Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
3M™ Super77 Spray Adhesive

Product Identification Numbers
YP-2080-6120-7

7000116782

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Aerosol Adhesive

1.3. Details of the supplier of the safety data sheet
Address: 3M Ireland Limited, 70 SIR JOHN ROGERSON'S QUAY, D02R296 DUBLIN 2
Telephone: +353 1 280 3555
E Mail: ner-productstewardship@mmm.com
Website: www.3M.com

1.4. Emergency telephone number
Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland. Telephone Number: +353 (0)1 809 2166

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.
Aspiration hazard classification does not apply due to the spray pattern of the product.

CLASSIFICATION:
Aerosol, Category 1 - Aerosol 1; H222, H229

Skin Corrosion/Irritation, Category 2 - Skin Irrit. 2; H315
Specific Target Organ Toxicity-Single Exposure, Category 3 - STOT SE 3; H336
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

2.2. Label elements
CLP REGULATION (EC) No 1272/2008

SIGNAL WORD
DANGER.

Symbols
GHS02 (Flame) |GHS07 (Exclamation mark) |GHS09 (Environment) |

Pictograms

Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		927-510-4	< 15
Hydrocarbons, C6, isoalkanes, < 5% n- hexane		931-254-9	< 10

HAZARD STATEMENTS:

H222	Extremely flammable aerosol.
H229	Pressurised container: may burst if heated.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P261E	Avoid breathing vapour or spray.
P273	Avoid release to the environment.

Storage:

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

2.3. Other hazards

May displace oxygen and cause rapid suffocation.
This material does not contain any substances that are assessed to be a PBT or vPvB

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

Ingredient	Identifier(s)	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
propane	(CAS-No.) 74-98-6 (EC-No.) 200-827-9 (REACH-No.) 01-2119486944-21	< 15	Flam. Gas 1A, H220 Liquified gas, H280 Nota U
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	(EC-No.) 927-510-4 (REACH-No.) 01-2119475515-33	< 15	Aquatic Chronic 2, H411 Flam. Liq. 2, H225 Asp. Tox. 1, H304 Skin Irrit. 2, H315 STOT SE 3, H336
dimethyl ether	(CAS-No.) 115-10-6 (EC-No.) 204-065-8 (REACH-No.) 01-2119472128-37	< 12	Flam. Gas 1A, H220 Liquified gas, H280 Nota U
cyclohexane	(CAS-No.) 110-82-7 (EC-No.) 203-806-2 (REACH-No.) 01-2119463273-41	< 12	Flam. Liq. 2, H225 Asp. Tox. 1, H304 Skin Irrit. 2, H315 STOT SE 3, H336 Aquatic Acute 1, H400,M=1 Aquatic Chronic 1, H410,M=1
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	(CAS-No.) 31393-98-3	< 10	Aquatic Chronic 4, H413
Butadiene Copolymer	Trade Secret	< 10	Substance not classified as hazardous
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	(EC-No.) 931-254-9 (REACH-No.) 01-2119484651-34	< 10	Aquatic Chronic 2, H411 Flam. Liq. 2, H225 Asp. Tox. 1, H304 Skin Irrit. 2, H315 STOT SE 3, H336
pentane	(CAS-No.) 109-66-0 (EC-No.) 203-692-4 (REACH-No.) 01-2119459286-30	< 10	Flam. Liq. 2, H225 Asp. Tox. 1, H304 STOT SE 3, H336 EUH066 Aquatic Chronic 2, H411 Nota C
Thermoplastic resin	Trade Secret	< 7	Substance with a national occupational exposure limit
butane	(CAS-No.) 106-97-8 (EC-No.) 203-448-7 (REACH-No.) 01-2119474691-32	< 7	Flam. Gas 1A, H220 Liquified gas, H280 Nota C,U
isobutane	(CAS-No.) 75-28-5 (EC-No.) 200-857-2 (REACH-No.) 01-2119485395-27	< 5	Flam. Gas 1A, H220 Liquified gas, H280 Nota C,U
isopentane	(CAS-No.) 78-78-4 (EC-No.) 201-142-8	< 3	Flam. Liq. 1, H224 Asp. Tox. 1, H304 STOT SE 3, H336 EUH066

