Safety Data Sheet

LOCTITE 277 HIGH STRENGTH THREADLOCKER known as 277(TM) Threadlocker High Stre

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1. Identification of the substance/preparation and of the company/undertaking

A. Product name: LOCTITE 277 HIGH STRENGTH THREADLOCKER known as 277(TM) Threadlocker High Stre

B. Purpose of the product and limitations:

Purpose of the product Anaerobic Sealant
Limitations Prohibition on use except the above

C. Identification of manufacturer, importer or distributor

Importer: Henkel Korea Limited, 121-734, 8th Floor, Henkel Tower Bldg., 41, Mapo-daero 4da-gil, Mapo-gu, Seoul, Korea. Phone : +82-2-3279-1700

Emergency information: +82-2-3279-1700 or Emergency tel : +82-2-3279-1707 (24hr)

D. Writer division and contact person:
Product Safety & Regulatory Affairs for South Korea, msdsakorea@henkel.com

2. Hazards and Risk identification

A. Hazard Classification:

Hazard Class	Hazard Category	Target organ
Serious Eye Damage/Eye Irritation	Category 2	
Specific target organ toxicity - single exposure	Category 3	Respiratory irritation

B. Item of labeling with Risk and Safety assessment phrase:

Hazard pictogram:

Signal word: Warning

Hazard statement: H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary Statement(s):
Prevention: P261 Avoid breathing vapors, mist, or spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection/face protection.

Response: P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTRE/doctor/… if you feel unwell.
P337+P313 If eye irritation persists: Get medical advice/attention.

Storage: P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal: P501 Dispose of contents/container in accordance with Wastes Control Act .

C. Possible Hazards: None if used properly.

3. Composition / information on ingredients

General description: Mixture

Chemical name	Other name(s)	CAS No. or ID No.	Contents (%)
Polyglycol dimethacrylate	Polyglycol dimethacrylate	Proprietary	50 - 60 %
thickener	thickener	Proprietary	40 - 50 %
Alkyl hydroperoxide	Alkyl hydroperoxide	Proprietary	1 - 10 %
Modifier	Modifier	Proprietary	1 - 10 %

All remaining chemical compositions are trade secret and are not subject to GHS classification according to the Ministry of Employment and Labor Public Notice.

4. First aid measures

A. After eye contact: Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

B. After skin contact: Rinse with running water and soap.
Seek medical advice.

C. After inhalation: Move to fresh air. If symptoms persist, seek medical advice.

D. After ingestion: Rinse mouth, do not induce vomiting, consult a doctor.

E. Others / Medical advice: Treat symptomatically and supportively.

5. Explosion / Fire fighting measures

A. Suitable (and unsuitable) extinguishing media:

Suitable extinguishing media: If product is involved in fire extinguish with dry powder, foam or carbon dioxide.

B. Special exposure hazard arising from product itself:

Hazardous combustion products: Oxides of carbon.
Oxides of sulfur.
Oxides of nitrogen.
Irritating organic vapours.

Fire and Explosion Risk: None

C. Special protective equipments for firefighters and safety measures:

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

6. Accidental release measures

A. Personal precautions / measures and equipments:

Avoid skin and eye contact.
Ensure adequate ventilation.

B. Environmental precautions / measures:

Do not let product enter drains.

C. Methods of cleaning up / removing:

For small spills wipe up with paper towel and place in container for disposal.
For large spills absorb onto inert absorbent material and place in sealed container for disposal.

7. Handling and storage

A. Safety Handling precaution:

Safety Handling precaution: Use only in well-ventilated areas.
Avoid skin and eye contact.

B. Suitable storage conditions:

Suitable storage conditions: Store in a cool, well-ventilated place.
Do not expose to direct heat.
Store in sealed original container.

8. Exposure controls / personal protection

A. Component exposure limits:

Hazardous components	National standard	OSHA	ACGIH
Polyglycol dimethacrylate	none	None	none
thickener	none	None	none
Alkyl hydroperoxide	none	None	none
Modifier	none	None	none

B. Engineering controls: Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

C. Personal protective equipments:

- **Respiratory protection:** Use only in well-ventilated areas.
- An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area
- **Eye protection:** Wear protective glasses.
- **Skin protection:** The use of chemical resistant gloves such as Nitrile is recommended.
  Wear suitable protective clothing.
- Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.
- The use of chemical resistant gloves such as Neoprene or Natural Rubber is recommended
- **Personal protection:**
  Good industrial hygiene practices should be observed.

9. Physical and chemical properties

A. Appearance (physical state, color):	Liquid red
B. Odor:	characteristic
C. Odor threshold value:	Not available.
D. pH:	3.00 - 6.00
E. Melting point / Freezing point:	Not applicable
F. Boiling point:	> 149.0 °C (> 300.2 °F)
G. Flash point:	> 93.3 °C (> 199.94 °F)
H. Speed of volatilization:	Not available.
I. Flammability:	Not applicable
J. Upper flammable /Lower flammable:	Not available.
K. Vapor pressure:	< 0.1300000 mbar
L. Solubility:	Slightly soluble
M. Vapor density:	Not available.
N. Specific Gravity:	1.1
O. N-Octanol / Water partition coefficient:	Not available.
P. Self ignition point:	Not applicable
Q. Decomposition:	Not available.
R. Viscosity:	Not available.
S. Molecular Weight:	Not available.

