UEL)

6 % [Details:CONDITIONS: calculated]

**Vapor Pressure** 83.2 mmHg [@ 20 °C] [*Test Method:* Tested per ASTM protocol]

Vapor Density
1.7 [Test Method: Estimated] [Ref Std: AIR=1]
Density
0.82 g/ml

0.82 g/ml 0.82 10 %

Solubility- non-water No Data Available
Partition coefficient: n-octanol/ water No Data Available

**Autoignition temperature** 430 °C

**Decomposition temperature** No Data Available

Viscosity <=25 centipoise [@ 20 °C]
Hazardous Air Pollutants 40.9 % weight [Test Method: Calculated]

Volatile Organic Compounds <=781 g/l [Test Method:calculated SCAQMD rule 443.1]

[Details: CONDITIONS: Calculated]

Percent volatile Approximately 95 %

<=781 g/l [Test Method:calculated SCAQMD rule 443.1]

[Details: CONDITIONS: Calculated]

# **SECTION 10: Stability and reactivity**

**VOC Less H2O & Exempt Solvents** 

### 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

Sparks and/or flames

## 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:

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:**

May be harmful in contact with skin.

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.

May cause additional health effects (see below).

#### **Eve Contact:**

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

#### **Ingestion:**

Chemical (Aspiration) Pneumonitis: Signs/symptoms may include coughing, gasping, choking, burning of the mouth, difficulty breathing, bluish colored skin (cyanosis), and may be fatal.

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:

Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

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

## Prolonged or repeated exposure may cause target organ effects:

Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

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.

#### Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

| Ingredient   | CAS No.  | Class Description             | Regulation                                  |
|--------------|----------|-------------------------------|---|
| Ethylbenzene | 100-41-4 | Grp. 2B: Possible human carc. | International Agency for Research on Cancer |

#### Additional Information:

This product contains ethanol. Alcoholic beverages and ethanol in alcoholic beverages have been classified by the International Agency for Research on Cancer as carcinogenic to humans. There are also data associating human consumption of alcoholic beverages with developmental toxicity and liver toxicity. Exposure to ethanol during the foreseeable use of this product is not expected to cause cancer, developmental toxicity, or liver toxicity.

## **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

| Acute Toxicity                                   | Danta                             | C             | V-I   |
|--|-----------------------------------|---------------|---|
| Name Overall product                             | Route<br>Dermal                   | Species       | Value No data available; calculated ATE >2,000 - =5,000 |
|  | Dermai                            |               | mg/kg   |
| Overall product                                  | Inhalation-<br>Vapor(4 hr)        |               | No data available; calculated ATE >20 - =50 mg/l        |
| Overall product                                  | Ingestion                         |               | No data available; calculated ATE >5,000 mg/kg          |
| CYCLOHEXANE                                      | Dermal                            | Rat           | LD50 > 2,000 mg/kg                                      |
| CYCLOHEXANE                                      | Inhalation-                       | Rat           | LC50 > 32.9 mg/l  |
|  | Vapor (4<br>hours)                |               | Ç.  |
| CYCLOHEXANE                                      | Ingestion                         | Rat           | LD50 6,200 mg/kg  |
| Xylene   | Dermal                            | Rabbit        | LD50 > 4,200 mg/kg                                      |
| Xylene   | Inhalation-<br>Vapor (4<br>hours) | Rat           | LC50 29 mg/l  |
| Xylene   | Ingestion                         | Rat           | LD50 3,523 mg/kg  |
| Ethyl Alcohol                                    | Dermal                            | Rabbit        | LD50 > 15,800 mg/kg                                     |
| Ethyl Alcohol                                    | Inhalation-<br>Vapor (4<br>hours) | Rat           | LC50 124.7 mg/l   |
| Ethyl Alcohol                                    | Ingestion                         | Rat           | LD50 17,800 mg/kg                                       |
| Ethylbenzene                                     | Dermal                            | Rabbit        | LD50 15,433 mg/kg                                       |
| Ethylbenzene                                     | Inhalation-<br>Vapor (4<br>hours) | Rat           | LC50 17.4 mg/l  |
| Ethylbenzene                                     | Ingestion                         | Rat           | LD50 4,769 mg/kg  |
| ETHYL ACETATE                                    | Dermal                            | Rabbit        | LD50 > 18,000 mg/kg                                     |
| ETHYL ACETATE                                    | Inhalation-<br>Vapor (4<br>hours) | Rat           | LC50 70.5 mg/l  |
| ETHYL ACETATE                                    | Ingestion                         | Rat           | LD50 5,620 mg/kg  |
| CHLORINATED RUBBER                               | Dermal                            | Guinea<br>pig | LD50 > 1,000 mg/kg                                      |
| CHLORINATED RUBBER                               | Ingestion                         | Rat           | LD50 > 3,200 mg/kg                                      |
| Isopropyl Alcohol                                | Dermal                            | Rabbit        | LD50 12,870 mg/kg                                       |
| Isopropyl Alcohol                                | Inhalation-<br>Vapor (4<br>hours) | Rat           | LC50 72.6 mg/l  |
| Isopropyl Alcohol                                | Ingestion                         | Rat           | LD50 4,710 mg/kg  |
| Methyl Alcohol                                   | Dermal                            |               | LD50 estimated to be 1,000 - 2,000 mg/kg                |
| Methyl Alcohol                                   | Inhalation-<br>Vapor              |               | LC50 estimated to be 10 - 20 mg/l                       |
| Methyl Alcohol                                   | Ingestion                         |               | LD50 estimated to be 50 - 300 mg/kg                     |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | Dermal                            | Rabbit        | LD50 6,700 mg/kg  |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | Inhalation-<br>Vapor (4<br>hours) | Rat           | LC50 > 7 mg/l   |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | Ingestion                         | Rat           | LD50 13,100 mg/kg                                       |
| EPOXY RESIN                                      | Dermal                            | Rat           | LD50 > 1,600 mg/kg                                      |
| EPOXY RESIN                                      | Ingestion                         | Rat           | LD50 > 1,000 mg/kg                                      |
| Toluene  | Dermal                            | Rat           | LD50 12,000 mg/kg                                       |