			Aquatic Chronic 2, H411

Any entry in the Identifier(s) column that begins with the numbers 6, 7, 8, or 9 are a Provisional List Number provided by ECHA pending publication of the official EC Inventory Number for the substance.
Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

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
If exposed, flush eyes with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms develop, 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
The most important symptoms and effects based on the CLP classification include:
Irritation to the skin (localized redness, swelling, itching, and dryness). 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
Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

SECTION 5: Fire-fighting measures

5.1. 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	Condition
Aldehydes.	During combustion.
Hydrocarbons.	During combustion.
formaldehyde	During combustion.
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Ketones.	During combustion.

5.3. Advice 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 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 dykes 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. 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 authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

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/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. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Keep container tightly closed to prevent loss of stabilizing materials. Protect from sunlight. Do not expose to temperatures exceeding 50ºC/122ºF. Protect from sunlight. Store in a well-ventilated place. Store away from heat. Store away from acids. Store away from oxidising agents.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

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	CAS Nbr	Agency	Limit type	Additional comments
butane	106-97-8	Ireland OELs	STEL(15 minutes):1000 ppm	
pentane	109-66-0	Ireland OELs	TWA(8 hours):3000 mg/m3(1000 ppm);TWA(8 hours):1000 ppm(3000 mg/m3)	
cyclohexane	110-82-7	Ireland OELs	TWA(8 hours):700 mg/m3(200 ppm);TWA(8 hours):200 ppm(700 mg/m3)	
dimethyl ether	115-10-6	Ireland OELs	TWA(8 hours):1920 mg/m3(1000 ppm);TWA(8 hours):1000 ppm(1920 mg/m3)	
isobutane	75-28-5	Ireland OELs	STEL(15 minutes):1000 ppm	
isopentane	78-78-4	Ireland OELs	TWA(8 hours):3000 mg/m3(1000 ppm);TWA(8 hours):1000 ppm(3000 mg/m3)	
Thermoplastic resin	Trade Secret	Ireland OELs	TWA(8 hours):0.05 mg/m3;STEL(15 minutes):0.15 mg/m3	AIR, total respirable

Ireland OELs : Ireland. OELs
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values

No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Derived no effect level (DNEL)

Ingredient	Degradation Product	Population	Human exposure pattern	DNEL
Hydrocarbons, C6, isoalkanes, < 5% n-hexane		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	13,964 mg/kg bw/d
Hydrocarbons, C6, isoalkanes, < 5% n-hexane		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	5,306 mg/m³
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	13,964 mg/kg bw/d
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	5,306 mg/m³
Hydrocarbons, C6, isoalkanes, < 5% n-hexane		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	300 mg/kg bw/d
Hydrocarbons, C6, isoalkanes, < 5% n-hexane		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	2,085 mg/m³
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	300 mg/kg bw/d
Hydrocarbons, C7, n-alkanes, isoalkanes,		Worker	Inhalation, Long-term exposure (8 hours),	2,085 mg/m³

cyclics			Systemic effects	
cyclohexane		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	2,016 mg/kg bw/d
cyclohexane		Worker	Inhalation, Long-term exposure (8 hours), Local effects	700 mg/m³
cyclohexane		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	700 mg/m³
cyclohexane		Worker	Inhalation, Short-term exposure, Local effects	700 mg/m³
cyclohexane		Worker	Inhalation, Short-term exposure, Systemic effects	700 mg/m³
Hydrocarbons, C6, isoalkanes, < 5% n-hexane		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	300 mg/kg bw/d
Hydrocarbons, C6, isoalkanes, < 5% n-hexane		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	2,085 mg/m³
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	300 mg/kg bw/d
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	2,085 mg/m³

Predicted no effect concentrations (PNEC)

