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™ Adhesion Promoter 4298

Product Identification Numbers
70-0706-9842-1

1.2. Recommended use and restrictions on use

Recommended use
Automotive, Adhesion Promoter absorbed on a sponge for use with attachment tapes

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
Flammable Liquid: Category 2.
Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 2.
Skin Sensitizer: Category 1.
Carcinogenicity: Category 2.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 1.
Acute Aquatic Toxicity: Category 1.
Chronic Aquatic Toxicity: Category 3.

2.2. Label elements

Signal word
Danger

Symbols
Flame |Exclamation mark |Health Hazard |Environment |

Pictograms

Hazard Statements:

H225	Highly flammable liquid and vapor.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H370	Causes damage to organs: sensory organs.
H372	Causes damage to organs through prolonged or repeated exposure: nervous system.
H373	May cause damage to organs through prolonged or repeated exposure: sensory organs.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P273	Avoid release to the environment.
P280K	Wear protective gloves and if needed, respiratory protection (see SDS Section 8).
P281	Use personal protective equipment as required.

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307+ P311	IF exposed: Call a POISON CENTER or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical attention.
P370 + P378	In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

Disposal:

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

2.3. Other hazards
May cause drowsiness or dizziness., The aspiration hazard classification is not required due to the product's physical form.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
CYCLOHEXANE	110-82-7	30 - 60
XYLENE	1330-20-7	15 - 40
ETHYL ALCOHOL	64-17-5	5 - 10
ETHYLBENZENE	100-41-4	1.4 - 7.2
ETHYL ACETATE	141-78-6	1 - 5
CHLORINATED RUBBER	68609-36-9	1 - 5
ACRYLATE POLYMER	Trade Secret	1 - 5
METHYL ALCOHOL	67-56-1	0.1 - 1
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	0.1 - 1
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	3388-04-3	0.1 - 1
TOLUENE	108-88-3	< 0.3
CHLOROBENZENE	108-90-7	< 0.15
MALEIC ANHYDRIDE	108-31-6	< 0.02

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

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

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

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

6.2. Environmental precautions
Avoid release to the environment.

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	Malaysia OELs	TWA(8 hours):434 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	Malaysia OELs	TWA(8 hours):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	Malaysia OELs	TWA(8 hours):188 mg/m3(50 ppm)	SKIN
CHLOROBENZENE	108-90-7	ACGIH	TWA:10 ppm	A3: Confirmed animal carcin.
CHLOROBENZENE	108-90-7	Malaysia OELs	TWA(8 hours):46 mg/m3(10 ppm)	
CYCLOHEXANE	110-82-7	ACGIH	TWA:100 ppm	
CYCLOHEXANE	110-82-7	Malaysia OELs	TWA(8 hours):1030 mg/m3(300 ppm)	
XYLENE	1330-20-7	ACGIH	TWA:20 ppm	A4: Not class. as human carcin
XYLENE	1330-20-7	Malaysia OELs	TWA(8 hours):434 mg/m3(100 ppm)	
ETHYL ACETATE	141-78-6	ACGIH	TWA:400 ppm	
ETHYL ACETATE	141-78-6	Malaysia OELs	TWA(8 hours):1440 mg/m3(400 ppm)	
ETHYL ALCOHOL	64-17-5	ACGIH	STEL:1000 ppm	A3: Confirmed animal carcin.
ETHYL ALCOHOL	64-17-5	Malaysia OELs	TWA(8 hours):1880 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	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. 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 (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors
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
Specific Physical Form:	Sponge holding approximately 2 milliliters of liquid.
Color	Yellow
Odor	Strong Solvent
Odor threshold	*No Data Available*
pH	4.4 - 5 [*Test Method:*Tested per ASTM protocol] [*Details:*@23°C]
Melting point/Freezing point	*Not Applicable*
Boiling point/Initial boiling point/Boiling range	73.1 ºC [*Test Method:*Tested per ASTM protocol] [*Details:*@760mmHg]
Flash Point	1.1 ºC [*Test Method:*SETAFLASH]
Evaporation rate	6.4 [*Test Method:*Estimated] [*Ref Std:*XYLENE=1]
Flammability	Flammable Liquid: Category 2.
Flammable Limits(LEL)	1 % [*Test Method:*Estimated]
Flammable Limits(UEL)	6 % [*Test Method:*Estimated]