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| Toluene                    | Inhalation- | Rat    | LC50 30 mg/l        |
|----------------------------|-------------|--------|---------------------|
|                            | Vapor (4    |        |                     |
|                            | hours)      |        |                     |
| Toluene                    | Ingestion   | Rat    | LD50 5,550 mg/kg    |
| 2-ETHYLHEXYL EPOXYTALLATES | Dermal      | Rabbit | LD50 > 18,400 mg/kg |
| 2-ETHYLHEXYL EPOXYTALLATES | Ingestion   | Rat    | LD50 > 14,700 mg/kg |
| CHLOROBENZENE              | Dermal      | Rabbit | LD50 2,212 mg/kg    |
| CHLOROBENZENE              | Inhalation- | Rat    | LC50 16.7 mg/l      |
|                            | Vapor (4    |        |                     |
|                            | hours)      |        |                     |
| CHLOROBENZENE              | Ingestion   | Rat    | LD50 1,419 mg/kg    |
| MALEIC ANHYDRIDE           | Dermal      | Rabbit | LD50 2,620 mg/kg    |
| MALEIC ANHYDRIDE           | Ingestion   | Rat    | LD50 1,030 mg/kg    |

ATE = acute toxicity estimate

# **Skin Corrosion/Irritation**

| Name   | Species  | Value                     |
|--|----------|---------------------------|
|  |          |                           |
| CYCLOHEXANE                                      | Rabbit   | Mild irritant             |
| Xylene   | Rabbit   | Mild irritant             |
| Ethyl Alcohol                                    | Rabbit   | No significant irritation |
| Ethylbenzene                                     | Rabbit   | Mild irritant             |
| ETHYL ACETATE                                    | Rabbit   | Minimal irritation        |
| CHLORINATED RUBBER                               | Guinea   | No significant irritation |
|  | pig      |                           |
| Isopropyl Alcohol                                | Multiple | No significant irritation |
|  | animal   |                           |
|  | species  |                           |
| Methyl Alcohol                                   | Rabbit   | Mild irritant             |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | Rabbit   | Minimal irritation        |
| EPOXY RESIN                                      | Rabbit   | Mild irritant             |
| Toluene  | Rabbit   | Irritant                  |
| CHLOROBENZENE                                    | Rabbit   | Irritant                  |
| MALEIC ANHYDRIDE                                 | Human    | Corrosive                 |
|  | and      |                           |
|  | animal   |                           |

Serious Eye Damage/Irritation

| Name   | Species   | Value                     |
|--|-----------|---------------------------|
|  |           |                           |
| CYCLOHEXANE                                      | Rabbit    | Mild irritant             |
| Xylene   | Rabbit    | Mild irritant             |
| Ethyl Alcohol                                    | Rabbit    | Severe irritant           |
| Ethylbenzene                                     | Rabbit    | Moderate irritant         |
| ETHYL ACETATE                                    | Rabbit    | Mild irritant             |
| CHLORINATED RUBBER                               | Professio | Mild irritant             |
|  | nal       |                           |
|  | judgeme   |                           |
|  | nt        |                           |
| Isopropyl Alcohol                                | Rabbit    | Severe irritant           |
| Methyl Alcohol                                   | Rabbit    | Moderate irritant         |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | Rabbit    | No significant irritation |
| EPOXY RESIN                                      | Rabbit    | Moderate irritant         |
| Toluene  | Rabbit    | Moderate irritant         |
| CHLOROBENZENE                                    | Rabbit    | Mild irritant             |
| MALEIC ANHYDRIDE                                 | Rabbit    | Corrosive                 |

# **Skin Sensitization**

| Name          | Species | Value          |
|---------------|---------|----------------|
| Ethyl Alcohol | Human   | Not classified |
| Ethylbenzene  | Human   | Not classified |
| ETHYL ACETATE | Guinea  | Not classified |
|               | pig     |                |

