



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Notification of Ministry of Industry, System of Hazardous Classification and Communication B.E.2555.

SECTION 1: Identification

1.1. Product identifier

3M Super 77 Spray Adhesive

Company: 3M Thailand Ltd.

Address: 14th Floor The PARQ Building, 88 Ratchadaphisek Road, Khlong Toei, Bangkok 10110 Thailand

Product Identification Numbers

XP-0020-4808-8 XP-0020-4809-6 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 Thailand Limited, 14th Floor The PARQ Building, 88 Ratchadaphisek Road, Khlong Toei, Bangkok 10110 Thailand
Telephone: 66 2 666 3666
E Mail: 3MThailand@mmm.com
Website: <http://www.3M.com/TH>

1.4. Emergency telephone number

66 2 666 3666 (Office hours)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Flammable Aerosol: Category 1.
Skin Corrosion/Irritation: Category 3.
Serious Eye Damage/Irritation: Category 2A.
Reproductive Toxicity: Category 1B.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (single exposure): Category 3.
Acute Aquatic Toxicity: Category 2.

2.2. Label elements

Signal word

Danger

Symbols

Flame | Exclamation mark | Health Hazard |

Pictograms



HAZARD STATEMENTS:

H222	Extremely flammable aerosol.
H229	Pressurized container: may burst if heated.
H316	Causes mild skin irritation.
H319	Causes serious eye irritation.
H360	May damage fertility or the unborn child.
H336	May cause drowsiness or dizziness.
H370	Causes damage to organs: cardiovascular system.
H401	Toxic to aquatic life.

PRECAUTIONARY STATEMENTS

General:

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

Prevention:

P201	Obtain special instructions before use.
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.
P271	Use only outdoors or in a well-ventilated area.
P280F	Wear respiratory protection.

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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P332 + P313	If skin irritation occurs: Get medical advice/attention.

Storage:

P405	Store locked up.
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.

Disposal:

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

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
CYCLOHEXANE	110-82-7	10 - 20
DIMETHYL ETHER	115-10-6	5 - 15
GLYCEROL ESTER	Trade Secret	5 - 15
Non-Volatile Components	Trade Secret	5 - 10
Terpene Phenolic	Trade Secret	0 - 10
Non-Volatile Resin	Trade Secret	0 - 5
Ethyl Alcohol	64-17-5	1 - 5
PENTANE	109-66-0	0 - 5
Petroleum Resins	64742-16-1	0 - 5
Toluene	108-88-3	0 - 0.3
HEXANE	110-54-3	< 0.3

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Remove person to fresh air. Get medical attention.

Skin Contact:

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

Eye Contact:

Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. 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

Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness). Target organ effects. 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

Condition

During Combustion

During Combustion

Formaldehyde
Carbon monoxide
Carbon dioxide

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 50°C/122°F. 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	
Toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcin, Ototoxicant
Toluene	108-88-3	Thailand OELs	TWA(8 hours):200 ppm;STEL(15 minutes):500 ppm;CEIL:300 ppm	
PENTANE	109-66-0	ACGIH	TWA:1000 ppm	
PENTANE	109-66-0	Thailand OELs	TWA(8 hours):1000 ppm	
HEXANE	110-54-3	ACGIH	TWA:50 ppm	Danger of cutaneous absorption
HEXANE	110-54-3	Thailand OELs	TWA(8 hours):500 ppm	
CYCLOHEXANE	110-82-7	ACGIH	TWA:100 ppm	
CYCLOHEXANE	110-82-7	Thailand OELs	TWA(8 hours):300 ppm	
DIMETHYL ETHER	115-10-6	AIHA	TWA:1880 mg/m3(1000 ppm)	
Ethyl Alcohol	64-17-5	ACGIH	STEL:1000 ppm	A3: Confirmed animal carcin.
Ethyl Alcohol	64-17-5	Thailand OELs	TWA(8 hours):1000 ppm	
LIQUEFIED PETROLEUM GAS	68476-85-7	ACGIH	Limit value not established:	simple asphyxiant
LIQUEFIED PETROLEUM GAS	68476-85-7	Thailand OELs	TWA(8 hours):1000 ppm	
GLYCEROL ESTER	Trade Secret	ACGIH	TWA(as Resin, inhalable fraction):0.001 mg/m3	Dermal/Respiratory Sensitizer

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

Thailand OELs : Thailand. Ministry of Interior, Re: Notification Health and Safety in the Work Environment on chemical B.E.2520

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.