Ingredient	Degradation Product	Compartment	PNEC
cyclohexane		Freshwater	0.207 mg/l
cyclohexane		Freshwater sediments	3.627 mg/kg d.w.
cyclohexane		Intermittent releases to water	0.207 mg/l
cyclohexane		Marine water	0.207 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n- hexane		Agricultural soil	0.53 mg/kg d.w.
Hydrocarbons, C6, isoalkanes, < 5% n- hexane		Freshwater	0.096 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n- hexane		Freshwater sediments	2.5 mg/kg d.w.
Hydrocarbons, C6, isoalkanes, < 5% n- hexane		Marine water	0.096 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n- hexane		Marine water sediments	2.5 mg/kg d.w.
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Agricultural soil	0.53 mg/kg d.w.
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Freshwater	0.096 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Freshwater sediments	2.5 mg/kg d.w.
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Marine water	0.096 mg/l

Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		Marine water sediments	2.5 mg/kg d.w.

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from Indust. Inspect./Ministry (IE)

8.2. Exposure controls

In addition, refer to the annex for more information.

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/vapours/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.

Applicable Norms/Standards
Use eye protection conforming to EN 166

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:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	>.3	=>8 hours

The glove data presented are based on the substance driving dermal toxicity and the conditions present at the time of testing. Breakthrough time may be altered when the glove is subjected to use conditions that place additional stress on the glove.

Applicable Norms/Standards
Use gloves tested to EN 374

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
Half facepiece or full facepiece supplied-air respirator

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

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136
Use a respirator conforming to EN 140 or EN 136: filter type A

8.2.3. Environmental exposure controls
Refer to Annex

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Aerosol
Colour	Colourless
Odor	Sweet Odour
Odour threshold	*No data available.*
Melting point/freezing point	*Not applicable.*
Boiling point/boiling range	*Not applicable.*
Flammability	Flammable Aerosol: Category 1.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Flash point	-42 ºC [*Test Method:*Closed Cup] [*Details:*Aerosol Adhesive]
Autoignition temperature	*No data available.*
Decomposition temperature	*Not applicable.*
pH	*substance/mixture is non-polar/aprotic*
Kinematic Viscosity	286 mm²/sec
Water solubility	*No data available.*
Solubility- non-water	*Not applicable.*
Partition coefficient: n-octanol/water	*No data available.*
Vapour pressure	*Not applicable.*
Density	<=0.7 g/ml
Relative density	approximately 0.7 N/A [*Ref Std:*WATER=1] [*Details:*G/cm3]
Relative Vapour Density	*No data available.*
Particle Characteristics	*Not applicable.*

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds	*No data available.*
Evaporation rate	*No data available.*
Percent volatile	approximately 75 %

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 polymerisation will not occur.

10.4 Conditions to avoid
Heat.
Sparks and/or flames.

10.5 Incompatible materials
Strong acids.
Strong oxidising 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 agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from internal hazard assessments.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

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 localised 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 diarrhoea. 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.

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-Vapour(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
propane	Inhalation-Gas (4 hours)	Rat	LC50 > 200,000 ppm
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Dermal	Rabbit	LD50 > 2,920 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Dermal	Rabbit	LD50 > 3,160 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Dermal	Rabbit	LD50 > 3,160 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Dermal	Rat	LD50 > 2,000 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation-Vapour (4 hours)	Rat	LC50 > 14.7 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation-Vapour (4 hours)	Rat	LC50 > 23.3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation-Vapour (4 hours)	Rat	LC50 > 5.61 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Ingestion	Rat	LD50 > 5,000 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Ingestion	Rat	LD50 > 5,840 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Ingestion	Rat	LD50 > 5,000 mg/kg
pentane	Dermal	Rabbit	LD50 3,000 mg/kg
pentane	Inhalation-Vapour (4 hours)	Rat	LC50 > 18 mg/l
pentane	Ingestion	Rat	LD50 > 2,000 mg/kg
cyclohexane	Dermal	Rat	LD50 > 2,000 mg/kg
cyclohexane	Inhalation-Vapour (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
Butadiene Copolymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Butadiene Copolymer	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Dermal	Rabbit	LD50 > 2,920 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Dermal	Rabbit	LD50 > 3,160 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Dermal	Rabbit	LD50 > 3,160 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Dermal	Rat	LD50 > 2,000 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation-Vapour (4 hours)	Rat	LC50 > 14.7 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation-Vapour (4 hours)	Rat	LC50 > 23.3 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation-Vapour (4 hours)	Rat	LC50 > 5.61 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Ingestion	Rat	LD50 > 5,000 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Ingestion	Rat	LD50 > 5,840 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Ingestion	Rat	LD50 > 5,000 mg/kg
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	Dermal	Professional judgeme	LD50 estimated to be > 5,000 mg/kg