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| Isopropyl Alcohol                                | Guinea   | Not classified |
|--|----------|----------------|
|  | pig      |                |
| Methyl Alcohol                                   | Guinea   | Not classified |
|  | pig      |                |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | similar  | Sensitizing    |
|  | compoun  |                |
|  | ds       |                |
| EPOXY RESIN                                      | Human    | Sensitizing    |
|  | and      |                |
|  | animal   |                |
| Toluene  | Guinea   | Not classified |
|  | pig      |                |
| CHLOROBENZENE                                    | Multiple | Not classified |
|  | animal   |                |
|  | species  |                |
| MALEIC ANHYDRIDE                                 | Multiple | Sensitizing    |
|  | animal   |                |
|  | species  |                |

**Respiratory Sensitization** 

| Name             | Species | Value          |
|------------------|---------|----------------|
| EPOXY RESIN      | Human   | Not classified |
| MALEIC ANHYDRIDE | Human   | Sensitizing    |

**Germ Cell Mutagenicity** 

| Name   | Route    | Value  |
|--|----------|--|
|  |          |  |
| CYCLOHEXANE                                      | In Vitro | Not mutagenic                                  |
| CYCLOHEXANE                                      | In vivo  | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |
| Xylene   | In Vitro | Not mutagenic                                  |
| Xylene   | In vivo  | Not mutagenic                                  |
| Ethyl Alcohol                                    | In Vitro | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |
| Ethyl Alcohol                                    | In vivo  | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |
| Ethylbenzene                                     | In vivo  | Not mutagenic                                  |
| Ethylbenzene                                     | In Vitro | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |
| ETHYL ACETATE                                    | In Vitro | Not mutagenic                                  |
| ETHYL ACETATE                                    | In vivo  | Not mutagenic                                  |
| Isopropyl Alcohol                                | In Vitro | Not mutagenic                                  |
| Isopropyl Alcohol                                | 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                  |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | In Vitro | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |
| EPOXY RESIN                                      | In vivo  | Not mutagenic                                  |
| EPOXY RESIN                                      | In Vitro | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |
| Toluene  | In Vitro | Not mutagenic                                  |
| Toluene  | In vivo  | Not mutagenic                                  |
| CHLOROBENZENE                                    | In Vitro | Not mutagenic                                  |
| MALEIC ANHYDRIDE                                 | In vivo  | Not mutagenic                                  |
| MALEIC ANHYDRIDE                                 | In Vitro | Some positive data exist, but the data are not |
|  |          | sufficient for classification                  |

Carcinogenicity

| Name   | Route     | Species  | Value            |
|--------|-----------|----------|------------------|
| Xylene | Dermal    | Rat      | Not carcinogenic |
| Xylene | Ingestion | Multiple | Not carcinogenic |

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|  |            | animal                        |  |
|--|------------|-------------------------------|--|
|  |            | species                       |  |
| Xylene   | Inhalation | Human                         | Some positive data exist, but the data are not sufficient for classification |
| Ethyl Alcohol                                    | Ingestion  | Multiple<br>animal<br>species | Some positive data exist, but the data are not sufficient for classification |
| Ethylbenzene                                     | Inhalation | Multiple<br>animal<br>species | Carcinogenic   |
| Isopropyl Alcohol                                | Inhalation | Rat                           | Some positive data exist, but the data are not sufficient for classification |
| Methyl Alcohol                                   | Inhalation | Multiple<br>animal<br>species | Not carcinogenic   |
| BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE | Dermal     | Mouse                         | Some positive data exist, but the data are not sufficient for classification |
| EPOXY RESIN                                      | Dermal     | Mouse                         | Some positive data exist, but the data are not sufficient for classification |
| 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 |
| CHLOROBENZENE                                    | Ingestion  | Multiple<br>animal<br>species | Not carcinogenic   |

