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™ ESPE™ SIL

Product Identification Numbers
70-2011-0831-6

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

Identified uses
Dental Product

Restrictions on Use
For use only by dental professionals

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

This product is a medical device as defined in Directive 93/42/EEC (MDD), which is invasive or used in direct physical contact with the human body, and therefore is exempt from the requirements of classification and labelling according to Regulation (EC) No. 1272/2008 (CLP; Article 1, paragraph 5). Although not required, the classification and label information, as applicable, is provided below.

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

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) |

Pictograms

HAZARD STATEMENTS:

H225	Highly flammable liquid and vapour.

PRECAUTIONARY STATEMENTS

Prevention:

P210A	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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.

2.3. Other hazards

For information on hazards and safe use, please consider the corresponding sections of this document.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EU Inventory	% by Wt	Classification
Ethanol	64-17-5	EINECS 200-578-6	> 95	Flam. Liq. 2, H225 (CLP)
3-Trimethoxysilylpropyl methacrylate	2530-85-0	EINECS 219-785-8	< 3	STOT RE 2, H373 (Self Classified)
Butanone	78-93-3	EINECS 201-159-0	< 2	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336; EUH066 (CLP)

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

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

4.2. Most important symptoms and effects, both acute and delayed
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	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Irritant vapours or gases.	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. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Contain spill. Cover spill area with a fire-extinguishing foam designed for use on solvents, such as alcohols and acetone, that can dissolve in water. An AR-AFFF type foam is recommended. 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 water. 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
Avoid prolonged or repeated skin contact. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Take precautionary measures against static discharge. 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 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 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
Ethanol	64-17-5	UK HSC	TWA:1920 mg/m³(1000 ppm)	
Butanone	78-93-3	UK HSC	TWA: 600 mg/m³ (200 ppm); STEL: 899 mg/m³ (300 ppm)	Skin Notation

UK HSC : UK Health and Safety Commission
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values

Ingredient	CAS Nbr	Agency	Determinant	Biological Specimen	Sampling Time	Value	Additional comments
Butanone	78-93-3	UK EH40 BMGVs	Butan-2-one	Urine	EOS	70 umol/L	

UK EH40 BMGVs : UK. EH40 Biological Monitoring Guidance Values (BMGVs)
EOS: End of shift.

8.2. Exposure controls

8.2.1. Engineering controls
Use in a well-ventilated area.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face

protection(s) are recommended:
Safety glasses with side shields.

Skin/hand protection
See Section 7.1 for additional information on skin protection.

Respiratory protection
None required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Liquid.
Appearance/Odour	Clear, colourless with alcohol like odour
Odour threshold	*No data available.*
pH	*Not applicable.*
Boiling point/boiling range	78 ºC [@ 101,325 Pa]
Melting point	approximately -114 ºC
Flammability (solid, gas)	Not applicable.
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	12 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*No data available.*
Flammable Limits(LEL)	3.5 %
Flammable Limits(UEL)	15 %
Vapour pressure	5,999.5 Pa [@ 20 ºC]
Relative density	0.79 - 0.85 [*Ref Std:*WATER=1]
Water solubility	Complete [@ 23 ºC]
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Evaporation rate	<=1 [*Ref Std:*BUOAC=1]
Vapour density	>=1 [*Ref Std:*AIR=1]
Decomposition temperature	*No data available.*
Viscosity	1.1 mPa-s [@ 23 ºC] [*Details:*MITS data]
Density	0.79 - 0.85 [@ 23 ºC]

9.2. Other information

Molecular weight	*No data available.*
Percent volatile	95 %

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 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 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
Contact with the skin during product use is not expected to result in significant irritation.

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

Ingestion
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and 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.

Prolonged or repeated exposure may cause target organ effects:
Respiratory effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish coloured skin (cyanosis), sputum production, changes in lung function tests, and respiratory failure.

