



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 77 Super Spray Adhesive

Product Identification Numbers

XS-0020-0272-2 XS-0020-0273-0

1.2. Recommended use and restrictions on use

Recommended use

Adhesive aerosol

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 Aerosol: Category 1.

Gas Under Pressure: Liquefied gas.

Serious Eye Damage/Irritation: Category 2.

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

Chronic Aquatic Toxicity: Category 3.

2.2. Label elements

Signal word

Danger

Symbols

Flame | Gas cylinder | Exclamation mark | Health Hazard |

Pictograms**Hazard Statements:**

H222	Extremely flammable aerosol.
H280	Contains gas under pressure; may explode if heated.
H319	Causes serious eye irritation.
H370	Causes damage to organs: cardiovascular system.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements**General:**

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.

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.

Storage:

P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50C/122F.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.
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2.3. Other hazards

May cause drowsiness or dizziness., May displace oxygen and cause rapid suffocation.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
2-METHYLPENTANE	107-83-5	10 - 30
LIQUEFIED PETROLEUM GAS	68476-85-7	10 - 30
POLYMER	Trade Secret	10 - 30
CYCLOHEXANE	110-82-7	10 - 20

DIMETHYL ETHER	115-10-6	5 - 15
GLYCEROL ESTER	Trade Secret	5 - 15
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-,POLYMER WITH 6,6-DIMETHYL-2-METHYLENEBICYCLO[3.1.1]HEPTANE	31393-98-3	5 - 10
HEXANE	110-54-3	1 - 5
PENTANE	109-66-0	< 3
LIMESTONE	1317-65-3	< 2

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Remove person to fresh air. 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:

No need for first aid is anticipated.

If Swallowed:

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

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

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

Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance

Aldehydes
Hydrocarbons
Formaldehyde
Carbon monoxide
Carbon dioxide

Condition

During Combustion
During Combustion
During Combustion
During Combustion
During Combustion

5.3. Special protective actions for fire-fighters

Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

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

If possible, seal leaking container. Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible 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**

Do not use in a confined area with minimal air exchange. Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Do not expose to temperatures exceeding 50C/122F. 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
2-METHYLPENTANE	107-83-5	ACGIH	TWA:500 ppm;STEL:1000 ppm	
HEXANE (ISOMERS OTHER THAN N-HEXANE)	107-83-5	Malaysia OELs	TWA(8 hours):1760 mg/m3(500 ppm)	
PENTANE	109-66-0	ACGIH	TWA:1000 ppm	
HEXANE	110-54-3	ACGIH	TWA:50 ppm	Danger of cutaneous absorption
HEXANE	110-54-3	Malaysia OELs	TWA(8 hours):176 mg/m3(50 ppm)	SKIN

CYCLOHEXANE	110-82-7	ACGIH	TWA:100 ppm	
CYCLOHEXANE	110-82-7	Malaysia OELs	TWA(8 hours):1030 mg/m3(300 ppm)	
LIMESTONE	1317-65-3	Malaysia OELs	TWA (proposed)(8 hours):10 mg/m3	
LIQUEFIED PETROLEUM GAS	68476-85-7	ACGIH	Limit value not established:	simple asphyxiant
LIQUEFIED PETROLEUM GAS	68476-85-7	Malaysia OELs	TWA(8 hours):1800 mg/m3(1000 ppm)	
GLYCEROL ESTER	Trade Secret	ACGIH	TWA(as Resin, inhalable fraction):0.001 mg/m3;Limit value not established:	Cntrl all exposr-low as possib, Dermal/Respiratory Sensitizer
GLYCEROL ESTER	Trade Secret	Malaysia OELs	Limit value not established:	

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

Do not remain in area where available oxygen may be reduced. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

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

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

Respiratory protection

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

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

Half facepiece or full facepiece supplied-air respirator

Organic vapor respirators may have short service life.