# Reproductive Toxicity

Reproductive and/or Developmental Effects

| Name              | Route      | Value                                  | Species                       | Test Result              | Exposure<br>Duration         |
|-------------------|------------|--|-------------------------------|--------------------------|------------------------------|
| CYCLOHEXANE       | Inhalation | Not classified for female reproduction | Rat                           | NOAEL 24<br>mg/l         | 2 generation                 |
| CYCLOHEXANE       | Inhalation | Not classified for male reproduction   | Rat                           | NOAEL 24<br>mg/l         | 2 generation                 |
| CYCLOHEXANE       | Inhalation | Not classified for development         | Rat                           | NOAEL 6.9<br>mg/l        | 2 generation                 |
| Xylene            | Inhalation | Not classified for female reproduction | Human                         | NOAEL Not available      | occupational exposure        |
| Xylene            | Ingestion  | Not classified for development         | Mouse                         | NOAEL Not available      | during<br>organogenesi<br>s  |
| Xylene            | Inhalation | Not classified for development         | Multiple<br>animal<br>species | NOAEL Not available      | during<br>gestation          |
| Ethyl Alcohol     | Inhalation | Not classified for development         | Rat                           | NOAEL 38<br>mg/l         | during<br>gestation          |
| Ethyl Alcohol     | Ingestion  | Not classified for development         | Rat                           | NOAEL 5,200<br>mg/kg/day | premating & during gestation |
| Ethylbenzene      | Inhalation | Not classified for development         | Rat                           | NOAEL 4.3<br>mg/l        | premating & during gestation |
| Isopropyl Alcohol | Ingestion  | Not classified for female reproduction | Rat                           | NOAEL 1,000<br>mg/kg/day | 2 generation                 |
| Isopropyl Alcohol | Ingestion  | Not classified for male reproduction   | Rat                           | NOAEL 500<br>mg/kg/day   | 2 generation                 |
| Isopropyl Alcohol | Ingestion  | Not classified for development         | Rat                           | NOAEL 400<br>mg/kg/day   | during<br>organogenesi<br>s  |
| Isopropyl Alcohol | Inhalation | Not classified for development         | Rat                           | LOAEL 9<br>mg/l          | during<br>gestation          |
| Methyl Alcohol    | Ingestion  | Not classified for male reproduction   | Rat                           | NOAEL 1,600              | 21 days                      |

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|  |            |  |        | mg/kg/day                |                             |
|--|------------|--|--------|--------------------------|-----------------------------|
| Methyl Alcohol   | Ingestion  | Toxic to development                   | Mouse  | LOAEL 4,000<br>mg/kg/day | during<br>organogenesi<br>s |
| Methyl Alcohol   | Inhalation | Toxic to development                   | Mouse  | NOAEL 1.3<br>mg/l        | during<br>organogenesi<br>s |
| BETA-(3,4-<br>EPOXYCYCLOHEXYL)ETHYLTRIMET<br>HOXY SILANE | Ingestion  | Not classified for development         | Rabbit | NOAEL 0.27<br>mg/kg/day  | during<br>organogenesi<br>s |
| EPOXY RESIN  | Ingestion  | Not classified for female reproduction | Rat    | NOAEL 750<br>mg/kg/day   | 2 generation                |
| EPOXY RESIN  | Ingestion  | Not classified for male reproduction   | Rat    | NOAEL 750<br>mg/kg/day   | 2 generation                |
| EPOXY RESIN  | Dermal     | Not classified for development         | Rabbit | NOAEL 300<br>mg/kg/day   | during<br>organogenesi<br>s |
| EPOXY RESIN  | Ingestion  | Not classified for development         | Rat    | NOAEL 750<br>mg/kg/day   | 2 generation                |
| Toluene  | Inhalation | Not classified for female reproduction | Human  | NOAEL Not available      | occupational exposure       |
| Toluene  | Inhalation | Not classified for male reproduction   | Rat    | NOAEL 2.3<br>mg/l        | 1 generation                |
| Toluene  | Ingestion  | Toxic to development                   | Rat    | LOAEL 520<br>mg/kg/day   | during<br>gestation         |
| Toluene  | Inhalation | Toxic to development                   | Human  | NOAEL Not available      | poisoning<br>and/or abuse   |
| CHLOROBENZENE  | Inhalation | Not classified for female reproduction | Rat    | NOAEL 2.07<br>mg/l       | 2 generation                |
| CHLOROBENZENE  | Ingestion  | Not classified for development         | Rat    | NOAEL 300<br>mg/kg/day   | during<br>organogenesi<br>s |
| CHLOROBENZENE  | Inhalation | Not classified for development         | Rat    | NOAEL 2.07<br>mg/l       | 2 generation                |
| CHLOROBENZENE  | Inhalation | Not classified for male reproduction   | Rat    | NOAEL 2.07<br>mg/l       | 2 generation                |
| MALEIC ANHYDRIDE   | Ingestion  | Not classified for female reproduction | Rat    | NOAEL 55<br>mg/kg/day    | 2 generation                |
| MALEIC ANHYDRIDE   | Ingestion  | Not classified for male reproduction   | Rat    | NOAEL 55<br>mg/kg/day    | 2 generation                |
| MALEIC ANHYDRIDE   | Ingestion  | Not classified for development         | Rat    | NOAEL 140<br>mg/kg/day   | during<br>organogenesi<br>s |

## Lactation

| Name   | Route     | Species | Value  |
|--------|-----------|---------|--|
| Xylene | Ingestion | Mouse   | Not classified for effects on or via lactation |

# Target Organ(s)

**Specific Target Organ Toxicity - single exposure** 

| Name        | Route      | Target Organ(s)                      | Value  | Species                           | Test Result            | Exposure<br>Duration |
|-------------|------------|--------------------------------------|--|-----------------------------------|------------------------|----------------------|
| CYCLOHEXANE | Inhalation | central nervous<br>system depression | May cause drowsiness or dizziness  | Human<br>and<br>animal            | NOAEL Not available    |                      |
| CYCLOHEXANE | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human<br>and<br>animal            | NOAEL Not<br>available |                      |
| CYCLOHEXANE | Ingestion  | central nervous<br>system depression | May cause drowsiness or dizziness  | Professio<br>nal<br>judgeme<br>nt | NOAEL Not<br>available |                      |
| Xylene      | Inhalation | auditory system                      | Causes damage to organs  | Rat                               | LOAEL 6.3              | 8 hours              |