Vapor Pressure	11,092.4 Pa [@ 20 ºC] [*Test Method:*Tested per ASTM protocol]
Relative Vapor Density	1.7 [*Test Method:*Estimated] [*Ref Std:*AIR=1]
Density	0.82 g/ml
Relative Density	0.82 [*Ref Std:*WATER=1]
Water solubility	10 %
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	430 ºC
Decomposition temperature	*No Data Available*
Kinematic Viscosity	30.5 mm2/sec
Volatile Organic Compounds	<=781 g/l [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*Calculated]
Percent volatile	Approximately 95 %
VOC Less H2O & Exempt Solvents	<=781 g/l [*Test Method:*calculated SCAQMD rule 443.1] [*Details:*Calculated]
Molecular weight	*No Data Available*

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
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).

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

Ingestion:
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.

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

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >2,000 - =5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE >20 - =50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
CYCLOHEXANE	Dermal	Rat	LD50 > 2,000 mg/kg
CYCLOHEXANE	Inhalation-Vapor (4 hours)	Rat	LC50 > 32.9 mg/l
CYCLOHEXANE	Ingestion	Rat	LD50 6,200 mg/kg
ETHYL ALCOHOL	Dermal	Rabbit	LD50 > 15,800 mg/kg
ETHYL ALCOHOL	Inhalation-Vapor (4 hours)	Rat	LC50 124.7 mg/l
ETHYL ALCOHOL	Ingestion	Rat	LD50 17,800 mg/kg
XYLENE	Dermal	Rabbit	LD50 > 4,200 mg/kg
XYLENE	Inhalation-Vapor (4 hours)	Rat	LC50 29 mg/l
XYLENE	Ingestion	Rat	LD50 3,523 mg/kg
ETHYL ACETATE	Dermal	Rabbit	LD50 > 18,000 mg/kg
ETHYL ACETATE	Inhalation-Vapor (4 hours)	Rat	LC50 70.5 mg/l
ETHYL ACETATE	Ingestion	Rat	LD50 5,620 mg/kg
CHLORINATED RUBBER	Dermal	Guinea pig	LD50 > 1,000 mg/kg
CHLORINATED RUBBER	Ingestion	Rat	LD50 > 3,200 mg/kg
ETHYLBENZENE	Dermal	Rabbit	LD50 15,433 mg/kg
ETHYLBENZENE	Inhalation-Vapor (4 hours)	Rat	LC50 17.4 mg/l
ETHYLBENZENE	Ingestion	Rat	LD50 4,769 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
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	Dermal	Rabbit	LD50 6,700 mg/kg
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	Rat	LD50 > 1,600 mg/kg
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Rat	LD50 > 1,000 mg/kg
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	Inhalation-Vapor (4 hours)	Rat	LC50 > 7 mg/l
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	Ingestion	Rat	LD50 13,100 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
CHLOROBENZENE	Dermal	Rabbit	LD50 2,212 mg/kg
CHLOROBENZENE	Inhalation-Vapor (4 hours)	Rat	LC50 16.7 mg/l
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
ETHYL ALCOHOL	Rabbit	No significant irritation
XYLENE	Rabbit	Mild irritant
ETHYL ACETATE	Rabbit	Minimal irritation
CHLORINATED RUBBER	Guinea pig	No significant irritation
ETHYLBENZENE	Rabbit	Mild irritant
METHYL ALCOHOL	Rabbit	Mild irritant
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Rabbit	Mild irritant
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	Rabbit	Minimal irritation
TOLUENE	Rabbit	Irritant
CHLOROBENZENE	Rabbit	Irritant
MALEIC ANHYDRIDE	Human and animal	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
CYCLOHEXANE	Rabbit	Mild irritant
ETHYL ALCOHOL	Rabbit	Severe irritant
XYLENE	Rabbit	Mild irritant
ETHYL ACETATE	Rabbit	Mild irritant
CHLORINATED RUBBER	Professional judgement	Mild irritant
ETHYLBENZENE	Rabbit	Moderate irritant
METHYL ALCOHOL	Rabbit	Moderate irritant
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Rabbit	Moderate irritant
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	Rabbit	No significant irritation
TOLUENE	Rabbit	Moderate irritant
CHLOROBENZENE	Rabbit	Mild irritant
MALEIC ANHYDRIDE	Rabbit	Corrosive

