Safety Data Sheet

LOCTITE 542

SDS No. : 168433
V001.3
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SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name: LOCTITE 542

Intended use: Threadlocker

Supplier:

Henkel New Zealand Ltd
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Auckland, 2013
New Zealand
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SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classified as hazardous under the New Zealand Hazardous Substances and New Organisms Act (HSNO).
Not classified as Dangerous Goods under the Land Transport Rule: Dangerous Goods 2005.

GHS Classification:

Hazard Class	Hazard Category	Target organ
Serious eye irritation	Category 2A	
Target Organ Systemic Toxicant - Single exposure	Category 3	respiratory tract irritation
Acute hazards to the aquatic environment	Category 3	
Chronic hazards to the aquatic environment	Category 3	

Hazard pictogram:

Signal word: Warning

Hazard statement(s):	H319 Causes serious eye irritation. H335 May cause respiratory irritation. H412 Harmful to aquatic life with long lasting effects.
Precautionary Statement(s):	
Prevention:	P261 Avoid breathing mist/vapours. P264 Wash hands thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear eye protection/face protection.
Response:	P304+P340+P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 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 to an appropriate treatment and disposal facility in accordance with applicable laws and regulations.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

General chemical description: Mixture
Type of preparation: Anaerobic Sealant

Identity of ingredients:

Chemical ingredients	CAS-No.	Proportion
α, α-dimethylbenzyl hydroperoxide	80-15-9	1- < 3 %
N,N-Diethyl-p-toluidine	613-48-9	0.1- < 1 %
N,N-dimethyl-o-toluidine	609-72-3	0.1- < 1 %
methacrylic acid	79-41-4	0.1- < 1 %
methyl methacrylate	80-62-6	0.1- < 1 %
non hazardous ingredients~		60- <= 100 %

SECTION 4 FIRST AID MEASURES

Ingestion: Rinse mouth, do not induce vomiting, consult a doctor.

Skin: Rinse with running water and soap.
Remove contaminated clothing and footwear.
If skin irritation persists, call a physician.

Eyes: Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

Inhalation: Move to fresh air. If symptoms persist, seek medical advice.

First Aid facilities: Eye wash
Normal washroom facilities

Medical attention and special treatment: Treat symptomatically and supportively.

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide, foam, powder

Decomposition products in case of fire: Oxides of carbon.
Irritating fumes.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Additional fire fighting advice: In case of fire, keep containers cool with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid skin and eye contact.
Ensure adequate ventilation.
See advice in section 8

Environmental precautions: Do not let product enter drains.

Clean-up methods: 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.
Dispose of contaminated material as waste according to Section 13.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling: Use only in well-ventilated areas.
Avoid skin and eye contact.
Vapours should be extracted to avoid inhalation.

Precautions for safe handling: Avoid skin and eye contact.
Use only in well-ventilated areas.

Conditions for safe storage: Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Workplace exposure standards:

Ingredient [Regulated substance]	form of exposure	TWA (ppm)	TWA (mg/m3)	Ceiling	STEL (ppm)	STEL (mg/m3)
METHACRYLIC ACID 79-41-4		20	70	-	-	-
METHYL METHACRYLATE 80-62-6		50	208	-	-	-
METHYL METHACRYLATE		-	-	-	100	416

Biological Exposure Indices:
None

Engineering controls:	Ensure good ventilation/suction at the workplace.
Eye protection:	Safety goggles or safety glasses with side shields.
Eye protection:	Wear protective glasses.
Skin protection:	Wear suitable protective clothing. The use of chemical resistant gloves such as Nitrile is recommended. 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.
Skin protection:	Wear suitable protective clothing. Use protective gloves.
Respiratory protection:	If inhalation risk exists, wear a respirator or air supplied mask complying with the requirements of AS/NZS 1715 and AS/NZS 1716.
Respiratory protection:	Use only in well-ventilated areas.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	brown liquid
Odor:	characteristic
pH:	Not applicable, Product is non-polar/aprotic.
Melting point / freezing point:	Not applicable, Product is a liquid
Specific gravity:	1.08
Boiling point:	> 150 °C (> 302 °F)
Flash point:	> 100 °C (> 212 °F) No flash point up to 100 °C
Vapor pressure:	< 5 mm hg
(; 27 °C (80.6 °F)no method / method unknown; 50 °C (122 °F); 20 °C (68 °F))	< 300 mbar < 1 mm hg
Vapor density:	> 1
Density:	1.08 g/cm3
Solubility in water:	Slightly soluble
Viscosity (dynamic):	1,200 - 2,750 mPa.s(Brookfield; Instrument: RVT; speed of rotation: 2.5 min-1; Spindle No: 2; Method: ;; LCT STM 10; Viscosity Brookfield)
VOC content: (2010/75/EC)	< 5 %