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|                   |            |                                      |  |                               | mg/l                   |                           |
|-------------------|------------|--------------------------------------|--|-------------------------------|------------------------|---------------------------|
| Xylene            | Inhalation | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not available    |                           |
| Xylene            | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human                         | NOAEL Not<br>available |                           |
| Xylene            | Inhalation | eyes                                 | Not classified   | Rat                           | NOAEL 3.5<br>mg/l      | not available             |
| Xylene            | Inhalation | liver                                | Not classified   | Multiple<br>animal<br>species | NOAEL Not<br>available |                           |
| Xylene            | Ingestion  | central nervous<br>system depression | May cause drowsiness or dizziness  | Multiple<br>animal<br>species | NOAEL Not<br>available |                           |
| Xylene            | Ingestion  | eyes                                 | Not classified   | Rat                           | NOAEL 250<br>mg/kg     | not applicable            |
| Ethyl Alcohol     | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human                         | LOAEL 9.4<br>mg/l      | not available             |
| Ethyl Alcohol     | Inhalation | central nervous<br>system depression | Not classified   | Human<br>and<br>animal        | NOAEL not available    |                           |
| Ethyl Alcohol     | Ingestion  | central nervous<br>system depression | Not classified   | Multiple<br>animal<br>species | NOAEL not available    |                           |
| Ethyl Alcohol     | Ingestion  | kidney and/or<br>bladder             | Not classified   | Dog                           | NOAEL<br>3,000 mg/kg   |                           |
| Ethylbenzene      | Inhalation | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not available    |                           |
| Ethylbenzene      | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human<br>and<br>animal        | NOAEL Not<br>available |                           |
| ETHYL ACETATE     | Inhalation | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not available    |                           |
| ETHYL ACETATE     | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human                         | NOAEL Not<br>available |                           |
| ETHYL ACETATE     | Ingestion  | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not available    |                           |
| Isopropyl Alcohol | Inhalation | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not available    |                           |
| Isopropyl Alcohol | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human                         | NOAEL Not<br>available |                           |
| Isopropyl Alcohol | Inhalation | auditory system                      | Not classified   | Guinea<br>pig                 | NOAEL 13.4<br>mg/l     | 24 hours                  |
| Isopropyl Alcohol | Ingestion  | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not<br>available | poisoning<br>and/or abuse |
| Methyl Alcohol    | Inhalation | blindness                            | Causes damage to organs  | Human                         | NOAEL Not<br>available | occupational exposure     |
| Methyl Alcohol    | Inhalation | central nervous<br>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<br>available | 6 hours                   |
| Methyl Alcohol    | Ingestion  | blindness                            | Causes damage to organs  | Human                         | NOAEL Not available    | poisoning<br>and/or abuse |
| Methyl Alcohol    | Ingestion  | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not<br>available | poisoning<br>and/or abuse |
| Toluene           | Inhalation | central nervous<br>system depression | May cause drowsiness or dizziness  | Human                         | NOAEL Not available    | 3110.01 00000             |
| Toluene           | Inhalation | respiratory irritation               | Some positive data exist, but the data are not sufficient for classification | Human                         | NOAEL Not<br>available |                           |
| Toluene           | Inhalation | immune system                        | Not classified   | Mouse                         | NOAEL<br>0.004 mg/l    | 3 hours                   |
| Toluene           | Ingestion  | central nervous                      | May cause drowsiness or  | Human                         | NOAEL Not              | poisoning                 |