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Specific Physical Form:	Aerosol
Color	Tan, White
Odor	Mild Solvent
Odor threshold	<i>No Data Available</i>
pH	<i>Not Applicable</i>
Melting point/Freezing point	<i>Not Applicable</i>
Boiling point/Initial boiling point/Boiling range	<i>Not Applicable</i>
Flash Point	-42 °C [<i>Details:Propellant</i>]
Evaporation rate	<i>No Data Available</i>
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	<i>No Data Available</i>
Flammable Limits(UEL)	<i>No Data Available</i>
Vapor Pressure	<i>No Data Available</i>
Vapor Density and/or Relative Vapor Density	<i>No Data Available</i>
Density	<i>Not Applicable</i>
Relative Density	<i>Not Applicable</i>
Water solubility	<i>Not Applicable</i>
Solubility- non-water	<i>No Data Available</i>
Partition coefficient: n-octanol/ water	<i>Not Applicable</i>
Autoignition temperature	<i>Not Applicable</i>
Decomposition temperature	<i>No Data Available</i>
Viscosity/Kinematic Viscosity	<i>No Data Available</i>
Volatile Organic Compounds	
Percent volatile	<i>No Data Available</i>
VOC Less H2O & Exempt Solvents	

Nanoparticles

This material does not contain nanoparticles.

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

None known.

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:

Simple Asphyxiation: Signs/symptoms may include increased heart rate, rapid respirations, drowsiness, headache, incoordination, altered judgement, nausea, vomiting, lethargy, seizures, coma, and may be fatal.

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.

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:

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

Single exposure, above recommended guidelines, may cause: Cardiac Sensitization: Signs/symptoms may include irregular heartbeat (arrhythmia), faintness, chest pain, and may be fatal.

Prolonged or repeated exposure may cause target organ effects:

Peripheral Neuropathy: Signs/symptoms may include tingling or numbness of the extremities, incoordination, weakness of the hands and feet, tremors and muscle atrophy.

Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Toxicological Data

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

the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
2-METHYLPENTANE	Dermal		LD50 estimated to be > 5,000 mg/kg
2-METHYLPENTANE	Inhalation-Vapor		LC50 estimated to be > 50 mg/l
2-METHYLPENTANE	Ingestion		LD50 estimated to be > 5,000 mg/kg
LIQUEFIED PETROLEUM GAS	Inhalation-Gas (4 hours)	Rat	LC50 227,000 ppm
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
POLYMER	Dermal		LD50 estimated to be > 5,000 mg/kg
POLYMER	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
DIMETHYL ETHER	Inhalation-Gas (4 hours)	Rat	LC50 164,000 ppm
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-,POLYMER WITH 6,6-DIMETHYL-2-METHYLENEBICYCLO[3.1.1]HEPTANE	Dermal		LD50 estimated to be > 5,000 mg/kg
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-,POLYMER WITH 6,6-DIMETHYL-2-METHYLENEBICYCLO[3.1.1]HEPTANE	Ingestion	Rat	LD50 > 34,000 mg/kg
GLYCEROL ESTER	Dermal	Rat	LD50 > 2,000 mg/kg
GLYCEROL ESTER	Ingestion	Rat	LD50 > 2,000 mg/kg
PENTANE	Dermal	Rabbit	LD50 3,000 mg/kg
PENTANE	Inhalation-Vapor (4 hours)	Rat	LC50 > 18 mg/l
PENTANE	Ingestion	Rat	LD50 > 2,000 mg/kg
LIMESTONE	Dermal	Rat	LD50 > 2,000 mg/kg
LIMESTONE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
LIMESTONE	Ingestion	Rat	LD50 6,450 mg/kg
HEXANE	Dermal	Rabbit	LD50 > 2,000 mg/kg
HEXANE	Inhalation-Vapor (4 hours)	Rat	LC50 170 mg/l
HEXANE	Ingestion	Rat	LD50 > 28,700 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
2-METHYLPENTANE	Professional judgement	Mild irritant
LIQUEFIED PETROLEUM GAS	Professional judgement	No significant irritation
CYCLOHEXANE	Rabbit	Mild irritant
POLYMER	Professional	Minimal irritation

	judgement	
GLYCEROL ESTER	Rabbit	No significant irritation
PENTANE	Rabbit	Minimal irritation
LIMESTONE	Rabbit	No significant irritation
HEXANE	Human and animal	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
2-METHYLPENTANE	Professional judgement	Moderate irritant
LIQUEFIED PETROLEUM GAS	Professional judgement	No significant irritation
CYCLOHEXANE	Rabbit	Mild irritant
GLYCEROL ESTER	Rabbit	Mild irritant
PENTANE	Rabbit	Mild irritant
LIMESTONE	Rabbit	No significant irritation
HEXANE	Rabbit	Mild irritant