Sensitization:

Skin Sensitization

Name	Species	Value
ETHYL ALCOHOL	Human	Not classified
ETHYL ACETATE	Guinea pig	Not classified
ETHYLBENZENE	Human	Not classified
METHYL ALCOHOL	Guinea pig	Not classified
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Human and animal	Sensitizing
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	similar compounds	Sensitizing
TOLUENE	Guinea pig	Not classified
CHLOROBENZENE	Multiple animal species	Not classified
MALEIC ANHYDRIDE	Multiple animal species	Sensitizing

Respiratory Sensitization

Name	Species	Value

4,4'-isopropylidenediphenol-epichlorohydrin polymer	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
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
XYLENE	In Vitro	Not mutagenic
XYLENE	In vivo	Not mutagenic
ETHYL ACETATE	In Vitro	Not mutagenic
ETHYL ACETATE	In vivo	Not mutagenic
ETHYLBENZENE	In vivo	Not mutagenic
ETHYLBENZENE	In Vitro	Some positive data exist, but the data are not sufficient for classification
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
4,4'-isopropylidenediphenol-epichlorohydrin polymer	In vivo	Not mutagenic
4,4'-isopropylidenediphenol-epichlorohydrin polymer	In Vitro	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
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
ETHYL ALCOHOL	Ingestion	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
XYLENE	Dermal	Rat	Not carcinogenic
XYLENE	Ingestion	Multiple animal species	Not carcinogenic
XYLENE	Inhalation	Human	Some positive data exist, but the data are not sufficient for classification
ETHYLBENZENE	Inhalation	Multiple animal species	Carcinogenic
METHYL ALCOHOL	Inhalation	Multiple animal species	Not carcinogenic
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	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	Not carcinogenic

		animal species	

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
CYCLOHEXANE	Inhalation	Not classified for female reproduction	Rat	NOAEL 24 mg/l	2 generation
CYCLOHEXANE	Inhalation	Not classified for male reproduction	Rat	NOAEL 24 mg/l	2 generation
CYCLOHEXANE	Inhalation	Not classified for development	Rat	NOAEL 6.9 mg/l	2 generation
ETHYL ALCOHOL	Inhalation	Not classified for development	Rat	NOAEL 38 mg/l	during gestation
ETHYL ALCOHOL	Ingestion	Not classified for development	Rat	NOAEL 5,200 mg/kg/day	premating & during gestation
XYLENE	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
XYLENE	Ingestion	Not classified for development	Mouse	NOAEL Not available	during organogenesis
XYLENE	Inhalation	Not classified for development	Multiple animal species	NOAEL Not available	during gestation
ETHYLBENZENE	Inhalation	Not classified for development	Rat	NOAEL 4.3 mg/l	premating & during gestation
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
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	Ingestion	Not classified for development	Rabbit	NOAEL 0.27 mg/kg/day	during organogenesis
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
CHLOROBENZENE	Inhalation	Not classified for female reproduction	Rat	NOAEL 2.07 mg/l	2 generation
CHLOROBENZENE	Ingestion	Not classified for development	Rat	NOAEL 300 mg/kg/day	during organogenesis
CHLOROBENZENE	Inhalation	Not classified for development	Rat	NOAEL 2.07 mg/l	2 generation
CHLOROBENZENE	Inhalation	Not classified for male reproduction	Rat	NOAEL 2.07 mg/l	2 generation
MALEIC ANHYDRIDE	Ingestion	Not classified for female reproduction	Rat	NOAEL 55 mg/kg/day	2 generation