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|                  |            | system depression      | dizziness                         |       | available | and/or abuse |
|------------------|------------|------------------------|-----------------------------------|-------|-----------|--------------|
| CHLOROBENZENE    | Inhalation | central nervous        | May cause drowsiness or           | Human | NOAEL Not |              |
|                  |            | system depression      | dizziness                         |       | available |              |
| CHLOROBENZENE    | Inhalation | respiratory irritation | Some positive data exist, but the | Human | NOAEL Not | occupational |
|                  |            |                        | data are not sufficient for       |       | available | exposure     |
|                  |            |                        | classification                    |       |           |              |
| MALEIC ANHYDRIDE | 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<br>Duration |
|---------------|------------|--|--|-------------------------------|-----------------------------|----------------------|
| CYCLOHEXANE   | Inhalation | liver  | Not classified   | Rat                           | NOAEL 24<br>mg/l            | 90 days              |
| CYCLOHEXANE   | Inhalation | auditory system  | Not classified   | Rat                           | NOAEL 1.7<br>mg/l           | 90 days              |
| CYCLOHEXANE   | Inhalation | kidney and/or<br>bladder   | Not classified   | Rabbit                        | NOAEL 2.7<br>mg/l           | 10 weeks             |
| CYCLOHEXANE   | Inhalation | hematopoietic<br>system  | Not classified   | Mouse                         | NOAEL 24<br>mg/l            | 14 weeks             |
| CYCLOHEXANE   | Inhalation | peripheral nervous<br>system   | Not classified   | Rat                           | NOAEL 8.6<br>mg/l           | 30 weeks             |
| Xylene        | Inhalation | nervous system   | Causes damage to organs through prolonged or repeated exposure               | Rat                           | LOAEL 0.4<br>mg/l           | 4 weeks              |
| Xylene        | Inhalation | auditory system  | May cause damage to organs<br>though prolonged or repeated<br>exposure       | Rat                           | LOAEL 7.8<br>mg/l           | 5 days               |
| Xylene        | Inhalation | liver  | Not classified   | Multiple<br>animal<br>species | NOAEL Not<br>available      |                      |
| Xylene        | Inhalation | heart   endocrine<br>system  <br>gastrointestinal tract<br>  hematopoietic<br>system   muscles  <br>kidney and/or<br>bladder   respiratory<br>system                   | Not classified   | Multiple<br>animal<br>species | NOAEL 3.5<br>mg/l           | 13 weeks             |
| Xylene        | Ingestion  | auditory system  | Not classified   | Rat                           | NOAEL 900<br>mg/kg/day      | 2 weeks              |
| Xylene        | Ingestion  | kidney and/or<br>bladder   | Not classified   | Rat                           | NOAEL<br>1,500<br>mg/kg/day | 90 days              |
| Xylene        | Ingestion  | liver  | Not classified   | Multiple<br>animal<br>species | NOAEL Not<br>available      |                      |
| Xylene        | Ingestion  | heart   skin  <br>endocrine system  <br>bone, teeth, nails,<br>and/or hair  <br>hematopoietic<br>system   immune<br>system   nervous<br>system   respiratory<br>system | Not classified   | Mouse                         | NOAEL<br>1,000<br>mg/kg/day | 103 weeks            |
| Ethyl Alcohol | Inhalation | liver  | Some positive data exist, but the data are not sufficient for classification | Rabbit                        | LOAEL 124<br>mg/l           | 365 days             |
| Ethyl Alcohol | Inhalation | hematopoietic<br>system   immune<br>system   | Not classified   | Rat                           | NOAEL 25<br>mg/l            | 14 days              |
| Ethyl Alcohol | Ingestion  | liver  | Some positive data exist, but the data are not sufficient for classification | Rat                           | LOAEL<br>8,000<br>mg/kg/day | 4 months             |
| Ethyl Alcohol | Ingestion  | kidney and/or<br>bladder   | Not classified   | Dog                           | NOAEL<br>3,000<br>mg/kg/day | 7 days               |

