Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Canadian Hazardous Products Regulations.

SECTION 1: Identification

1.1. Product identifier

3M™ VHB™ Tape Universal Primer UV

Product Identification Numbers

70-0075-0487-4	70-0075-0502-0	70-0075-0505-3	70-0075-0506-1	70-0075-0507-9
70-0075-0508-7	HB-0045-5390-3	HB-0045-5391-1	IA-1201-0222-2	IA-1201-0276-8
JS-3000-4939-7	XF-6001-4059-4	XP-0038-5621-6	XP-0038-5624-0	

1.2. Recommended use and restrictions on use

Intended Use

Adhesion Promoter

Restrictions on use

Not applicable

1.3. Supplier's details

Company:	3M Canada Company
Division:	Industrial Adhesives and Tapes Division
Address:	1840 Oxford Street East, Post Office Box 5757, London, Ontario N6A 4T1
Telephone:	(800) 364-3577
Website:	www.3M.ca

1.4. Emergency telephone number

Medical Emergency Telephone:1-800-3M HELPS / 1800 364 3577

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 2B.
Skin Sensitizer: Category 1A.
Specific Target Organ Toxicity (single exposure): Category 3.
Aspiration Hazard: Category 1.

2.2. Label elements
Signal word
Danger

Symbols
Flame |Exclamation mark |Health Hazard |

Pictograms

Hazard Statements
Highly flammable liquid and vapour.
Causes skin irritation. Causes eye irritation. May cause an allergic skin reaction. May cause drowsiness or dizziness. May cause respiratory irritation. May be fatal if swallowed and enters airways.

Precautionary statements

Prevention:
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating and lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Avoid breathing vapours. Wash exposed skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection.

Response:
IF SWALLOWED: Immediately call a POISON CENTER or doctor. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor if you feel unwell. Do NOT induce vomiting. If skin irritation or rash occurs: Get medical attention. If eye irritation persists: Get medical advice. Take off contaminated clothing and wash it before reuse. In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.

Storage:
Store in a well-ventilated place. Keep cool. Store locked up.

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

2.3. Other hazards
None known.

1% of the mixture consists of ingredients of unknown acute oral toxicity.
1% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt	Common Name
Heptane, branched, cyclic and	426260-76-6	30 - 60 Trade Secret *	No Data Available

linear			
Methyl Acetate	79-20-9	30 - 60 Trade Secret *	Acetic acid, methyl ester
2-Methylhexane	591-76-4	10 - 30 Trade Secret *	Hexane, 2-methyl-
3-Methylhexane	589-34-4	10 - 30 Trade Secret *	Hexane, 3-methyl-
Non-Volatile Polymeric Components	Trade Secret	1 - 5	Not Applicable
Citric Acid, Tributyl Ester, Acetate	77-90-7	0.5 - 1.5	1,2,3-Propanetricarboxylic acid, 2-(acetyloxy)-, tributyl ester
Cyclohexane	110-82-7	< 1	Cyclohexane
Methylcyclohexane	108-87-2	< 1	Cyclohexane, methyl-
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	3388-04-3	< 0.2	Silane, trimethoxy[2-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl]-
Maleic Anhydride	108-31-6	< 0.05	2,5-Furandione

Non-volatile polymeric components is a non-hazardous material according to WHMIS criteria. Specific information has been withheld as a trade secret.

*The concentration (exact or range) of this component has been withheld as a trade secret.

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:
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:
Do not induce vomiting. Get immediate medical attention.

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

Irritating to the respiratory tract (coughing, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain). Allergic skin reaction (redness, swelling, blistering, and itching). Aspiration pneumonitis (coughing, gasping, choking, burning of the mouth, and difficulty breathing). Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness).