Sensitization:**Skin Sensitization**

Name	Species	Value
GLYCEROL ESTER	Human and animal	Not classified
PENTANE	Guinea pig	Not classified
HEXANE	Human	Not classified

Respiratory Sensitization

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

Germ Cell Mutagenicity

Name	Route	Value
LIQUEFIED PETROLEUM GAS	In Vitro	Not mutagenic
CYCLOHEXANE	In Vitro	Not mutagenic
CYCLOHEXANE	In vivo	Some positive data exist, but the data are not sufficient for classification
DIMETHYL ETHER	In Vitro	Not mutagenic
DIMETHYL ETHER	In vivo	Not mutagenic
PENTANE	In vivo	Not mutagenic
PENTANE	In Vitro	Some positive data exist, but the data are not sufficient for classification
HEXANE	In Vitro	Not mutagenic
HEXANE	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
DIMETHYL ETHER	Inhalation	Rat	Not carcinogenic
HEXANE	Dermal	Mouse	Not carcinogenic
HEXANE	Inhalation	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
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
DIMETHYL ETHER	Inhalation	Not classified for development	Rat	NOAEL 40,000 ppm	during organogenesis
PENTANE	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
PENTANE	Inhalation	Not classified for development	Rat	NOAEL 30 mg/l	during organogenesis
LIMESTONE	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	prematuring & during gestation
HEXANE	Ingestion	Not classified for development	Mouse	NOAEL 2,200 mg/kg/day	during organogenesis
HEXANE	Inhalation	Not classified for development	Rat	NOAEL 0.7 mg/l	during gestation
HEXANE	Ingestion	Toxic to male reproduction	Rat	NOAEL 1,140 mg/kg/day	90 days
HEXANE	Inhalation	Toxic to male reproduction	Rat	LOAEL 3.52 mg/l	28 days

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
2-METHYLPENTANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
2-METHYLPENTANE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
2-METHYLPENTANE	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL Not available	
2-METHYLPENTANE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
LIQUEFIED PETROLEUM GAS	Inhalation	cardiac sensitization	Causes damage to organs	similar compounds	NOAEL Not available	
LIQUEFIED PETROLEUM GAS	Inhalation	central nervous system depression	May cause drowsiness or dizziness		NOAEL Not available	
LIQUEFIED PETROLEUM GAS	Inhalation	respiratory irritation	Not classified		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	

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				nt		
DIMETHYL ETHER	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Rat	LOAEL 10,000 ppm	30 minutes
DIMETHYL ETHER	Inhalation	cardiac sensitization	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 100,000 ppm	5 minutes
PENTANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	not available
PENTANE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Not available	NOAEL Not available	not available
PENTANE	Inhalation	cardiac sensitization	Not classified	Dog	NOAEL Not available	not available
PENTANE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	not available
LIMESTONE	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
HEXANE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	not available
HEXANE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rabbit	NOAEL Not available	8 hours
HEXANE	Inhalation	respiratory system	Not classified	Rat	NOAEL 24.6 mg/l	8 hours

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
2-METHYLPENTANE	Inhalation	peripheral nervous system	Not classified	Rat	NOAEL 5.3 mg/l	14 weeks
2-METHYLPENTANE	Ingestion	peripheral nervous system	Not classified	Rat	NOAEL Not available	8 weeks
2-METHYLPENTANE	Ingestion	kidney and/or bladder	Not classified	Rat	LOAEL 2,000 mg/kg	28 days
LIQUEFIED PETROLEUM GAS	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL Not available	
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
DIMETHYL ETHER	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 25,000 ppm	2 years
DIMETHYL ETHER	Inhalation	liver	Not classified	Rat	NOAEL 20,000 ppm	30 weeks
PENTANE	Inhalation	peripheral nervous system	Not classified	Human	NOAEL Not available	occupational exposure
PENTANE	Inhalation	heart skin endocrine system gastrointestinal tract bone, teeth, nails, and/or hair hematopoietic system liver immune system muscles nervous system eyes kidney and/or bladder respiratory	Not classified	Rat	NOAEL 20 mg/l	13 weeks