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| Ethylbenzene      | Inhalation | kidney and/or<br>bladder   | Some positive data exist, but the data are not sufficient for classification | Rat                           | NOAEL 1.1<br>mg/l           | 2 years                   |
|-------------------|------------|--|--|-------------------------------|-----------------------------|---------------------------|
| Ethylbenzene      | Inhalation | liver  | Some positive data exist, but the data are not sufficient for classification | Mouse                         | NOAEL 1.1<br>mg/l           | 103 weeks                 |
| Ethylbenzene      | Inhalation | hematopoietic<br>system  | Not classified   | Rat                           | NOAEL 3.4<br>mg/l           | 28 days                   |
| Ethylbenzene      | Inhalation | auditory system  | Not classified   | Rat                           | NOAEL 2.4<br>mg/l           | 5 days                    |
| Ethylbenzene      | Inhalation | endocrine system   | Not classified   | Mouse                         | NOAEL 3.3<br>mg/l           | 103 weeks                 |
| Ethylbenzene      | Inhalation | gastrointestinal tract   | Not classified   | Rat                           | NOAEL 3.3<br>mg/l           | 2 years                   |
| Ethylbenzene      | Inhalation | bone, teeth, nails,<br>and/or hair  <br>muscles  | Not classified   | Multiple<br>animal<br>species | NOAEL 4.2<br>mg/l           | 90 days                   |
| Ethylbenzene      | Inhalation | heart   immune<br>system   respiratory<br>system   | Not classified   | Multiple<br>animal<br>species | NOAEL 3.3<br>mg/l           | 2 years                   |
| Ethylbenzene      | Ingestion  | liver   kidney and/or<br>bladder   | Not classified   | Rat                           | NOAEL 680<br>mg/kg/day      | 6 months                  |
| ETHYL ACETATE     | Inhalation | endocrine system  <br>liver   nervous<br>system  | Not classified   | Rat                           | NOAEL<br>0.043 mg/l         | 90 days                   |
| ETHYL ACETATE     | Inhalation | hematopoietic<br>system  | Not classified   | Rabbit                        | LOAEL 16<br>mg/l            | 40 days                   |
| ETHYL ACETATE     | Ingestion  | hematopoietic<br>system   liver  <br>kidney and/or<br>bladder  | Not classified   | Rat                           | NOAEL<br>3,600<br>mg/kg/day | 90 days                   |
| Isopropyl Alcohol | Inhalation | kidney and/or<br>bladder   | Not classified   | Rat                           | NOAEL 12.3<br>mg/l          | 24 months                 |
| Isopropyl Alcohol | Inhalation | nervous system   | Not classified   | Rat                           | NOAEL 12<br>mg/l            | 13 weeks                  |
| Isopropyl Alcohol | Ingestion  | kidney and/or<br>bladder   | Not classified   | Rat                           | NOAEL 400<br>mg/kg/day      | 12 weeks                  |
| Methyl Alcohol    | Inhalation | liver  | Not classified   | Rat                           | NOAEL 6.55<br>mg/l          | 4 weeks                   |
| Methyl Alcohol    | Inhalation | respiratory system   | Not classified   | Rat                           | NOAEL 13.1<br>mg/l          | 6 weeks                   |
| Methyl Alcohol    | Ingestion  | liver   nervous<br>system  | Not classified   | Rat                           | NOAEL<br>2,500<br>mg/kg/day | 90 days                   |
| EPOXY RESIN       | Dermal     | liver  | Not classified   | Rat                           | NOAEL<br>1,000<br>mg/kg/day | 2 years                   |
| EPOXY RESIN       | Dermal     | nervous system   | Not classified   | Rat                           | NOAEL<br>1,000<br>mg/kg/day | 13 weeks                  |
| EPOXY RESIN       | Ingestion  | auditory system  <br>heart   endocrine<br>system  <br>hematopoietic<br>system   liver   eyes  <br>kidney and/or<br>bladder | Not classified   | Rat                           | NOAEL<br>1,000<br>mg/kg/day | 28 days                   |
| Toluene           | Inhalation | auditory system  <br>eyes   olfactory<br>system  | Causes damage to organs through prolonged or repeated exposure               | Human                         | NOAEL Not<br>available      | poisoning<br>and/or abuse |
| Toluene           | Inhalation | nervous system   | May cause damage to organs though prolonged or repeated exposure             | Human                         | NOAEL Not<br>available      | poisoning<br>and/or abuse |
| Toluene           | Inhalation | respiratory system   | Some positive data exist, but the data are not sufficient for classification | Rat                           | LOAEL 2.3<br>mg/l           | 15 months                 |
| Toluene           | Inhalation | heart   liver   kidney   | Not classified   | Rat                           | NOAEL 11.3                  | 15 weeks                  |

