



Safety Data Sheet

Copyright,2020, 3M Company All rights reserved. Copying and/or downloading of this information for the purpose of properly utilizing 3M products is allowed provided that: (1) the information is copied in full with no changes unless prior written agreement is obtained from 3M, and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

Document group:	28-5234-1	Version number:	6.02
Revision date:	13/02/2020	Supersedes date:	30/04/2018
Transportation version number:	5.00 (11/07/2019)		

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 Spray 77 Bulk Concentrate

Product Identification Numbers

YP-2080-6211-4

7000116822

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

Identified uses

Adhesive

1.3. Details of the supplier of the safety data sheet

Address: 3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone: +44 (0)1344 858 000
E Mail: tox.uk@mmm.com
Website: www.3M.com/uk

1.4. Emergency telephone number

+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:

Flammable Liquid, Category 2 - Flam. Liq. 2; H225

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	10 - 30

HAZARD STATEMENTS:

H225	Highly flammable liquid and vapour.
H336	May cause drowsiness or dizziness.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P210A	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261E	Avoid breathing vapour or spray.
P273	Avoid release to the environment.

Response:

P370 + P378G	In case of fire: Use a fire fighting agent suitable for flammable liquids such as dry chemical or carbon dioxide to extinguish.
--------------	---

Disposal:

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

Contains 47% of components with unknown hazards to the aquatic environment.

Notes on labelling

H304 is not required on the label due to the product's viscosity
H315 not applied based on test data.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH	% by Wt	Classification
------------	---------	--------	-------	---------	----------------

3M Spray 77 Bulk Concentrate

			Registration No.		
Butadiene-styrene-meta-divinylbenzene polymer	26471-45-4			10 - 30	Substance not classified as hazardous
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics		927-510-4	01-2119475515-33	10 - 30	Aquatic Chronic 2, H411 Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3, H336
cyclohexane	110-82-7	203-806-2		< 20	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	31393-98-3			5 - 15	Substance not classified as hazardous
Hydrocarbons, C6, isoalkanes, < 5% n-Hexane		931-254-9	01-2119484651-34	5 - 15	Aquatic Chronic 2, H411 Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; STOT SE 3, H336
pentane	109-66-0	203-692-4	01-2119459286-30	7 - 14	Flam. Liq. 2, H225; Asp. Tox. 1, H304; STOT SE 3, H336; EUH066; Aquatic Chronic 2, H411 - Nota C
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	266-042-9	01-2119487112-43	5 - 10	Substance with a Community level exposure limit in the workplace
isopentane	78-78-4	201-142-8	01-2119475602-38	1 - 5	Flam. Liq. 1, H224; Asp. Tox. 1, H304; STOT SE 3, H336; EUH066; Aquatic Chronic 2, H411
Limestone	1317-65-3	215-279-6		0 - 2	Substance with a Community level exposure limit in the workplace
morpholine	110-91-8	203-815-1		<= 0.1	Flam. Liq. 3, H226; Acute Tox. 3, H311; Acute Tox. 4, H332; Acute Tox. 4, H302; Skin Corr. 1B, H314

Note: Any entry in the EC# 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. If you feel unwell, get medical attention.

Skin contact

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye contact

Flush eyes with large amounts of water. If signs/symptoms persist, 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

See Section 11.1 Information on toxicological effects

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

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

Hazardous Decomposition or By-Products

Substance

Aldehydes.
Hydrocarbons.
Carbon monoxide
Carbon dioxide.
Irritant vapours or gases.