		system				
PENTANE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,000 mg/kg/day	28 days
LIMESTONE	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
HEXANE	Inhalation	peripheral nervous system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
HEXANE	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	LOAEL 1.76 mg/l	13 weeks
HEXANE	Inhalation	liver	Not classified	Rat	NOAEL Not available	6 months
HEXANE	Inhalation	kidney and/or bladder	Not classified	Rat	LOAEL 1.76 mg/l	6 months
HEXANE	Inhalation	hematopoietic system	Not classified	Mouse	NOAEL 35.2 mg/l	13 weeks
HEXANE	Inhalation	auditory system immune system eyes	Not classified	Human	NOAEL Not available	occupational exposure
HEXANE	Inhalation	heart skin endocrine system	Not classified	Rat	NOAEL 1.76 mg/l	6 months
HEXANE	Ingestion	peripheral nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,140 mg/kg/day	90 days
HEXANE	Ingestion	endocrine system hematopoietic system liver immune system kidney and/or bladder	Not classified	Rat	NOAEL Not available	13 weeks

Aspiration Hazard

Name	Value
2-METHYLPENTANE	Aspiration hazard
CYCLOHEXANE	Aspiration hazard
PENTANE	Aspiration hazard
HEXANE	Aspiration hazard

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

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labeling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:

GHS Acute 2: Toxic to aquatic life.

Chronic aquatic hazard:

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
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2-METHYLPENTANE	107-83-5		Data not available or insufficient for classification			N/A
LIQUEFIED PETROLEUM GAS	68476-85-7		Data not available or insufficient for classification			N/A
POLYMER	Trade Secret		Data not available or insufficient for classification			N/A
CYCLOHEXANE	110-82-7	Bacteria	Experimental	24 hours	IC50	97 mg/l
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
DIMETHYL ETHER	115-10-6	Bacteria	Experimental		EC10	>1,600 mg/l
DIMETHYL ETHER	115-10-6	Guppy	Experimental	96 hours	LC50	>4,100 mg/l
DIMETHYL ETHER	115-10-6	Water flea	Experimental	48 hours	EC50	>4,400 mg/l
GLYCEROL ESTER	Trade Secret	Green algae	Estimated	72 hours	No tox obs at lmt of water sol	>100 mg/l
GLYCEROL ESTER	Trade Secret	Rainbow Trout	Estimated	96 hours	No tox obs at lmt of water sol	>100 mg/l
GLYCEROL ESTER	Trade Secret	Water flea	Estimated	48 hours	No tox obs at lmt of water sol	>100 mg/l
GLYCEROL ESTER	Trade Secret	Green Algae	Estimated	72 hours	No tox obs at lmt of water sol	>100 mg/l
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-, POLYMER WITH 6,6-DIMETHYL-2-METHYLENE BICYCLO[3.1.1]HEPTANE	31393-98-3	Activated sludge	Experimental	3 hours	NOEC	1,000 mg/l
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-, POLYMER WITH 6,6-DIMETHYL-2-METHYLENE BICYCLO[3.1.1]HEPTANE	31393-98-3	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-, POLYMER WITH 6,6-DIMETHYL-2-METHYLENE BICYCLO[3.1.1]HEPTANE	31393-98-3	Water flea	Endpoint not	21 days	EL10	>100 mg/l

1]HEPT-2-ENE,2,6,6-TRIMETHYL-,POLYMER WITH 6,6-DIMETHYL-2-METHYLENE BICYCLO[3.1.1]HEPTANE			reached			
HEXANE	110-54-3	Fathead Minnow	Experimental	96 hours	LC50	2.5 mg/l
HEXANE	110-54-3	Water flea	Experimental	48 hours	LC50	3.9 mg/l
PENTANE	109-66-0	Green Algae	Experimental	72 hours	EC50	10.7 mg/l
PENTANE	109-66-0	Rainbow Trout	Experimental	96 hours	LC50	4.26 mg/l
PENTANE	109-66-0	Water flea	Experimental	48 hours	EC50	2.7 mg/l
PENTANE	109-66-0	Green Algae	Experimental	72 hours	NOEC	2.04 mg/l
LIMESTONE	1317-65-3	Green algae	Estimated	72 hours	EC50	>100 mg/l
LIMESTONE	1317-65-3	Rainbow Trout	Estimated	96 hours	LC50	>100 mg/l
LIMESTONE	1317-65-3	Water flea	Estimated	48 hours	EC50	>100 mg/l
LIMESTONE	1317-65-3	Green algae	Estimated	72 hours	EC10	>100 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
2-METHYLPENTANE	107-83-5	Data not available - insufficient			N/A	
LIQUEFIED PETROLEUM GAS	68476-85-7	Estimated Photolysis		Photolytic half-life (in air)	21.4 days (t _{1/2})	Non-standard method
POLYMER	Trade Secret	Data not available - insufficient			N/A	
CYCLOHEXANE	110-82-7	Experimental Photolysis		Photolytic half-life (in air)	4.14 days (t _{1/2})	Non-standard method
CYCLOHEXANE	110-82-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	77 % BOD/ThBOD	OECD 301F - Manometric Respiro
DIMETHYL ETHER	115-10-6	Experimental Photolysis		Photolytic half-life (in air)	12.4 days (t _{1/2})	Non-standard method
DIMETHYL ETHER	115-10-6	Experimental Biodegradation	28 days	Biological Oxygen Demand	5 % weight	OECD 301D - Closed Bottle Test
GLYCEROL ESTER	Trade Secret	Experimental Biodegradation	28 days	Carbon dioxide evolution	47.3 % CO ₂ evolution/THC O ₂ evolution	OECD 301B - Mod. Sturm or CO ₂
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-,POLYMER WITH 6,6-DIMETHYL-	31393-98-3	Experimental Biodegradation	28 days	Biological Oxygen Demand	4 % BOD/ThBOD	OECD 301D - Closed Bottle Test