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2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	Ingestion	Rat	LD50 > 2,000 mg/kg
Thermoplastic resin	Dermal	Rat	LD50 > 2,000 mg/kg
Thermoplastic resin	Ingestion	Rat	LD50 > 2,000 mg/kg
butane	Inhalation-Gas (4 hours)	Rat	LC50 277,000 ppm
isobutane	Inhalation-Gas (4 hours)	Rat	LC50 276,000 ppm
isopentane	Dermal	Rabbit	LD50 3,000 mg/kg
isopentane	Inhalation-Vapour (4 hours)	Rat	LC50 > 18 mg/l
isopentane	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
propane	Rabbit	Minimal irritation
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Rabbit	Irritant
pentane	Rabbit	Minimal irritation
cyclohexane	Rabbit	Mild irritant
Butadiene Copolymer	Professional judgement	Minimal irritation
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Rabbit	Irritant
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	In vitro data	No significant irritation
Thermoplastic resin	Rabbit	No significant irritation
butane	Professional judgement	No significant irritation
isobutane	Professional judgement	No significant irritation
isopentane	Rabbit	Minimal irritation

Serious Eye Damage/Irritation

Name	Species	Value
propane	Rabbit	Mild irritant
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Rabbit	No significant irritation
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Rabbit	Mild irritant
pentane	Rabbit	Mild irritant
cyclohexane	Rabbit	Mild irritant
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Rabbit	No significant irritation
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Rabbit	Mild irritant
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	In vitro data	No significant irritation
Thermoplastic resin	Rabbit	Mild irritant
butane	Rabbit	No significant irritation
isobutane	Professional judgement	No significant irritation
isopentane	Rabbit	Mild irritant

Skin Sensitisation

Name	Species	Value
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Guinea pig	Not classified
pentane	Guinea pig	Not classified
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Guinea pig	Not classified
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	Multiple animal species	Not classified
Thermoplastic resin	Human and animal	Not classified
isopentane	Guinea pig	Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
propane	In Vitro	Not mutagenic
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	In Vitro	Not mutagenic
pentane	In vivo	Not mutagenic
pentane	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
dimethyl ether	In Vitro	Not mutagenic
dimethyl ether	In vivo	Not mutagenic
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	In Vitro	Not mutagenic
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	In Vitro	Not mutagenic
butane	In Vitro	Not mutagenic
isobutane	In Vitro	Not mutagenic
isopentane	In vivo	Not mutagenic
isopentane	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification
dimethyl ether	Inhalation	Rat	Not carcinogenic
Hydrocarbons, C6, isoalkanes, < 5% n- 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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Not specified.	Not classified for female reproduction	Rat	NOAEL Not available	2 generation
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Not specified.	Not classified for male reproduction	Rat	NOAEL Not available	2 generation
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Not specified.	Not classified for development	Rat	NOAEL Not available	2 generation
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
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
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	Not specified.	Not classified for female reproduction	Rat	NOAEL Not available	2 generation
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	Not specified.	Not classified for male reproduction	Rat	NOAEL Not available	2 generation
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	Not specified.	Not classified for development	Rat	NOAEL Not available	2 generation
isopentane	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
isopentane	Inhalation	Not classified for development	Rat	NOAEL 30 mg/l	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
propane	Inhalation	cardiac sensitisation	Causes damage to organs	Human	NOAEL Not available	
propane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
propane	Inhalation	respiratory irritation	Not classified	Human	NOAEL Not available	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
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 sensitisation	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
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 sensitisation	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 100,000 ppm	5 minutes
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
butane	Inhalation	cardiac sensitisation	Causes damage to organs	Human	NOAEL Not available	
butane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
butane	Inhalation	heart	Not classified	Dog	NOAEL 5,000 ppm	25 minutes
butane	Inhalation	respiratory irritation	Not classified	Rabbit	NOAEL Not available	
isobutane	Inhalation	cardiac sensitisation	Causes damage to organs	Multiple animal species	NOAEL Not available	
isobutane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and animal	NOAEL Not available	
isobutane	Inhalation	respiratory irritation	Not classified	Mouse	NOAEL Not available	
isopentane	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	not available
isopentane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Not available	NOAEL Not available	not available
isopentane	Inhalation	cardiac sensitisation	Not classified	Dog	NOAEL Not available	not available
isopentane	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	not available