Condition

During combustion.
During combustion.
During combustion.
During combustion.
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. Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Eliminate all ignition sources if safe to do so. 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. 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

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

Contain spill. Cover spill area with a fire-extinguishing foam. An appropriate aqueous film forming foam (AFFF) is recommended. 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

3M Spray 77 Bulk Concentrate

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

For industrial/occupational use only. Not for consumer sale or use. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Wear low static or properly grounded shoes. To minimize the risk of ignition, determine applicable electrical classifications for the process using this product and select specific local exhaust ventilation equipment to avoid flammable vapour accumulation. Ground/bond container and receiving equipment if there is potential for static electricity accumulation during transfer.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store away from heat. Store away from acids. Store away from 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
pentane	109-66-0	UK HSC	TWA:1800 mg/m ³ (600 ppm)	
cyclohexane	110-82-7	UK HSC	TWA:350 mg/m ³ (100 ppm);STEL:1050 mg/m ³ (300 ppm)	
morpholine	110-91-8	UK HSC	TWA: 36 mg/m ³ (10 ppm); STEL: 72 mg/m ³ (20 ppm)	SKIN
Limestone	1317-65-3	UK HSC	TWA(as inhalable dust):10 mg/m ³ ;TWA(as respirable dust):4 mg/m ³ ;TWA(Inhalable):10 mg/m ³ ;TWA(respirable):4 mg/m ³	
Rosin	65997-13-9	UK HSC	TWA(as fume):0.05 mg/m ³ ;STEL(as fume):0.15 mg/m ³	Respiratory Sensitizer
isopentane	78-78-4	UK HSC	TWA:1800 mg/m ³ (600 ppm)	

UK HSC : UK Health and Safety Commission

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

Biological limit values

3M Spray 77 Bulk Concentrate

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/m ³
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/m ³

Predicted no effect concentrations (PNEC)

Ingredient	Degradation Product	Compartment	PNEC
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 UK HSC

8.2. Exposure controls

In addition, refer to the annex for more information.

8.2.1. Engineering controls

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

8.2.2. Personal protective equipment (PPE)**Eye/face protection**

Eye protection not required.

Skin/hand protection

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

3M Spray 77 Bulk Concentrate

clothing.

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

Material	Thickness (mm)	Breakthrough Time
Nitrile rubber.	No data available	No data available

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 and particulates

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: filter types A & P

8.2.3. Environmental exposure controls

Refer to Annex

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Liquid.

Colour

Colourless

Odor

Sweet Odor, Spicy

Odour threshold

No data available.

pH

Not applicable.

Boiling point/boiling range

60 °C

Melting point

Not applicable.

Flammability (solid, gas)

Not applicable.

Explosive properties

Not classified

Oxidising properties

Not classified

Flash point

-25 °C [*Test Method:*Closed Cup]

Autoignition temperature

No data available.

Flammable Limits(LEL)

No data available.

Flammable Limits(UEL)

No data available.

Vapour pressure

No data available.

Relative density

0.79 [*Ref Std:*WATER=1]

Water solubility

No data available.

Solubility- non-water

Not applicable.

Partition coefficient: n-octanol/water

No data available.

Evaporation rate

No data available.

Vapour density

No data available.

Decomposition temperature

No data available.

Viscosity

200 mPa-s

Density

0.79 g/ml

9.2. Other information

EU Volatile Organic Compounds

No data available.

Percent volatile

approximately 63 % weight

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is considered to be non reactive under normal use conditions

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

None known.

10.6 Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
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 3M assessments.

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

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

Prolonged or repeated exposure may cause:

 Dermal Defatting: Signs/symptoms may include localised redness, itching, drying and cracking of skin.

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.

3M Spray 77 Bulk Concentrate

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:

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

Toxicological Data

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Vapour(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Dermal	Rabbit	LD50 > 2,920 mg/kg
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation-Vapour (4 hours)	Rat	LC50 > 23.3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Ingestion	Rat	LD50 > 5,840 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
Butadiene-styrene-meta-divinylbenzene polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Butadiene-styrene-meta-divinylbenzene polymer	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	Dermal	Rabbit	LD50 > 3,160 mg/kg
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	Inhalation-Vapour (4 hours)	Rat	LC50 > 14.7 mg/l
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		LD50 estimated to be > 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	Ingestion	Rat	LD50 > 34,000 mg/kg
Resin acids and Rosin acids, hydrogenated, esters with glycerol	Dermal	Rat	LD50 > 2,000 mg/kg
Resin acids and Rosin acids, hydrogenated, esters with glycerol	Ingestion	Rat	LD50 > 2,000 mg/kg
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
Limestone	Dermal	Rat	LD50 > 2,000 mg/kg
Limestone	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Limestone	Ingestion	Rat	LD50 6,450 mg/kg
morpholine	Dermal	Rabbit	LD50 310 mg/kg
morpholine	Inhalation-Vapour	Rat	LC50 estimated to be 10 - 20 mg/l
morpholine	Ingestion	Rat	LD50 1,050 mg/kg