MALEIC ANHYDRIDE	Ingestion	Not classified for male reproduction	Rat	NOAEL 55 mg/kg/day	2 generation
MALEIC ANHYDRIDE	Ingestion	Not classified for development	Rat	NOAEL 140 mg/kg/day	during organogenesis

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 Duration
CYCLOHEXANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
CYCLOHEXANE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human and animal	NOAEL Not available	
CYCLOHEXANE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
ETHYL ALCOHOL	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	LOAEL 9.4 mg/l	not available
ETHYL ALCOHOL	Inhalation	central nervous system depression	Not classified	Human and animal	NOAEL not available	
ETHYL ALCOHOL	Ingestion	central nervous system depression	Not classified	Multiple animal species	NOAEL not available	
ETHYL ALCOHOL	Ingestion	kidney and/or bladder	Not classified	Dog	NOAEL 3,000 mg/kg	
XYLENE	Inhalation	auditory system	Causes damage to organs	Rat	LOAEL 6.3 mg/l	8 hours
XYLENE	Inhalation	central nervous 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 available	
XYLENE	Inhalation	eyes	Not classified	Rat	NOAEL 3.5 mg/l	not available
XYLENE	Inhalation	liver	Not classified	Multiple animal species	NOAEL Not available	
XYLENE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
XYLENE	Ingestion	eyes	Not classified	Rat	NOAEL 250 mg/kg	not applicable
ETHYL ACETATE	Inhalation	central nervous 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 available	
ETHYL ACETATE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
ETHYLBENZENE	Inhalation	central nervous 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 and animal	NOAEL Not available	
METHYL ALCOHOL	Inhalation	blindness	Causes damage to organs	Human	NOAEL Not	occupational

					available	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
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
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
CHLOROBENZENE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
CHLOROBENZENE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
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 Duration
CYCLOHEXANE	Inhalation	liver	Not classified	Rat	NOAEL 24 mg/l	90 days
CYCLOHEXANE	Inhalation	auditory system	Not classified	Rat	NOAEL 1.7 mg/l	90 days
CYCLOHEXANE	Inhalation	kidney and/or bladder	Not classified	Rabbit	NOAEL 2.7 mg/l	10 weeks
CYCLOHEXANE	Inhalation	hematopoietic system	Not classified	Mouse	NOAEL 24 mg/l	14 weeks
CYCLOHEXANE	Inhalation	peripheral nervous system	Not classified	Rat	NOAEL 8.6 mg/l	30 weeks
ETHYL ALCOHOL	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rabbit	LOAEL 124 mg/l	365 days
ETHYL ALCOHOL	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 25 mg/l	14 days
ETHYL ALCOHOL	Inhalation	immune system	Not classified	Rat	NOAEL 25 mg/l	14 days
ETHYL ALCOHOL	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 8,000 mg/kg/day	4 months
ETHYL ALCOHOL	Ingestion	kidney and/or bladder	Not classified	Dog	NOAEL 3,000 mg/kg/day	7 days
XYLENE	Inhalation	nervous system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.4 mg/l	4 weeks
XYLENE	Inhalation	auditory system	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 7.8 mg/l	5 days
XYLENE	Inhalation	liver	Not classified	Multiple animal species	NOAEL Not available	
XYLENE	Inhalation	heart	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks