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
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 |	Not classified	Rat	NOAEL 20 mg/l	13 weeks

		muscles | nervous system | eyes | kidney and/or bladder | respiratory system				
pentane	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,000 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
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
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	Ingestion	heart | gastrointestinal tract | hematopoietic system | liver | nervous system | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 331 mg/kg/day	90 days
butane	Inhalation	kidney and/or bladder | blood	Not classified	Rat	NOAEL 4,489 ppm	90 days
isobutane	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 4,500 ppm	13 weeks
isopentane	Inhalation	peripheral nervous system	Not classified	Human	NOAEL Not available	occupational exposure
isopentane	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
isopentane	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,000 mg/kg/day	28 days

Aspiration Hazard

Name	Value
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Aspiration hazard
pentane	Aspiration hazard
cyclohexane	Aspiration hazard
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	Aspiration hazard
isopentane	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.

11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Analogous Compound	72 hours	EL50	29 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Medaka	Analogous Compound	96 hours	LC50	0.561 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Analogous Compound	48 hours	EC50	0.4 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Fathead minnow	Estimated	96 hours	LL50	8.2 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Estimated	72 hours	EL50	3.1 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Estimated	72 hours	EL50	29 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Estimated	72 hours	EL50	55 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	48 hours	EL50	3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	48 hours	EL50	4.5 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	48 hours	LC50	3.9 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Rainbow trout	Experimental	96 hours	LL50	>13.4 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Analogous Compound	72 hours	NOEL	6.3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Analogous Compound	21 days	NOEC	0.17 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Estimated	72 hours	NOEL	0.5 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Estimated	72 hours	NOEL	6.3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green algae	Estimated	72 hours	NOEL	30 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	21 days	NOEL	1 mg/l

Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	21 days	NOEL	2.6 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Activated sludge	Analogous Compound	15 hours	IC50	29 mg/l
propane	74-98-6	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
cyclohexane	110-82-7	Fathead minnow	Experimental	96 hours	LC50	4.53 mg/l
cyclohexane	110-82-7	Water flea	Experimental	48 hours	EC50	0.9 mg/l
cyclohexane	110-82-7	Bacteria	Experimental	24 hours	IC50	97 mg/l
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
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	31393-98-3	Activated sludge	Experimental	3 hours	NOEC	1,000 mg/l
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	31393-98-3	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	31393-98-3	Water flea	Endpoint not reached	21 days	EL10	>100 mg/l
Butadiene Copolymer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Analogous Compound	72 hours	EL50	29 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Medaka	Analogous Compound	96 hours	LC50	0.561 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Water flea	Analogous Compound	48 hours	EC50	0.4 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Fathead minnow	Estimated	96 hours	LL50	8.2 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Estimated	72 hours	EL50	3.1 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Estimated	72 hours	EL50	29 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Estimated	72 hours	EL50	55 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Water flea	Estimated	48 hours	EL50	3 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-	931-254-9	Water flea	Estimated	48 hours	EL50	4.5 mg/l