4.3. Indication of any immediate medical attention and special treatment required
Not applicable.

SECTION 5: Fire-fighting measures

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

5.2. Unsuitable extinguishing media
None Determined

5.3. 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
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

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

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

6.3. Methods and material for containment and cleaning up
Contain spill. 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
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Wear low static or properly grounded shoes. To minimize the risk of ignition, determine applicable electrical classifications for the process using this product and select specific local exhaust ventilation equipment to avoid flammable vapor accumulation. Ground/bond container and receiving equipment if there is potential for static electricity accumulation during transfer.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep cool. Keep container tightly closed. Protect from sunlight. Store away from heat.

Store away from acids. Store away from oxidizing agents. Store locked up.

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
Maleic Anhydride	108-31-6	ACGIH	TWA(inhalable fraction and vapor): 0.01 mg/m3	Dermal/Respiratory Sensitizer
Methylcyclohexane	108-87-2	ACGIH	TWA:100 ppm	
Cyclohexane	110-82-7	ACGIH	TWA:100 ppm	
Heptane, straight and branched isomers	426260-76-6	ACGIH	TWA:200 ppm;STEL:400 ppm	
Heptane, straight and branched isomers	589-34-4	ACGIH	TWA:200 ppm;STEL:400 ppm	
Heptane, straight and branched isomers	591-76-4	ACGIH	TWA:200 ppm;STEL:400 ppm	
Methyl Acetate	79-20-9	ACGIH	TWA:200 ppm;STEL:250 ppm	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

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

8.2.2. Personal protective equipment (PPE)

Eye/face protection

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

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

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 vapours and particulates
Organic vapor cartridges 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

Physical state	Liquid
Specific Physical Form:	Liquid
Colour	Colourless
Odour	Mild Solvent
Odour threshold	*No Data Available*
pH	4.4
Melting point/Freezing point	*Not Applicable*
Boiling point	61.9 ºC [@ 101,324.72 Pa]
Flash Point	-10 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No Data Available*
Flammability	Flammable Liquid: Category 2.
Flammable Limits(LEL)	1.2 % [*Details:*Heptane]
Flammable Limits(UEL)	16 % [*Details:*Methyl Acetate]
Vapour Pressure	152.4 mmHg [@ 20 ºC]
Relative Vapour Density	*No Data Available*
Density	0.77 g/ml [@ 23 ºC]
Relative density	0.77 [@ 23 ºC] [*Ref Std:*WATER=1]
Water solubility	23 % [@ 23 ºC]
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	30.5 mm2/sec
Volatile Organic Compounds	429 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Percent volatile	<=96 % weight [*Test Method:*Estimated]
VOC Less H2O & Exempt Solvents	700 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Molecular weight	*Not Applicable*

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

Eye Contact:
Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion:
Chemical (Aspiration) Pneumonitis: Signs/symptoms may include coughing, gasping, choking, burning of the mouth, difficulty breathing, bluish coloured 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:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE >20 - =50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Heptane, branched, cyclic and linear	Dermal	Rabbit	LD50 > 2,920 mg/kg
Heptane, branched, cyclic and linear	Inhalation-Vapor (4 hours)	Rat	LC50 > 23.3 mg/l
Heptane, branched, cyclic and linear	Ingestion	Rat	LD50 > 5,840 mg/kg
Methyl Acetate	Dermal	Rat	LD50 > 2,000 mg/kg
Methyl Acetate	Inhalation-Vapor (4 hours)	Rat	LC50 > 49 mg/l
Methyl Acetate	Ingestion	Rat	LD50 > 5,000 mg/kg
3-Methylhexane	Dermal	similar compounds	LD50 > 2,000 mg/kg
3-Methylhexane	Inhalation-Vapor (4 hours)	similar compounds	LC50 > 33.5 mg/l
3-Methylhexane	Ingestion	similar compounds	LD50 > 5,000 mg/kg
2-Methylhexane	Dermal	similar compounds	LD50 > 2,000 mg/kg
2-Methylhexane	Inhalation-Vapor (4 hours)	similar compounds	LC50 > 33.5 mg/l
2-Methylhexane	Ingestion	similar compounds	LD50 > 5,000 mg/kg
Citric Acid, Tributyl Ester, Acetate	Ingestion	Rat	LD50 > 31,500 mg/kg
Citric Acid, Tributyl Ester, Acetate	Dermal	similar health hazards	LD50 estimated to be > 5,000 mg/kg
Methylcyclohexane	Inhalation-Vapor	Professional judgement	LC50 estimated to be 20 - 50 mg/l
Methylcyclohexane	Ingestion	Professional judgement	LD50 estimated to be 2,000 - 5,000 mg/kg
Methylcyclohexane	Dermal	similar compounds	LD50 > 2,000 mg/kg
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	Dermal	Rabbit	LD50 6,700 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
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
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