ATE = acute toxicity estimate

3M Spray 77 Bulk Concentrate**Skin Corrosion/Irritation**

Name	Species	Value
pentane	Rabbit	Minimal irritation
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Rabbit	Irritant
cyclohexane	Rabbit	Mild irritant
Butadiene-styrene-meta-divinylbenzene polymer	Professional judgement	Minimal irritation
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	Rabbit	Irritant
Resin acids and Rosin acids, hydrogenated, esters with glycerol	Rabbit	No significant irritation
isopentane	Rabbit	Minimal irritation
Limestone	Rabbit	No significant irritation
morpholine	official classification	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
pentane	Rabbit	Mild irritant
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Rabbit	Mild irritant
cyclohexane	Rabbit	Mild irritant
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	Rabbit	Mild irritant
Resin acids and Rosin acids, hydrogenated, esters with glycerol	Rabbit	Mild irritant
isopentane	Rabbit	Mild irritant
Limestone	Rabbit	No significant irritation
morpholine	Rabbit	Corrosive

Skin Sensitisation

Name	Species	Value
pentane	Guinea pig	Not classified
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Guinea pig	Not classified
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	Guinea pig	Not classified
Resin acids and Rosin acids, hydrogenated, esters with glycerol	Human and animal	Not classified
isopentane	Guinea pig	Not classified
morpholine	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
pentane	In vivo	Not mutagenic
pentane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	In Vitro	Not mutagenic
cyclohexane	In Vitro	Not mutagenic
cyclohexane	In vivo	Some positive data exist, but the data are not sufficient for classification
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	In Vitro	Not mutagenic
isopentane	In vivo	Not mutagenic
isopentane	In Vitro	Some positive data exist, but the data are not

3M Spray 77 Bulk Concentrate

		sufficient for classification
morpholine	In Vitro	Some positive data exist, but the data are not sufficient for classification
morpholine	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification
morpholine	Ingestion	Multiple animal species	Not carcinogenic
morpholine	Inhalation	Rat	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
pentane	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
pentane	Inhalation	Not classified for development	Rat	NOAEL 30 mg/l	during organogenesis
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
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
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
Limestone	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	prematuring & during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
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
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human and	NOAEL Not available	

3M Spray 77 Bulk Concentrate

				animal		
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	
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	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		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
Limestone	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
morpholine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL 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 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
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
isopentane	Inhalation	peripheral nervous	Not classified	Human	NOAEL Not	occupational

3M Spray 77 Bulk Concentrate

		system			available	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
Limestone	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
morpholine	Dermal	liver kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Guinea pig	LOAEL 900 mg/kg/day	13 days
morpholine	Dermal	hematopoietic system	Not classified	Guinea pig	NOAEL 900 mg/kg/day	13 days
morpholine	Inhalation	eyes	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
morpholine	Inhalation	respiratory system	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 0.09 mg/l	13 weeks
morpholine	Inhalation	liver kidney and/or bladder	Not classified	Rat	LOAEL 64 mg/l	5 days
morpholine	Inhalation	heart endocrine system	Not classified	Rat	NOAEL 0.9 mg/l	13 weeks
morpholine	Inhalation	gastrointestinal tract nervous system	Not classified	Rat	NOAEL 0.53 mg/l	104 weeks
morpholine	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 160 mg/kg/day	30 days
morpholine	Ingestion	liver respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 160 mg/kg/day	30 days
morpholine	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 800 mg/kg/day	30 days
morpholine	Ingestion	endocrine system	Not classified	Rat	NOAEL 323 mg/kg/day	4 weeks

Aspiration Hazard

Name	Value
pentane	Aspiration hazard
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	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.

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.