10. Stability and reactivity

A. Chemical stability:	Stable under normal conditions of temperature and pressure.
B. Possibility of hazardous polymerization:	Will not occur.
C. Avoid condition (discharge of static electricity, shock, vibration):	Keep away from heat, spark and flame.

D. Avoid materials: Strong acids and oxidizing agents.
copper
Rust.
Iron.
Oxygen scavengers.
Strong alkalis.
Reducing agents.
Other polymerization initiators.

E. Decomposition products: Oxides of carbon.
Irritating vapors.

11. Toxicological information

A. Information for exposure route: Skin, Inhalation, Eyes

B. Information for health and hazard identification:

Acute toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Alkyl hydroperoxide Proprietary	LD50 LD50	550 mg/kg 1,200 - 1,520 mg/kg	oral dermal		rat	not specified not specified

Skin corrosion/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Alkyl hydroperoxide Proprietary	corrosive		rabbit	Draize Test

Serious eye damage/irritation: No data available.

Respiratory or skin sensitization: No data available.

Germ cell mutagenicity:

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Alkyl hydroperoxide Proprietary	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Alkyl hydroperoxide Proprietary	negative	dermal		mouse	not specified

Carcinogenicity: No data available.

Reproductive toxicity: No data available.

Specific Target Organ Toxicity - Single exposure : No data available.

Specific Target Organ Toxicity – Repeated exposure :

Hazardous components CAS-No.	Hazard category	Target Organs
Alkyl hydroperoxide	Category 2	No data available.

Aspiration hazard: No data available.

Additional Health Hazard Information

Ingredients	Hazard class	Hazard category	Route of exposure	Target organ(s)
Polyglycol dimethacrylate	No classification required.			
thickener	No classification required.			
Alkyl hydroperoxide	Acute toxicity	Category 4	Oral	
	Acute toxicity	Category 3	Inhalation	
	Acute toxicity	Category 4	Dermal	
	Skin corrosion/irritation	Category 1		
	Target Organ Systemic Toxicant - Repeated exposure	Category 2		
Modifier	No classification required.			

12. Ecological information

A. Aquatic Toxicity

Hazardous components CAS-No.	Value type	Value / Remark	Acute Toxicity Study	Exposure time	Species	Method
Polyglycol dimethacrylate	LC50	> 100 mg/l	Fish	96 h	Danio rerio	OECD Guideline 203 (Fish, Acute Toxicity Test)
Alkyl hydroperoxide	LC50	3.9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Alkyl hydroperoxide	EC50	18 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Alkyl hydroperoxide	ErC50	3.1 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Alkyl hydroperoxide	EC10	70 mg/l	Bacteria	30 min		not specified
Modifier	LC50	18.3 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)

B. Persistence / degradability:

Hazardous components CAS-No.	Result	Route of application	Degradability	Method

Polyglycol dimethacrylate	readily biodegradable	aerobic	84.3 %	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Alkyl hydroperoxide		no data	0 %	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)

C. Bioaccumulative Potential

Hazardous components CAS-No.	LogPow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Alkyl hydroperoxide		9.1		calculation		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)

D. Soil Mobility

Hazardous components CAS-No.	LogPow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Alkyl hydroperoxide	2.16					not specified
Modifier	0.91					not specified

E. Other Adverse Effects: Do not empty into drains, soil or bodies of water.

Additional Ecotoxicity

Ingredients	Hazard class	Hazard category
Alkyl hydroperoxide	Chronic hazards to the aquatic environment	Category 2

13. Disposal considerations

A. Disposal method:

Dispose of in accordance with local and national regulations.

B. Waste information (including waste method of contaminated container and packaging):

Waste disp. packag. not clean:After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated., Disposal must be made according to official regulations.

14. Transport information

A. UN number: Not classified as dangerous goods for transport
B. UN proper shipping name: Not applicable
C. Transport hazard class: Not applicable
D. Packing group (if applicable): Not applicable
E. Marine pollution (yes/no): Not applicable
F. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises: Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

15. Regulatory information

A. According to Industrial Safety & Health Act:

Harmful Substances Prohibited from Manufacturing:
Neither banned nor restricted
Harmful Substances Requiring Permission for Manufacture or Use:
Neither banned nor restricted
Harmful Substances Requiring Workplace Environment Monitoring:
Neither banned nor restricted
Controlled Hazardous Substances:
Neither banned nor restricted
Harmful Substances Requiring Special Medical Examination:
Neither banned nor restricted
Korea OELs:
Neither banned nor restricted

B. According to Chemicals Control Law:
Toxic Chemicals:
Neither banned nor restricted
Banned Toxic Chemicals:
Neither banned nor restricted
Restricted Toxic Chemicals:
Neither banned nor restricted
Accidental Release Prevention Substances:
Neither banned nor restricted

C. According to Dangerous Substances Safety Management Act Enforcement Rule :
4th Class Flammable Liquids, Class 3 Petroleum

D. According to Enforcement Decree of The wastes control Act :
Designated Wastes, Appendix 4, Code Numbers.
Designated Wastes

E. According to other regulations:
Not available.

16. Other information

A. Reference:	www.KOSHA.net IUCLID Henkel MSDS …..etc. NCIS
B. Date of creation:	29.03.2012
C. Revision number and the latest version date	V001.1 08.01.2017
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