XYLENE	Inhalation	endocrine system	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
XYLENE	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
XYLENE	Inhalation	hematopoietic system	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
XYLENE	Inhalation	muscles	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
XYLENE	Inhalation	kidney and/or bladder	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
XYLENE	Inhalation	respiratory system	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
XYLENE	Ingestion	auditory system	Not classified	Rat	NOAEL 900 mg/kg/day	2 weeks
XYLENE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,500 mg/kg/day	90 days
XYLENE	Ingestion	liver	Not classified	Multiple animal species	NOAEL Not available	
XYLENE	Ingestion	heart	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	skin	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	endocrine system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	immune system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	nervous system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
XYLENE	Ingestion	respiratory system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
ETHYL ACETATE	Inhalation	endocrine system	Not classified	Rat	NOAEL 0.043 mg/l	90 days
ETHYL ACETATE	Inhalation	liver	Not classified	Rat	NOAEL 0.043 mg/l	90 days
ETHYL ACETATE	Inhalation	nervous system	Not classified	Rat	NOAEL 0.043 mg/l	90 days
ETHYL ACETATE	Inhalation	hematopoietic system	Not classified	Rabbit	LOAEL 16 mg/l	40 days
ETHYL ACETATE	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 3,600 mg/kg/day	90 days
ETHYL ACETATE	Ingestion	liver	Not classified	Rat	NOAEL 3,600 mg/kg/day	90 days
ETHYL ACETATE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 3,600 mg/kg/day	90 days
ETHYLBENZENE	Inhalation	auditory system	May cause damage to organs	Rat	LOAEL 0.9	13 weeks

			though prolonged or repeated exposure		mg/l	
ETHYLBENZENE	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.1 mg/l	2 years
ETHYLBENZENE	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.1 mg/l	103 weeks
ETHYLBENZENE	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 3.4 mg/l	28 days
ETHYLBENZENE	Inhalation	endocrine system	Not classified	Mouse	NOAEL 3.3 mg/l	103 weeks
ETHYLBENZENE	Inhalation	gastrointestinal tract	Not classified	Rat	NOAEL 3.3 mg/l	2 years
ETHYLBENZENE	Inhalation	bone, teeth, nails, and/or hair	Not classified	Multiple animal species	NOAEL 4.2 mg/l	90 days
ETHYLBENZENE	Inhalation	muscles	Not classified	Multiple animal species	NOAEL 4.2 mg/l	90 days
ETHYLBENZENE	Inhalation	heart	Not classified	Multiple animal species	NOAEL 3.3 mg/l	2 years
ETHYLBENZENE	Inhalation	immune system	Not classified	Multiple animal species	NOAEL 3.3 mg/l	2 years
ETHYLBENZENE	Inhalation	respiratory system	Not classified	Multiple animal species	NOAEL 3.3 mg/l	2 years
ETHYLBENZENE	Ingestion	liver	Not classified	Rat	NOAEL 680 mg/kg/day	6 months
ETHYLBENZENE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 680 mg/kg/day	6 months
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 2,500 mg/kg/day	90 days
METHYL ALCOHOL	Ingestion	nervous system	Not classified	Rat	NOAEL 2,500 mg/kg/day	90 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	auditory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-	Ingestion	kidney and/or	Not classified	Rat	NOAEL	28 days

isopropylidenediphenol-epichlorohydrin polymer		bladder			1,000 mg/kg/day	
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
CHLOROBENZENE	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 0.69 mg/l	2 generation
CHLOROBENZENE	Inhalation	liver	Not classified	Rat	NOAEL 2.1 mg/l	2 generation
CHLOROBENZENE	Inhalation	blood	Not classified	Rat	NOAEL 0.35 mg/l	24 weeks
CHLOROBENZENE	Ingestion	bone marrow	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 250 mg/kg/day	13 weeks
CHLOROBENZENE	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 188 mg/kg/day	192 days
CHLOROBENZENE	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 125 mg/kg/day	13 weeks
CHLOROBENZENE	Ingestion	immune system	Not classified	Rat	NOAEL 750	13 weeks