3M Spray 77 Bulk Concentrate

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Butadiene-styrene-meta-divinylbenzene polymer	26471-45-4		Data not available or insufficient for classification			
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green Algae	Estimated	72 hours	Effect Level 50%	29 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	48 hours	Effect Level 50%	3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Rainbow trout	Experimental	96 hours	Lethal Level 50%	>13.4 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Green Algae	Estimated	72 hours	No obs Effect Level	6.3 mg/l
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Water flea	Estimated	21 days	No obs Effect Level	1 mg/l
cyclohexane	110-82-7	Water flea	Experimental	48 hours	EC50	0.9 mg/l
cyclohexane	110-82-7	Fathead minnow	Experimental	96 hours	LC50	4.53 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		Data not available or insufficient for classification			
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	Green algae	Estimated	72 hours	Effect Level 50%	55 mg/l
Hydrocarbons, C6, isoalkanes, < 5% n-Hexane	931-254-9	Green Algae	Estimated	72 hours	No obs Effect Level	30 mg/l
pentane	109-66-0	Water flea	Experimental	48 hours	EC50	2.7 mg/l
pentane	109-66-0	Rainbow trout	Experimental	96 hours	LC50	4.26 mg/l
pentane	109-66-0	Green Algae	Experimental	72 hours	EC50	10.7 mg/l
pentane	109-66-0	Green Algae	Experimental	72 hours	NOEC	2.04 mg/l
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	Water flea	Estimated	48 hours	No tox obs at lmt of water sol	>100 mg/l
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	Rainbow trout	Estimated	96 hours	No tox obs at lmt of water sol	>100 mg/l
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	Green algae	Estimated	72 hours	No tox obs at lmt of water sol	>100 mg/l
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	Green Algae	Estimated	72 hours	No tox obs at lmt of water sol	>100 mg/l
isopentane	78-78-4		Data not available or insufficient for classification			
Limestone	1317-65-3	Rainbow trout	Estimated	96 hours	LC50	>100 mg/l

3M Spray 77 Bulk Concentrate

Limestone	1317-65-3	Green algae	Estimated	72 hours	EC50	>100 mg/l
Limestone	1317-65-3	Water flea	Estimated	48 hours	EC50	>100 mg/l
Limestone	1317-65-3	Green algae	Estimated	72 hours	Effect Concentration 10%	>100 mg/l
morpholine	110-91-8	Water flea	Experimental	48 hours	EC50	45 mg/l
morpholine	110-91-8	Fish other	Experimental	96 hours	LC50	100 mg/l
morpholine	110-91-8	Green algae	Experimental	96 hours	EC50	28 mg/l
morpholine	110-91-8	Rainbow trout	Experimental	96 hours	LC50	180 mg/l
morpholine	110-91-8	Green algae	Experimental	96 hours	NOEC	10 mg/l
morpholine	110-91-8	Water flea	Experimental	21 days	NOEC	5 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Butadiene-styrene-meta-divinylbenzene polymer	26471-45-4	Data not available/insufficient			N/A	
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Estimated Biodegradation	28 days	BOD	98 %BOD/CO D	OECD 301F - Manometric respirometry
cyclohexane	110-82-7	Experimental Photolysis		Photolytic half-life (in air)	4.14 days (t 1/2)	Other methods
cyclohexane	110-82-7	Experimental Biodegradation	28 days	BOD	77 % BOD/ThBOD	OECD 301F - Manometric respirometry
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	0 % weight	OECD 301C - MITI test (I)
Hydrocarbons, C6, isoalkanes, < 5% n- Hexane	931-254-9	Estimated Biodegradation	28 days	BOD	98 %BOD/CO D	OECD 301F - Manometric respirometry
pentane	109-66-0	Experimental Photolysis		Photolytic half-life (in air)	8.07 days (t 1/2)	Other methods
pentane	109-66-0	Experimental Biodegradation	28 days	BOD	87 % BOD/ThBOD	OECD 301F - Manometric respirometry
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	Experimental Biodegradation	28 days	CO2 evolution	47.3 %CO2 evolution/THC O2 evolution	OECD 301B - Modified sturm or CO2
isopentane	78-78-4	Experimental Photolysis		Photolytic half-life (in air)	8.11 days (t 1/2)	Other methods
isopentane	78-78-4	Experimental Biodegradation	28 days	BOD	71.43 % BOD/ThBOD	Other methods
Limestone	1317-65-3	Data not available/insufficient			N/A	
morpholine	110-91-8	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	93 % weight	OECD 301E - Modified OECD Scre