hexane						
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Water flea	Estimated	48 hours	LC50	3.9 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Rainbow trout	Experimental	96 hours	LL50	>13.4 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Analogous Compound	72 hours	NOEL	6.3 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Water flea	Analogous Compound	21 days	NOEC	0.17 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Estimated	72 hours	NOEL	0.5 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Estimated	72 hours	NOEL	6.3 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Green algae	Estimated	72 hours	NOEL	30 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Water flea	Estimated	21 days	NOEL	1 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Water flea	Estimated	21 days	NOEL	2.6 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-hexane	931-254-9	Activated sludge	Analogous Compound	15 hours	IC50	29 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
butane	106-97-8	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Thermoplastic resin	Trade Secret	Green algae	Estimated	72 hours	No tox obs at lmt of water sol	>100 mg/l
Thermoplastic resin	Trade Secret	Rainbow trout	Estimated	96 hours	No tox obs at lmt of water sol	>100 mg/l
Thermoplastic resin	Trade Secret	Water flea	Estimated	48 hours	No tox obs at lmt of water sol	>100 mg/l
Thermoplastic resin	Trade Secret	Green algae	Estimated	72 hours	No tox obs at lmt of water sol	>100 mg/l
isobutane	75-28-5	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
isopentane	78-78-4	N/A	Data not available or insufficient for classification	N/A	N/A	N/A

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Analogous Compound Biodegradation	28 days	BOD	74.4 %BOD/ThOD	OECD 301F - Manometric respirometry
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Estimated Biodegradation	28 days	BOD	77 %BOD/ThOD	OECD 301F - Manometric respirometry
Hydrocarbons, C7, n-	927-510-4	Estimated	28 days	BOD	98 %BOD/CO	OECD 301F - Manometric

alkanes, isoalkanes, cyclics		Biodegradation			D	respirometry
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Estimated Biodegradation	28 days	BOD	98 %BOD/COD	OECD 301F - Manometric respirometry
propane	74-98-6	Experimental Photolysis		Photolytic half-life (in air)	27.5 days (t 1/2)	
cyclohexane	110-82-7	Experimental Biodegradation	28 days	BOD	77 %BOD/ThOD	OECD 301F - Manometric respirometry
cyclohexane	110-82-7	Experimental Photolysis		Photolytic half-life (in air)	4.3 days (t 1/2)	
dimethyl ether	115-10-6	Experimental Biodegradation	28 days	BOD	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)	
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	31393-98-3	Experimental Biodegradation	28 days	BOD	4 %BOD/ThOD	OECD 301D - Closed bottle test
Butadiene Copolymer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Analogous Compound Biodegradation	28 days	BOD	74.4 %BOD/ThOD	OECD 301F - Manometric respirometry
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Estimated Biodegradation	28 days	BOD	77 %BOD/ThOD	OECD 301F - Manometric respirometry
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Estimated Biodegradation	28 days	BOD	98 %BOD/COD	OECD 301F - Manometric respirometry
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Estimated Biodegradation	28 days	BOD	98 %BOD/COD	OECD 301F - Manometric respirometry
pentane	109-66-0	Experimental Biodegradation	28 days	BOD	87 %BOD/ThOD	OECD 301F - Manometric respirometry
pentane	109-66-0	Experimental Photolysis		Photolytic half-life (in air)	8.07 days (t 1/2)	
butane	106-97-8	Experimental Photolysis		Photolytic half-life (in air)	12.3 days (t 1/2)	
Thermoplastic resin	Trade Secret	Experimental Biodegradation	28 days	CO2 evolution	47.3 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
isobutane	75-28-5	Experimental Photolysis		Photolytic half-life (in air)	13.4 days (t 1/2)	
isopentane	78-78-4	Experimental Biodegradation	28 days	BOD	71.43 %BOD/ThOD	
isopentane	78-78-4	Experimental Photolysis		Photolytic half-life (in air)	8.11 days (t 1/2)	