					mg/kg/day	
MALEIC ANHYDRIDE	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.0011 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	endocrine system	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	nervous system	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	heart	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	liver	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Inhalation	eyes	Not classified	Rat	NOAEL 0.0098 mg/l	6 months
MALEIC ANHYDRIDE	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 55 mg/kg/day	80 days
MALEIC ANHYDRIDE	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 250 mg/kg/day	183 days
MALEIC ANHYDRIDE	Ingestion	heart	Not classified	Rat	NOAEL 600 mg/kg/day	183 days
MALEIC ANHYDRIDE	Ingestion	nervous system	Not classified	Rat	NOAEL 600 mg/kg/day	183 days
MALEIC ANHYDRIDE	Ingestion	gastrointestinal tract	Not classified	Rat	NOAEL 150 mg/kg/day	80 days
MALEIC ANHYDRIDE	Ingestion	hematopoietic system	Not classified	Dog	NOAEL 60 mg/kg/day	90 days
MALEIC ANHYDRIDE	Ingestion	skin	Not classified	Rat	NOAEL 150 mg/kg/day	80 days
MALEIC ANHYDRIDE	Ingestion	endocrine system	Not classified	Rat	NOAEL 150 mg/kg/day	80 days
MALEIC ANHYDRIDE	Ingestion	immune system	Not classified	Rat	NOAEL 150 mg/kg/day	80 days
MALEIC ANHYDRIDE	Ingestion	eyes	Not classified	Rat	NOAEL 150 mg/kg/day	80 days
MALEIC ANHYDRIDE	Ingestion	respiratory system	Not classified	Rat	NOAEL 150 mg/kg/day	80 days

Aspiration Hazard

Name	Value
CYCLOHEXANE	Aspiration hazard
XYLENE	Aspiration hazard
ETHYLBENZENE	Aspiration hazard
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 1: Very toxic to aquatic life.

Chronic aquatic hazard:
GHS Chronic 3: Harmful to aquatic life with long lasting effects

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
CYCLOHEXANE	110-82-7	Fathead Minnow	Experimental	96 hours	LC50	4.53 mg/l
CYCLOHEXANE	110-82-7	Water flea	Experimental	48 hours	EC50	0.9 mg/l
CYCLOHEXANE	110-82-7	Bacteria	Experimental	24 hours	IC50	97 mg/l
XYLENE	1330-20-7	Activated sludge	Estimated	3 hours	NOEC	157 mg/l
XYLENE	1330-20-7	Green algae	Estimated	72 hours	EC50	4.36 mg/l
XYLENE	1330-20-7	Rainbow Trout	Estimated	96 hours	LC50	2.6 mg/l
XYLENE	1330-20-7	Water flea	Estimated	48 hours	EC50	3.82 mg/l
XYLENE	1330-20-7	Green algae	Estimated	72 hours	NOEC	0.44 mg/l
XYLENE	1330-20-7	Rainbow Trout	Estimated	56 days	NOEC	>1.3 mg/l
XYLENE	1330-20-7	Water flea	Estimated	7 days	NOEC	0.96 mg/l
ETHYL ALCOHOL	64-17-5	Fathead Minnow	Experimental	96 hours	LC50	14,200 mg/l
ETHYL ALCOHOL	64-17-5	Fish	Experimental	96 hours	LC50	11,000 mg/l
ETHYL ALCOHOL	64-17-5	Green algae	Experimental	72 hours	EC50	275 mg/l
ETHYL ALCOHOL	64-17-5	Water flea	Experimental	48 hours	LC50	5,012 mg/l
ETHYL ALCOHOL	64-17-5	Green algae	Experimental	72 hours	ErC10	11.5 mg/l
ETHYL ALCOHOL	64-17-5	Water flea	Experimental	10 days	NOEC	9.6 mg/l
ETHYLBENZENE	100-41-4	Green algae	Estimated	73 hours	EC50	4.36 mg/l
ETHYLBENZENE	100-41-4	Rainbow Trout	Estimated	96 hours	LC50	2.6 mg/l
ETHYLBENZENE	100-41-4	Water flea	Estimated	48 hours	EC50	3.82 mg/l
ETHYLBENZENE	100-41-4	Activated sludge	Experimental	49 hours	EC50	130 mg/l
ETHYLBENZENE	100-41-4	Green algae	Estimated	73 hours	NOEC	0.44 mg/l
ETHYLBENZENE	100-41-4	Rainbow Trout	Estimated	56 days	NOEC	>1.3 mg/l
ETHYLBENZENE	100-41-4	Water flea	Estimated	7 days	NOEC	0.96 mg/l
ACRYLATE POLYMER	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
CHLORINATED RUBBER	68609-36-9	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
ETHYL ACETATE	141-78-6	Bacteria	Experimental	18 hours	EC10	2,900 mg/l
ETHYL ACETATE	141-78-6	Fish	Experimental	96 hours	LC50	212.5 mg/l
ETHYL ACETATE	141-78-6	Invertebrate	Experimental	48 hours	EC50	165 mg/l
ETHYL ACETATE	141-78-6	Green algae	Experimental	72 hours	NOEC	>100 mg/l
ETHYL ACETATE	141-78-6	Water flea	Experimental	21 days	NOEC	2.4 mg/l
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Activated sludge	Estimated	3 hours	IC50	>100 mg/l
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Green algae	Estimated	72 hours	EC50	>11 mg/l
4,4'-isopropylidenediph	25068-38-6	Rainbow Trout	Estimated	96 hours	LC50	2 mg/l