2-METHYLENE BICYCLO[3.1.1]HEPTANE						
HEXANE	110-54-3	Experimental Photolysis		Photolytic half-life (in air)	5.4 days (t 1/2)	Non-standard method
HEXANE	110-54-3	Experimental Bioconcentration	28 days	Biological Oxygen Demand	100 % weight	OECD 301C - MITI (I)
PENTANE	109-66-0	Experimental Photolysis		Photolytic half-life (in air)	8.07 days (t 1/2)	Non-standard method
PENTANE	109-66-0	Experimental Biodegradation	28 days	Biological Oxygen Demand	87 % BOD/ThBOD	OECD 301F - Manometric Respiro
LIMESTONE	1317-65-3	Data not available - insufficient			N/A	

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
2-METHYLPENTANE	107-83-5	Estimated Bioconcentration		Bioaccumulation Factor	150	Est: Bioconcentration factor
LIQUEFIED PETROLEUM GAS	68476-85-7	Estimated Bioconcentration		Log of Octanol/H ₂ O part. coeff	2.8	Non-standard method
POLYMER	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
CYCLOHEXANE	110-82-7	Experimental BCF-Carp	56 days	Bioaccumulation Factor	129	OECD 305E-Bioaccum Fl-thru fis
DIMETHYL ETHER	115-10-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
GLYCEROL ESTER	Trade Secret	Estimated Bioconcentration		Bioaccumulation Factor	7.4	Est: Bioconcentration factor
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL-, POLYMER WITH 6,6-DIMETHYL-2-METHYLENE BICYCLO[3.1.1]HEPTANE	31393-98-3	Experimental Bioconcentration		Log of Octanol/H ₂ O part. coeff	7.41	Non-standard method
HEXANE	110-54-3	Estimated Bioconcentration		Bioaccumulation Factor	50	Est: Bioconcentration factor
PENTANE	109-66-0	Estimated		Bioaccumulation	26	Est: Bioconcentration

		Bioconcentration		n Factor		factor
LIMESTONE	1317-65-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil

Please contact manufacturer for more details

12.5 Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport Information

Marine Transport (IMDG)

UN Number:UN1950

Proper Shipping Name:AEROSOLS, FLAMMABLE, N.O.S

Technical Name:None assigned.

Hazard Class/Division:2.1

Subsidiary Risk:None assigned.

Packing Group:III

Limited Quantity:Yes

Marine Pollutant: None assigned.

Marine Pollutant Technical Name: None assigned.

Other Dangerous Goods Descriptions:

None assigned.

Air Transport (IATA)

UN Number:UN1950

Proper Shipping Name:AEROSOLS, FLAMMABLE, N.O.S

Technical Name:None assigned.

Hazard Class/Division:2.1

Subsidiary Risk:None assigned.

Packing Group:III

Limited Quantity:None assigned.

Marine Pollutant: None assigned.

Marine Pollutant Technical Name: None assigned.

Other Dangerous Goods Descriptions:

None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current

regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

SECTION 15: Regulatory information

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

Global inventory status

Contact 3M for more information.

SECTION 16: Other information

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

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