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Analogous Compound BCF - Fish	28 days	Bioaccumulation factor	540	OECD305-Bioconcentration
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Estimated Bioconcentration		Log Kow	3.6	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Analogous Compound Bioconcentration		Log Kow	4.66	
propane	74-98-6	Experimental Bioconcentration		Log Kow	2.36	
cyclohexane	110-82-7	Experimental BCF - Fish	56 days	Bioaccumulation factor	129	OECD305-Bioconcentration
cyclohexane	110-82-7	Experimental Bioconcentration		Log Kow	3.44	

dimethyl ether	115-10-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	31393-98-3	Experimental Bioconcentration		Log Kow	7.41	
Butadiene Copolymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Analogous Compound BCF - Fish	28 days	Bioaccumulation factor	540	OECD305-Bioconcentration
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Estimated Bioconcentration		Log Kow	3.6	
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Analogous Compound Bioconcentration		Log Kow	4.66	
pentane	109-66-0	Estimated Bioconcentration		Bioaccumulation factor	26	
butane	106-97-8	Experimental Bioconcentration		Log Kow	2.89	
Thermoplastic resin	Trade Secret	Estimated Bioconcentration		Bioaccumulation factor	7.4	
isobutane	75-28-5	Experimental Bioconcentration		Log Kow	2.76	
isopentane	78-78-4	Experimental Bioconcentration		Log Kow	2.3	

12.4. Mobility in soil

Material	Cas No.	Test type	Study Type	Test result	Protocol
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Modeled Mobility in Soil	Koc	≥202 l/kg	Episuite™
cyclohexane	110-82-7	Modeled Mobility in Soil	Koc	970 l/kg	Episuite™
dimethyl ether	115-10-6	Modeled Mobility in Soil	Koc	3 l/kg	Episuite™
Hydrocarbons, C6, isoalkanes, < 5% n- hexane	931-254-9	Modeled Mobility in Soil	Koc	≥202 l/kg	Episuite™
pentane	109-66-0	Estimated Mobility in Soil	Koc	72 l/kg	Episuite™

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Endocrine disrupting properties

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment 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.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)

08 04 09* Waste adhesives and sealants containing organic solvents or other dangerous substances
16 05 04* Gases in pressure containers (including halons) containing dangerous substances

EU waste code (product container after use)

15 01 04 Metallic packaging

SECTION 14: Transportation information

	Ground Transport (ADR)	Air Transport (IATA)	Marine Transport (IMDG)
14.1 UN number or ID number	UN1950	UN1950	UN1950
14.2 UN proper shipping name	AEROSOLS	AEROSOLS, FLAMMABLE	AEROSOLS
14.3 Transport hazard class(es)	2.1	2.1	2.1
14.4 Packing group	Not applicable.	Not applicable.	Not applicable.
14.5 Environmental hazards	Not Environmentally Hazardous	Not applicable	Not a Marine Pollutant
14.6 Special precautions for user	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.
14.7 Marine Transport in bulk according to IMO instruments	No data available.	No data available.	No data available.
Control Temperature	No data available.	No data available.	No data available.
Emergency Temperature	No data available.	No data available.	No data available.

ADR Classification Code	5F	Not applicable.	Not applicable.
IMDG Segregation Code	Not applicable.	Not applicable.	NONE

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

SECTION 15: Regulatory information

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

Restrictions on the manufacture, placing on the market and use:
The following substance(s) contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product are required to comply with the restrictions placed upon it by the aforementioned provision.

Ingredient	**CAS Nbr**
cyclohexane	110-82-7

Restriction status: listed in REACH Annex XVII
Restricted uses: See Annex XVII to Regulation (EC) No 1907/2006 for Conditions of Restriction

Global inventory status
Contact 3M for more information.

DIRECTIVE 2012/18/EU
Seveso hazard categories, Annex 1, Part 1

Hazard Categories	Qualifying quantity (tonnes) for the application of	
	Lower-tier requirements	Upper-tier requirements
E2 Hazardous to the Aquatic environment	200	500
P3a FLAMMABLE AEROSOLS	150 (net)	500 (net)

Seveso named dangerous substances, Annex 1, Part 2
None

Regulation (EU) No 649/2012
No chemicals listed

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

EUH066	Repeated exposure may cause skin dryness or cracking.
H220	Extremely flammable gas.