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|                  |            | and/or bladder   |  |                               | mg/l                        |                       |
|------------------|------------|--|--|-------------------------------|-----------------------------|-----------------------|
| Toluene          | Inhalation | endocrine system   | Not classified   | Rat                           | NOAEL 1.1<br>mg/l           | 4 weeks               |
| Toluene          | Inhalation | immune system  | Not classified   | Mouse                         | NOAEL Not<br>available      | 20 days               |
| Toluene          | Inhalation | bone, teeth, nails,<br>and/or hair   | Not classified   | Mouse                         | NOAEL 1.1<br>mg/l           | 8 weeks               |
| Toluene          | Inhalation | hematopoietic<br>system   vascular<br>system   | Not classified   | Human                         | NOAEL Not<br>available      | occupational exposure |
| Toluene          | Inhalation | gastrointestinal tract   | Not classified   | Multiple<br>animal<br>species | NOAEL 11.3<br>mg/l          | 15 weeks              |
| Toluene          | Ingestion  | nervous system   | Some positive data exist, but the data are not sufficient for classification | Rat                           | NOAEL 625<br>mg/kg/day      | 13 weeks              |
| Toluene          | Ingestion  | heart  | Not classified   | Rat                           | NOAEL<br>2,500<br>mg/kg/day | 13 weeks              |
| Toluene          | Ingestion  | liver   kidney and/or<br>bladder   | Not classified   | Multiple<br>animal<br>species | NOAEL<br>2,500<br>mg/kg/day | 13 weeks              |
| Toluene          | Ingestion  | hematopoietic<br>system  | Not classified   | Mouse                         | NOAEL 600<br>mg/kg/day      | 14 days               |
| Toluene          | Ingestion  | endocrine system   | Not classified   | Mouse                         | NOAEL 105<br>mg/kg/day      | 28 days               |
| Toluene          | Ingestion  | immune system  | Not classified   | Mouse                         | NOAEL 105<br>mg/kg/day      | 4 weeks               |
| CHLOROBENZENE    | Inhalation | kidney and/or<br>bladder   | Some positive data exist, but the data are not sufficient for classification | Rat                           | LOAEL 0.69<br>mg/l          | 2 generation          |
| CHLOROBENZENE    | Inhalation | liver  | Not classified   | Rat                           | NOAEL 2.1<br>mg/l           | 2 generation          |
| CHLOROBENZENE    | Inhalation | blood  | Not classified   | Rat                           | NOAEL 0.35<br>mg/l          | 24 weeks              |
| CHLOROBENZENE    | Ingestion  | bone marrow  | Some positive data exist, but the data are not sufficient for classification | Rat                           | NOAEL 250<br>mg/kg/day      | 13 weeks              |
| CHLOROBENZENE    | Ingestion  | liver  | Some positive data exist, but the data are not sufficient for classification | Rat                           | NOAEL 188<br>mg/kg/day      | 192 days              |
| CHLOROBENZENE    | Ingestion  | kidney and/or<br>bladder   | Some positive data exist, but the data are not sufficient for classification | Rat                           | NOAEL 125<br>mg/kg/day      | 13 weeks              |
| CHLOROBENZENE    | Ingestion  | immune system  | Not classified   | Rat                           | NOAEL 750<br>mg/kg/day      | 13 weeks              |
| MALEIC ANHYDRIDE | Inhalation | respiratory system   | Causes damage to organs through prolonged or repeated exposure               | Rat                           | LOAEL<br>0.0011 mg/l        | 6 months              |
| MALEIC ANHYDRIDE | Inhalation | endocrine system  <br>hematopoietic<br>system   nervous<br>system   kidney<br>and/or bladder  <br>heart   liver   eyes | Not classified   | Rat                           | NOAEL<br>0.0098 mg/l        | 6 months              |
| MALEIC ANHYDRIDE | Ingestion  | kidney and/or<br>bladder   | Some positive data exist, but the data are not sufficient for classification | Rat                           | NOAEL 55<br>mg/kg/day       | 80 days               |
| MALEIC ANHYDRIDE | Ingestion  | liver  | Some positive data exist, but the data are not sufficient for classification | Rat                           | LOAEL 250<br>mg/kg/day      | 183 days              |
| MALEIC ANHYDRIDE | Ingestion  | heart   nervous<br>system  | Not classified   | Rat                           | NOAEL 600<br>mg/kg/day      | 183 days              |
| MALEIC ANHYDRIDE | Ingestion  | gastrointestinal tract   | Not classified   | Rat                           | NOAEL 150<br>mg/kg/day      | 80 days               |
| MALEIC ANHYDRIDE | Ingestion  | hematopoietic<br>system  | Not classified   | Dog                           | NOAEL 60<br>mg/kg/day       | 90 days               |
| MALEIC ANHYDRIDE | Ingestion  | skin   endocrine   | Not classified   | Rat                           | NOAEL 150                   | 80 days               |

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| 3M <sup>TM</sup> Adhesion Promoter 4298 | 10/20/23           | ·                 | ·         |
|---|--------------------|-------------------|-----------|
|   |                    |                   |           |
|   |                    |                   |           |
|   | system   immune    |                   | mg/kg/day |
|   | system   eyes      |                   |           |
|   | respiratory system |                   |           |
|   |                    |                   |           |
| Aspiration Hazard                       |                    |                   |           |
| Name                                    |                    | Value             |           |
| CYCLOHEXANE                             |                    | Aspiration hazard |           |
| Xvlene                                  |                    | Aspiration hazard |           |

Aspiration hazard

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**

## **Ecotoxicological information**

Ethylbenzene

Toluene

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

## **Chemical fate information**

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

# **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. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. 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.

EPA Hazardous Waste Number (RCRA): D001 (Ignitable), D021 (Chlorobenzene)

# **SECTION 14: Transport Information**

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

# **SECTION 15: Regulatory information**

## **15.1. US Federal Regulations**

Contact 3M for more information.

#### **EPCRA 311/312 Hazard Classifications:**

| Physical Hazards                                |  |
|---|--|
| Flammable (gases, aerosols, liquids, or solids) |  |

| Health Hazards |  |  |
|----------------|--|--|
|                |  |  |

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| Aspiration Hazard  |
|--|
| Carcinogenicity  |
| Reproductive toxicity  |
| Respiratory or Skin Sensitization                            |
| Specific target organ toxicity (single or repeated exposure) |

## Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

| <u>Ingredient</u>           | <u>C.A.S. No</u> | <u>% by Wt</u>       |
|-----------------------------|------------------|----------------------|
| Ethylbenzene                | 100-41-4         | Trade Secret < 10    |
| CYCLOHEXANE                 | 110-82-7         | Trade Secret 45 - 50 |
| Xylene                      | 1330-20-7        | Trade Secret 20 - 35 |
| Xylene (Benzene, dimethyl-) | 1330-20-7        | Trade Secret 20 - 35 |

## 15.2. State Regulations

Contact 3M for more information.

#### 15.3. Chemical Inventories

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.

Contact 3M for more information.

# 15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## **SECTION 16: Other information**

#### NFPA Hazard Classification

Health: 2 Flammability: 3 Instability: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

 Document Group:
 07-1193-7
 Version Number:
 26.00

 Issue Date:
 10/20/23
 Supercedes Date:
 12/06/22

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