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

Nitrile Rubber

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	No Data Available
pH	Not Applicable
Melting point/Freezing point	Not Applicable
Boiling point/Initial boiling point/Boiling range	Not Applicable
Flash Point	-42 °C [Details:Propellant]
Evaporation rate	No Data Available
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	No Data Available
Flammable Limits(UEL)	No Data Available
Vapor Pressure	No Data Available
Vapor Density and/or Relative Vapor Density	No Data Available
Density	Not Applicable
Relative Density	Not Applicable
Water solubility	Not Applicable
Solubility- non-water	No Data Available
Partition coefficient: n-octanol/ water	Not Applicable
Autoignition temperature	Not Applicable
Decomposition temperature	No Data Available
Viscosity/Kinematic Viscosity	No Data Available
Volatile Organic Compounds	No Data Available
Percent volatile	No Data Available
VOC Less H ₂ O & Exempt Solvents	No Data Available

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:

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

Eye Contact:

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

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.

Reproductive/Developmental Toxicity:

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

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 >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
DIMETHYL ETHER	Inhalation-Gas (4 hours)	Rat	LC50 164,000 ppm
Non-Volatile Components	Dermal		LD50 estimated to be > 5,000 mg/kg
Non-Volatile Components	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Terpene Phenolic	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Terpene Phenolic	Ingestion	Rat	LD50 > 7,000 mg/kg
GLYCEROL ESTER	Dermal	Rat	LD50 > 2,000 mg/kg
GLYCEROL ESTER	Ingestion	Rat	LD50 > 2,000 mg/kg
Petroleum Resins	Ingestion	Rat	LD50 > 2,000 mg/kg
Petroleum Resins	Dermal	similar health hazards	LD50 estimated to be > 5,000 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
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
Non-Volatile Resin	Ingestion	Mouse	LD50 > 2,000 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
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

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
Non-Volatile Components	Professional judgement	Minimal irritation
GLYCEROL ESTER	Rabbit	No significant irritation
Petroleum Resins	In vitro data	No significant irritation
PENTANE	Rabbit	Minimal irritation
Ethyl Alcohol	Rabbit	No significant irritation
HEXANE	Human and animal	Mild irritant
Toluene	Rabbit	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
Petroleum Resins	In vitro data	No significant irritation
PENTANE	Rabbit	Mild irritant
Ethyl Alcohol	Rabbit	Severe irritant
HEXANE	Rabbit	Mild irritant
Toluene	Rabbit	Moderate irritant

Sensitization:

Skin Sensitization

Name	Species	Value
Terpene Phenolic	Human	Some positive data exist, but the data are not sufficient for classification
GLYCEROL ESTER	Human and animal	Not classified

Petroleum Resins	Mouse	Not classified
PENTANE	Guinea pig	Not classified
Ethyl Alcohol	Human	Not classified
HEXANE	Human	Not classified
Toluene	Guinea pig	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
Petroleum Resins	In Vitro	Not mutagenic
PENTANE	In vivo	Not mutagenic
PENTANE	In Vitro	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
HEXANE	In Vitro	Not mutagenic
HEXANE	In vivo	Not mutagenic
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
DIMETHYL ETHER	Inhalation	Rat	Not carcinogenic
Ethyl Alcohol	Ingestion	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
HEXANE	Dermal	Mouse	Not carcinogenic
HEXANE	Inhalation	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

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	during organogenesis

				mg/kg/day	
PENTANE	Inhalation	Not classified for development	Rat	NOAEL 30 mg/l	during organogenesis
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
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
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

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	
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
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	
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
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

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 system	Not classified	Rat	NOAEL 20 mg/l	13 weeks
PENTANE	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,000 mg/kg/day	28 days
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 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
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
Toluene	Inhalation	auditory system nervous system eyes 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 liver 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

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Toluene	Inhalation	hematopoietic system 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 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

Aspiration Hazard

Name	Value
2-METHYLPENTANE	Aspiration hazard
CYCLOHEXANE	Aspiration hazard
PENTANE	Aspiration hazard
HEXANE	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 2: Toxic to aquatic life.