Heptane, branched, cyclic and linear	Rabbit	Irritant
Methyl Acetate	Rabbit	No significant irritation
3-Methylhexane	Professional judgement	Mild irritant
2-Methylhexane	Professional judgement	Mild irritant
Citric Acid, Tributyl Ester, Acetate	Rabbit	No significant irritation
Methylcyclohexane	Rabbit	No significant irritation
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	Rabbit	Minimal irritation
Cyclohexane	Rabbit	Mild irritant
Maleic Anhydride	Human and animal	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Heptane, branched, cyclic and linear	Rabbit	Mild irritant
Methyl Acetate	Rabbit	Moderate irritant
3-Methylhexane	similar compounds	Mild irritant
2-Methylhexane	similar compounds	Mild irritant
Citric Acid, Tributyl Ester, Acetate	Rabbit	Mild irritant
Methylcyclohexane	Rabbit	No significant irritation
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	Rabbit	No significant irritation
Cyclohexane	Rabbit	Mild irritant
Maleic Anhydride	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
Heptane, branched, cyclic and linear	Guinea pig	Not classified
Methyl Acetate	Human	Not classified
3-Methylhexane	similar compounds	Not classified
2-Methylhexane	similar compounds	Not classified
Citric Acid, Tributyl Ester, Acetate	Guinea pig	Not classified
Methylcyclohexane	similar compounds	Not classified
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	similar compounds	Sensitizing
Maleic Anhydride	Multiple animal species	Sensitizing

Respiratory Sensitization

Name	Species	Value
Maleic Anhydride	Human	Sensitizing

Germ Cell Mutagenicity

Name	Route	Value
Heptane, branched, cyclic and linear	In Vitro	Not mutagenic
Methyl Acetate	In Vitro	Not mutagenic
Methyl Acetate	In vivo	Not mutagenic
3-Methylhexane	In Vitro	Not mutagenic
2-Methylhexane	In Vitro	Not mutagenic
Citric Acid, Tributyl Ester, Acetate	In Vitro	Not mutagenic
Citric Acid, Tributyl Ester, Acetate	In vivo	Not mutagenic
Methylcyclohexane	In Vitro	Not mutagenic
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Cyclohexane	In Vitro	Not mutagenic
Cyclohexane	In vivo	Some positive data exist, but the data are not sufficient for classification
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
Citric Acid, Tributyl Ester, Acetate	Ingestion	Rat	Not carcinogenic
Methylcyclohexane	Inhalation	Multiple animal species	Not carcinogenic
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Heptane, branched, cyclic and linear	Not Specified	Not classified for female reproduction	Rat	NOAEL Not available	2 generation
Heptane, branched, cyclic and linear	Not Specified	Not classified for male reproduction	Rat	NOAEL Not available	2 generation
Heptane, branched, cyclic and linear	Not Specified	Not classified for development	Rat	NOAEL Not available	2 generation
Citric Acid, Tributyl Ester, Acetate	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	2 generation
Citric Acid, Tributyl Ester, Acetate	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	2 generation
Citric Acid, Tributyl Ester, Acetate	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	2 generation
Methylcyclohexane	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Methylcyclohexane	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Beta-(3,4-Epoxycyclohexyl)Ethyltrimethoxy Silane	Ingestion	Not classified for development	Rabbit	NOAEL 0.27 mg/kg/day	during organogenesis
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
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