enol-epichlorohydrin polymer						
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Water flea	Estimated	48 hours	EC50	1.8 mg/l
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Green algae	Estimated	72 hours	NOEC	4.2 mg/l
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Water flea	Estimated	21 days	NOEC	0.3 mg/l
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXYSILANE	3388-04-3	Activated sludge	Estimated	30 minutes	IC50	>100 mg/l
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXYSILANE	3388-04-3	Green algae	Estimated	72 hours	EC50	280 mg/l
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXYSILANE	3388-04-3	Rainbow Trout	Estimated	96 hours	LC50	180 mg/l
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXYSILANE	3388-04-3	Water flea	Estimated	48 hours	EC50	20 mg/l
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXYSILANE	3388-04-3	Green algae	Estimated	72 hours	NOEC	1 mg/l
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	67-56-1	Springtail	Experimental	28 days	EC50	5,683 mg/kg (Dry Weight)

ALCOHOL						
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)
CHLOROBENZENE	108-90-7	Bluegill	Experimental	96 hours	LC50	4.5 mg/l
CHLOROBENZENE	108-90-7	Green algae	Experimental	72 hours	ErC50	11.4 mg/l
CHLOROBENZENE	108-90-7	Midge	Experimental	96 hours	NOEC	0.7 mg/l
CHLOROBENZENE	108-90-7	Water flea	Experimental	48 hours	EC50	0.59 mg/l
CHLOROBENZENE	108-90-7	Green algae	Experimental	72 hours	ErC10	5.8 mg/l
CHLOROBENZENE	108-90-7	Medaka	Experimental	43 days	NOEC	0.247 mg/l
CHLOROBENZENE	108-90-7	Water flea	Experimental	8 days	NOEC	0.084 mg/l
CHLOROBENZENE	108-90-7	Bacteria	Experimental	24 hours	IC50	0.71 mg/l
CHLOROBENZENE	108-90-7	Lettuce	Experimental	14 days	EC50	>1,000 mg/kg (Dry Weight)
MALEIC ANHYDRIDE	108-31-6	Bacteria	Experimental	18 hours	EC10	44.6 mg/l
MALEIC ANHYDRIDE	108-31-6	Rainbow Trout	Experimental	96 hours	LC50	75 mg/l
MALEIC ANHYDRIDE	108-31-6	Green algae	Hydrolysis Product	72 hours	ErC50	74.4 mg/l
MALEIC ANHYDRIDE	108-31-6	Water flea	Hydrolysis Product	48 hours	EC50	93.8 mg/l
MALEIC ANHYDRIDE	108-31-6	Water flea	Experimental	21 days	NOEC	10 mg/l
MALEIC ANHYDRIDE	108-31-6	Green algae	Hydrolysis Product	72 hours	ErC10	11.8 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
CYCLOHEXANE	110-82-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	77 %BOD/ThOD	OECD 301F - Manometric Respiro
CYCLOHEXANE	110-82-7	Experimental Photolysis		Photolytic half-life (in air)	4.3 days (t 1/2)	
XYLENE	1330-20-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	90-98 %BOD/ThOD	OECD 301F - Manometric Respiro
XYLENE	1330-20-7	Experimental Photolysis		Photolytic half-life (in air)	1.4 days (t 1/2)	
ETHYL ALCOHOL	64-17-5	Experimental Biodegradation	14 days	Biological Oxygen Demand	89 %BOD/ThOD	OECD 301C - MITI (I)
ETHYLBENZENE	100-41-4	Experimental Biodegradation	28 days	Biological Oxygen Demand	90-98 %BOD/ThOD	OECD 301F - Manometric Respiro