Additional information:
This product contains ethanol. Alcoholic beverages and ethanol in alcoholic beverages have been classified by the International Agency for Research on Cancer as carcinogenic to humans. There are also data associating human consumption of alcoholic beverages with developmental toxicity and liver toxicity. Exposure to ethanol during the foreseeable use of this

product is not expected to cause cancer, developmental toxicity, or liver toxicity.

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Ethanol	Dermal	Rabbit	LD50 > 15,800 mg/kg
Ethanol	Inhalation-Vapor (4 hours)	Rat	LC50 124.7 mg/l
Ethanol	Ingestion	Rat	LD50 17,800 mg/kg
Butanone	Dermal	Rabbit	LD50 > 8,050 mg/kg
Butanone	Inhalation-Vapor (4 hours)	Rat	LC50 34.5 mg/l
Butanone	Ingestion	Rat	LD50 2,737 mg/kg
3-Trimethoxysilylpropyl methacrylate	Dermal	Rabbit	LD50 > 20,900 mg/kg
3-Trimethoxysilylpropyl methacrylate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.28 mg/l
3-Trimethoxysilylpropyl methacrylate	Ingestion	Rat	LD50 > 5,225 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Ethanol	Rabbit	No significant irritation
Butanone	Rabbit	Minimal irritation
3-Trimethoxysilylpropyl methacrylate	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Ethanol	Rabbit	Moderate irritant
Butanone	Rabbit	Severe irritant
3-Trimethoxysilylpropyl methacrylate	Rabbit	Mild irritant

Skin Sensitisation

Name	Species	Value
Ethanol	Human	Some positive data exist, but the data are not sufficient for classification
3-Trimethoxysilylpropyl methacrylate	Guinea pig	Not sensitising

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
Ethanol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Ethanol	In vivo	Some positive data exist, but the data are not sufficient for classification
Butanone	In Vitro	Not mutagenic

3-Trimethoxysilylpropyl methacrylate	In Vitro	Not mutagenic
3-Trimethoxysilylpropyl methacrylate	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Ethanol	Ingestion	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Butanone	Inhalation	Human	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Ethanol	Inhalation	Not toxic to development	Rat	NOAEL 38 mg/l	during gestation
Ethanol	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 5,200 mg/kg/day	premating & during gestation
Butanone	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Rat	LOAEL 8.8 mg/l	during gestation
3-Trimethoxysilylpropyl methacrylate	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 5,200 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Ethanol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	LOAEL 2.6 mg/l	30 minutes
Ethanol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	LOAEL 9.4 mg/l	not available
Ethanol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL not available	
Ethanol	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 3,000 mg/kg	
Butanone	Inhalation	central nervous system depression	May cause drowsiness or dizziness	official classification	NOAEL Not available	
Butanone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Butanone	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	
Butanone	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	not applicable
Butanone	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 1,080 mg/kg	not applicable

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Ethanol	Inhalation	liver	Some positive data exist, but the data are not sufficient for	Rabbit	LOAEL 124 mg/l	365 days

			classification			
Ethanol	Inhalation	hematopoietic system | immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 25 mg/l	14 days
Ethanol	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 8,000 mg/kg/day	4 months
Ethanol	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 3,000 mg/kg/day	7 days
Butanone	Dermal	nervous system	All data are negative	Guinea pig	NOAEL Not available	31 weeks
Butanone	Inhalation	liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 14.7 mg/l	90 days
Butanone	Inhalation	heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | immune system | muscles	All data are negative	Rat	NOAEL 14.7 mg/l	90 days
Butanone	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	7 days
Butanone	Ingestion	nervous system	All data are negative	Rat	NOAEL 173 mg/kg/day	90 days
3-Trimethoxysilylpropyl methacrylate	Dermal	skin	Some positive data exist, but the data are not sufficient for classification	Rabbit	NOAEL 2,100 mg/kg/day	17 days
3-Trimethoxysilylpropyl methacrylate	Dermal	liver | kidney and/or bladder	All data are negative	Rabbit	NOAEL 2,100 mg/kg/day	17 days
3-Trimethoxysilylpropyl methacrylate	Inhalation	respiratory system	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 0.05 mg/l	14 weeks
3-Trimethoxysilylpropyl methacrylate	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.244 mg/l	14 weeks
3-Trimethoxysilylpropyl methacrylate	Inhalation	hematopoietic system | eyes | kidney and/or bladder	All data are negative	Rat	NOAEL 0.244 mg/l	14 weeks

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

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.