Chronic aquatic hazard:

Not chronically toxic to aquatic life by GHS criteria.

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
2-METHYLPENTANE	107-83-5	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
LIQUEFIED PETROLEUM GAS	68476-85-7	N/A	Data not available or insufficient for classification	N/A	N/A	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

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DIMETHYL ETHER	115-10-6	Bacteria	Experimental	N/A	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
Non-Volatile Components	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Terpene Phenolic	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
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
Non-Volatile Resin	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
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
Petroleum Resins	64742-16-1	Green algae	Endpoint not reached	72 hours	EL50	>100 mg/l
Petroleum Resins	64742-16-1	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
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
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)

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
2-METHYLPENTANE	107-83-5	Data not availbl-insufficient	N/A	N/A	N/A	N/A

LIQUEFIED PETROLEUM GAS	68476-85-7	Estimated Photolysis		Photolytic half-life (in air)	21.4 days (t 1/2)	
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)	4.1 days (t 1/2)	
DIMETHYL ETHER	115-10-6	Experimental Biodegradation	28 days	Biological Oxygen Demand	5 %BOD/ThOD	OECD 301D - Closed Bottle Test
DIMETHYL ETHER	115-10-6	Experimental Photolysis		Photolytic half-life (in air)	12.4 days (t 1/2)	
GLYCEROL ESTER	Trade Secret	Experimental Biodegradation	28 days	Carbon dioxide evolution	47.3 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
Non-Volatile Components	Trade Secret	Data not available - insufficient	N/A	N/A	N/A	N/A
Terpene Phenolic	Trade Secret	Estimated Biodegradation	28 days	Biological Oxygen Demand	27.5 %BOD/ThOD	
Ethyl Alcohol	64-17-5	Experimental Biodegradation	14 days	Biological Oxygen Demand	89 %BOD/ThOD	OECD 301C - MITI (I)
Non-Volatile Resin	Trade Secret	Estimated Biodegradation	28 days	Carbon dioxide evolution	24 %CO2 evolution/THCO2 evolution	Catalogic™
PENTANE	109-66-0	Experimental Biodegradation	28 days	Biological Oxygen Demand	87 %BOD/ThOD	OECD 301F - Manometric Respiro
PENTANE	109-66-0	Experimental Photolysis		Photolytic half-life (in air)	8.07 days (t 1/2)	
Petroleum Resins	64742-16-1	Estimated Biodegradation	28 days	Carbon dioxide evolution	18 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
HEXANE	110-54-3	Experimental Bioconcentration	28 days	Biological Oxygen Demand	100 %BOD/ThOD	OECD 301C - MITI (I)
HEXANE	110-54-3	Experimental Photolysis		Photolytic half-life (in air)	5.4 days (t 1/2)	
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)	

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	
LIQUEFIED PETROLEUM GAS	68476-85-7	Estimated Bioconcentration		Log of Octanol/H2O part. coeff	2.8	
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	
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	
Non-Volatile Components	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Terpene Phenolic	Trade Secret	Estimated Bioconcentration		Bioaccumulation Factor	18.9	
Ethyl Alcohol	64-17-5	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-0.35	

Non-Volatile Resin	Trade Secret	Estimated BCF - Other		Bioaccumulation Factor	7.9	Catalogic™
PENTANE	109-66-0	Estimated Bioconcentration		Bioaccumulation Factor	26	
Petroleum Resins	64742-16-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
HEXANE	110-54-3	Modeled Bioconcentration		Bioaccumulation Factor	50	Catalogic™
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	

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**

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

Incinerate in a permitted waste incineration facility. Facility must be capable of handling aerosol cans. 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

Not hazardous for transportation.

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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