ACRYLATE POLYMER	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
CHLORINATED RUBBER	68609-36-9	Data not availbl-insufficient	N/A	N/A	N/A	N/A
ETHYL ACETATE	141-78-6	Experimental Biodegradation	14 days	Biological Oxygen Demand	94 %BOD/ThOD	OECD 301C - MITI (I)
ETHYL ACETATE	141-78-6	Experimental Photolysis		Photolytic half-life (in air)	20.0 days (t 1/2)	
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Estimated Biodegradation	28 days	Biological Oxygen Demand	5 %BOD/COD	OECD 301F - Manometric Respiro
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	117 hours (t 1/2)	
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	3388-04-3	Estimated Biodegradation	28 days	Biological Oxygen Demand	28 %BOD/ThOD	OECD 301D - Closed Bottle Test
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	3388-04-3	Estimated Hydrolysis		Hydrolytic half-life	6.5 hours (t 1/2)	
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	
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)	
CHLOROBENZENE	108-90-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	15 %BOD/ThOD	OECD 301F - Manometric Respiro
CHLOROBENZENE	108-90-7	Experimental Photolysis		Photolytic half-life (in air)	42 days (t 1/2)	
CHLOROBENZENE	108-90-7	Experimental Biodegradation		Half-life (t 1/2)	46.2 days (t 1/2)	
MALEIC ANHYDRIDE	108-31-6	Hydrolysis product Biodegradation	25 days	Carbon dioxide evolution	>90 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
MALEIC ANHYDRIDE	108-31-6	Experimental Hydrolysis		Hydrolytic half-life	0.37 minutes (t 1/2)	

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
CYCLOHEXANE	110-82-7	Experimental BCF - Fish	56 days	Bioaccumulation Factor	129	OECD305-Bioconcentration
CYCLOHEXANE	110-82-7	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	3.44	
XYLENE	1330-20-7	Experimental BCF - Fish	56 days	Bioaccumulation Factor	25.9	
ETHYL ALCOHOL	64-17-5	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-0.35	

ETHYLBENZENE	100-41-4	Experimental BCF - Fish	56 days	Bioaccumulation Factor	25.9	
ACRYLATE POLYMER	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
CHLORINATED RUBBER	68609-36-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
ETHYL ACETATE	141-78-6	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.68	
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Estimated Bioconcentration		Log of Octanol/H2O part. coeff	3.242	
BETA-(3,4-EPOXYCYCLOHEXYL)ETHYLTRIMETHOXY SILANE	3388-04-3	Estimated Bioconcentration		Bioaccumulation Factor	2.3	
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	
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	
CHLOROBENZENE	108-90-7	Experimental BCF - Fish	56 days	Bioaccumulation Factor	39.6	OECD305-Bioconcentration
CHLOROBENZENE	108-90-7	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.84	
MALEIC ANHYDRIDE	108-31-6	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-2.61	OECD 107 log Kow shke flsk mtd

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:UN3175
Proper Shipping Name:SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:4.1

Subsidiary Risk: None assigned.
Packing Group:II
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:UN3175
Proper Shipping Name:SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:4.1
Subsidiary Risk: None assigned.
Packing Group:II
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 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