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Butadiene-styrene-meta-divinylbenzene polymer	26471-45-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics	927-510-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
cyclohexane	110-82-7	Experimental BCF-Carp	56 days	Bioaccumulation factor	129	OECD 305E - Bioaccumulation flow-

3M Spray 77 Bulk Concentrate

						through fish test
2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene, polymer with 6,6-dimethyl-2-methylenebicyclo[3.1.1]heptane	31393-98-3	Estimated BCF-Carp	70 days	Bioaccumulation factor	11100	Other methods
Hydrocarbons, C6, isoalkanes, < 5% n-Hexane	931-254-9	Estimated Bioconcentration		Log Kow	3.6	Other methods
pentane	109-66-0	Estimated Bioconcentration		Bioaccumulation factor	26	Estimated: Bioconcentration factor
Resin acids and Rosin acids, hydrogenated, esters with glycerol	65997-13-9	Estimated Bioconcentration		Bioaccumulation factor	7.4	Estimated: Bioconcentration factor
isopentane	78-78-4	Experimental Bioconcentration		Log Kow	2.3	Other methods
Limestone	1317-65-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
morpholine	110-91-8	Experimental BCF-Carp	42 days	Bioaccumulation factor	<2.8	OECD 305C-Bioaccum degree fish

12.4. Mobility in soil

Please contact manufacturer for more details

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. 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. 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

SECTION 14: Transportation information

YP-2080-6211-4

ADR/RID: UN1993, FLAMMABLE LIQUID N.O.S., (CONTAINS PENTANE), 3., II, (D/E), ADR Classification Code: F1.

IMDG-CODE: UN1993, FLAMMABLE LIQUID, N.O.S., (CONTAINS PENTANE), 3., II , IMDG-Code segregation code: NONE, EMS: FE,SE.

ICAO/IATA: UN1993, FLAMMABLE LIQUID, N.O.S., (CONTAINS PENTANE), 3., II .

SECTION 15: Regulatory information

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

Carcinogenicity

<u>Ingredient</u>	<u>CAS Nbr</u>	<u>Classification</u>	<u>Regulation</u>
morpholine	110-91-8	Gr. 3: Not classifiable	International Agency for Research on Cancer

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.

<u>Ingredient</u>	<u>CAS Nbr</u>
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

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.
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H332	Harmful if inhaled.
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.

Revision information:

Section 3: Composition/ Information of ingredients table information was modified.

Section 5: Fire - Advice for fire fighters information information was modified.

Section 5: Hazardous combustion products table information was modified.

Section 7: Precautions safe handling information information was modified.

Section 8: Occupational exposure limit table information was modified.

Section 09: Color information was added.

3M Spray 77 Bulk Concentrate

Section 09: Odor information was added.
 Sections 3 and 9: Odour, colour, grade information information was deleted.
 Section 11: Acute Toxicity table information was modified.
 Section 11: Aspiration Hazard Table information was modified.
 Section 11: Carcinogenicity Table information was modified.
 Section 11: Germ Cell Mutagenicity Table information was modified.
 Section 11: Reproductive and/or Developmental Effects text information was deleted.
 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: Skin Sensitization 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: Persistence and Degradability information information was modified.
 Section 12: Biocumulative potential information information was modified.
 Section 13: 13.1. Waste disposal note information was modified.
 Section 15: Carcinogenicity information information was modified.
 Section 15: Chemical Safety Assessment information was added.
 Section 15: Regulations - Inventories information was deleted.
 Section 15: Restrictions on manufacture ingredients information was added.
 Section 16: UK disclaimer information was deleted.

Annex

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	

3M Spray 77 Bulk Concentrate

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.

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. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

3M United Kingdom MSDSs are available at www.3M.com/uk