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Heptane, branched, cyclic and linear	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
Methyl Acetate	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
Methyl Acetate	Inhalation	respiratory irritation	May cause respiratory irritation	Human and animal	NOAEL Not available	
Methyl Acetate	Inhalation	blindness	Not classified		NOAEL Not available	
Methyl Acetate	Ingestion	central nervous system depression	May cause drowsiness or dizziness		NOAEL Not available	
3-Methylhexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
3-Methylhexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
3-Methylhexane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
2-Methylhexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
2-Methylhexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
2-Methylhexane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Methylcyclohexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
Methylcyclohexane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
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	
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
Methyl Acetate	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.1 mg/l	28 days
Methyl Acetate	Inhalation	endocrine system	Not classified	Rat	NOAEL 6.1 mg/l	28 days
Methyl Acetate	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 6.1 mg/l	28 days

Methyl Acetate	Inhalation	liver	Not classified	Rat	NOAEL 6.1 mg/l	28 days
Methyl Acetate	Inhalation	immune system	Not classified	Rat	NOAEL 6.1 mg/l	28 days
Methyl Acetate	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 6.1 mg/l	28 days
3-Methylhexane	Inhalation	nervous system	Not classified	Rat	NOAEL 6.15 mg/l	30 weeks
3-Methylhexane	Inhalation	peripheral nervous system	Not classified	Rat	NOAEL 12.5 mg/l	16 weeks
3-Methylhexane	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 12.2 mg/l	26 weeks
3-Methylhexane	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 12.2 mg/l	26 weeks
2-Methylhexane	Inhalation	nervous system	Not classified	Rat	NOAEL 6.15 mg/l	30 weeks
2-Methylhexane	Inhalation	peripheral nervous system	Not classified	Rat	NOAEL 12.5 mg/l	16 weeks
2-Methylhexane	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 12.2 mg/l	26 weeks
2-Methylhexane	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 12.2 mg/l	26 weeks
Citric Acid, Tributyl Ester, Acetate	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Citric Acid, Tributyl Ester, Acetate	Ingestion	immune system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Citric Acid, Tributyl Ester, Acetate	Ingestion	respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Citric Acid, Tributyl Ester, Acetate	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Citric Acid, Tributyl Ester, Acetate	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Citric Acid, Tributyl Ester, Acetate	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Citric Acid, Tributyl Ester, Acetate	Ingestion	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Citric Acid, Tributyl Ester, Acetate	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Citric Acid, Tributyl Ester, Acetate	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Methylcyclohexane	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	heart	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	skin	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	endocrine system	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	gastrointestinal tract	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	liver	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	immune system	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Inhalation	nervous system	Not classified	Rat	NOAEL 8 mg/l	1 years

Methylcyclohexane	Inhalation	respiratory system	Not classified	Rat	NOAEL 8 mg/l	1 years
Methylcyclohexane	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	gastrointestinal tract	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	immune system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	muscles	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Methylcyclohexane	Ingestion	respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
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
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	Rat	LOAEL 250	183 days

			data are not sufficient for classification		mg/kg/day	
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
Heptane, branched, cyclic and linear	Aspiration hazard
3-Methylhexane	Aspiration hazard
2-Methylhexane	Aspiration hazard
Methylcyclohexane	Aspiration hazard
Cyclohexane	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

No data available.

SECTION 13: Disposal considerations

13.1. Disposal methods

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

Incinerate in a permitted waste incineration facility. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information

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

Global inventory status

Contact 3M for more information. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory.

SECTION 16: Other information

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.
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.

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3M Canada SDSs are available at www.3M.ca