H222	Extremely flammable aerosol.
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H229	Pressurised container: may burst if heated.
H280	Contains gas under pressure; may explode if heated.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

Revision information:
Industrial Use of Adhesives and Sealants: Section 16: Annex information was modified.
Professional Use of Adhesives: Section 16: Annex information was modified.
Section 1: Address information was modified.
Section 1: E-mail address information was modified.
Label: CLP Precautionary - Prevention information was modified.
Section 3: Composition/ Information of ingredients table information was modified.
Section 6: Accidental release personal information information was modified.
Section 7: Conditions safe storage information was modified.
Section 8: DNEL table row information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 8: PNEC table row information was modified.
Section 9: Flammability (solid, gas) information information was deleted.
Section 09: Flammability information information was added.
Section 09: Kinematic Viscosity information information was modified.
Section 09: Odor information was modified.
Section 09: Particle Characteristics N/A information was added.
Section 11: Acute Toxicity table information was modified.
Section 11: Aspiration Hazard Table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Serious Eye Damage/Irritation Table information was modified.
Section 11: Skin Corrosion/Irritation Table information was modified.
Section 11: Target Organs - Repeated Table information was modified.
Section 11: Target Organs - Single Table information was modified.
Section 12: Component ecotoxicity information information was modified.
Section 12: Mobility in soil information information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.
Section 15: Restrictions on manufacture ingredients information information was added.
Section 15: Seveso Substance Text information was deleted.
Two-column table displaying the unique list of H Codes and statements (std phrases) for all components of the given material. information was modified.

Annex

1. Title	
Substance identification	cyclohexane; EC No. 203-806-2; CAS Nbr 110-82-7;

Exposure Scenario Name	Industrial Use of Adhesives and Sealants
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 07 -Industrial spraying ERC 04 -Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Processes, tasks and activities covered	Application of product.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Assumes use at not more than 20°C above ambient temperature; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: 100 days per year; Indoor use; Outdoor use;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour); Provide extract ventilation to points where emissions occur; **Environmental:** None needed;
Waste management measures	Avoid release to the environment. Refer to special instructions / safety data sheet.; Do not apply industrial sludge to natural soils; Do not release to waterways or sewers; Prevent discharge of undissolved substance to or recover from wastewater;
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	Hydrocarbons, C6, isoalkanes, < 5% n- hexane; EC No. 931-254-9; Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics; EC No. 927-510-4;
Exposure Scenario Name	Industrial Use of Coatings
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 07 -Industrial spraying ERC 04 -Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Processes, tasks and activities covered	Application of product. Spraying of substances/mixtures.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Assumes use at not more than 20°C above ambient temperature; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: <= 20 days per year; Indoor use; Outdoor use;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:**

	Human health: None needed; **Environmental:** None needed;
Waste management measures	No use-specific waste management measures are required for this product. Refer to Section 13 of main SDS for disposal instructions:
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	cyclohexane; EC No. 203-806-2; CAS Nbr 110-82-7;
Exposure Scenario Name	Professional Use of Adhesives
Lifecycle Stage	Widespread use by professional workers
Contributing activities	PROC 11 -Non industrial spraying ERC 08a -Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC 08d -Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
Processes, tasks and activities covered	Application of product.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Assumes use at not more than 20°C above ambient temperature; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: 365 days per year; Indoor use; Outdoor use;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Ventilated Process Enclosures; **Environmental:** None needed;
Waste management measures	Avoid release to the environment. Refer to special instructions / safety data sheet.;
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	Hydrocarbons, C6, isoalkanes, < 5% n- hexane; EC No. 931-254-9; Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics; EC No. 927-510-4;
Exposure Scenario Name	Professional Use of Coatings
Lifecycle Stage	Widespread use by professional workers
Contributing activities	PROC 11 -Non industrial spraying ERC 08a -Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Processes, tasks and activities covered	Application of product. Spraying of substances/mixtures.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Assumes use at not more than 20°C above ambient temperature; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: 365 days/year; Indoor use; Outdoor use;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** None needed; **Environmental:** None needed;
Waste management measures	No use-specific waste management measures are required for this product. Refer to Section 13 of main SDS for disposal instructions:
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

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