12.1. Toxicity

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
3-Trimethoxysily	2530-85-0	Zebra Fish	Experimental	96 hours	LC50	>100 mg/l

lpropyl methacrylate						
3-Trimethoxysilylpropyl methacrylate	2530-85-0	Green algae	Experimental	72 hours	EC50	>100 mg/l
3-Trimethoxysilylpropyl methacrylate	2530-85-0	Water flea	Experimental	48 hours	EC50	>100 mg/l
Butanone	78-93-3	Ricefish	Experimental	96 hours	LC50	>100 mg/l
Butanone	78-93-3	Green algae	Experimental	72 hours	NOEC	93 mg/l
Butanone	78-93-3	Water flea	Experimental	21 days	NOEC	100 mg/l
Ethanol	64-17-5	Green algae	Experimental	96 hours	EC50	1,000 mg/l
Ethanol	64-17-5	Water flea	Experimental	48 hours	EC50	5,012 mg/l
Ethanol	64-17-5	Rainbow trout	Experimental	96 hours	LC50	42 mg/l
Ethanol	64-17-5	Green algae	Experimental	96 hours	NOEC	<500 mg/l
Ethanol	64-17-5	Water flea	Experimental	11 days	NOEC	9.6 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Butanone	78-93-3	Estimated Photolysis		Photolytic half-life (in air)	2.8 days (t 1/2)	Other methods
3-Trimethoxysilylpropyl methacrylate	2530-85-0	Estimated Hydrolysis		Hydrolytic half-life	3 hours (t 1/2)	Other methods
Ethanol	64-17-5	Experimental Biodegradation	14 days	BOD	89 % weight	OECD 301C - MITI test (I)
Butanone	78-93-3	Experimental Biodegradation	20 days	BOD	89 % weight	Other methods
3-Trimethoxysilylpropyl methacrylate	2530-85-0	Experimental Biodegradation	28 days	BOD	72 % weight	OECD 301C - MITI test (I)

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Ethanol	64-17-5	Estimated Bioconcentration	28 days	Bioaccumulation factor	3.16	Estimated: Bioconcentration factor
3-Trimethoxysilylpropyl methacrylate	2530-85-0	Experimental BCF-Carp	42 days	Bioaccumulation factor	<34	Other methods
Butanone	78-93-3	Experimental Bioconcentration		Log Kow	0.29	Other methods

12.4. Mobility in soil
Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

No information available at this time, contact manufacturer for more details

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
See Section 11.1 Information on toxicological effects

Incinerate in a permitted waste incineration facility. As a disposal alternative, utilize an acceptable permitted waste disposal facility.

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)
180106* Chemicals consisting of or containing dangerous substances.

SECTION 14: Transportation information

70-2011-0831-6

ADR/RID: DANGEROUS GOODS IN EXCEPTED QUANTITIES, CLASS 3, II , (--).
IMDG-CODE: UN1170, ETHANOL SOLUTION, 3, II , IMDG-Code segregation code: NONE, Dangerous Goods in excepted Quantities, EMS: FE,SD.
ICAO/IATA: DANGEROUS GOODS IN EXCEPTED QUANTITIES OF CLASS 3UN 1170, II .

SECTION 15: Regulatory information

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

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA.

15.2. Chemical Safety Assessment
Not applicable

SECTION 16: Other information

List of relevant H statements

EUH066	Repeated exposure may cause skin dryness or cracking.
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

Revision information:
No revision information

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

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