SECTION 10. STABILITY AND REACTIVITY

Incompatible materials:	Reaction with strong acids. Reacts with strong oxidants.
Hazardous polymerization:	Will not occur

SECTION 11 TOXICOLOGICAL INFORMATION

Health Effects:

Ingestion: May cause gastrointestinal disturbances such as nausea, vomiting, abdominal pain, and diarrhea.
May cause irritation to the gastrointestinal tract, mouth and mucous membranes.

Skin: This product may cause irritation to the skin.
May cause skin irritation.

Eyes: Irritating to eyes. Causes excessive tearing. Eyelids may bond.
May cause severe eye irritation.

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system.
May cause respiratory tract irritation.

Acute toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
α, α-dimethylbenzyl hydroperoxide 80-15-9	LD50 LC50 Acute toxicity estimate (ATE)	382 mg/kg 1.370 mg/l 1,100 mg/kg	oral inhalation dermal	 4 h	rat rat	other guideline: not specified Expert judgement
N,N-Diethyl-p-toluidine 613-48-9	Acute toxicity estimate (ATE) Acute toxicity estimate (ATE) Acute toxicity estimate (ATE)	100 mg/kg 3 mg/l 300 mg/kg	oral inhalation dermal			Expert judgement Expert judgement Expert judgement
N,N-dimethyl-o-toluidine 609-72-3	Acute toxicity estimate (ATE) Acute toxicity estimate (ATE) Acute toxicity estimate (ATE)	100 mg/kg 1.5 mg/l 300 mg/kg	oral inhalation dermal	 4 h		Expert judgement Expert judgement Expert judgement
methacrylic acid 79-41-4	LD50 LC50 Acute toxicity estimate (ATE) LD50 Acute toxicity estimate (ATE)	1,320 mg/kg > 3.6 mg/l 3.61 mg/l 500 - 1,000 mg/kg 500 mg/kg	oral inhalation inhalation dermal dermal	 4 h	rat rat rabbit	equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity) OECD Guideline 403 (Acute Inhalation Toxicity) Expert judgement Dermal Toxicity Screening Expert judgement
methyl methacrylate 80-62-6	LD50 LC50 LD50	9,400 mg/kg 29.8 mg/l > 5,000 mg/kg	oral inhalation dermal	 4 h	rat rat rabbit	not specified not specified equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity)

Skin corrosion/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
α, α-dimethylbenzyl hydroperoxide 80-15-9	corrosive		rabbit	Draize Test
N,N-Diethyl-p-toluidine 613-48-9	irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
methacrylic acid 79-41-4	corrosive	3 min	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

Hazardous components CAS-No.	Result	Exposure time	Species	Method
methacrylic acid 79-41-4	corrosive		rabbit	Draize Test

Respiratory or skin sensitization:

Hazardous components CAS-No.	Result	Test type	Species	Method
methacrylic acid 79-41-4	not sensitising	Buehler test	guinea pig	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)
methyl methacrylate 80-62-6	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)

Germ cell mutagenicity:

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
α, α-dimethylbenzyl hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
α, α-dimethylbenzyl hydroperoxide 80-15-9	negative	dermal		mouse	not specified
methacrylic acid 79-41-4	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
methacrylic acid 79-41-4	negative negative	inhalation oral: gavage		mouse mouse	equivalent or similar to OECD Guideline 478 (Genetic Toxicology: Rodent Dominant Lethal Test) equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
methyl methacrylate 80-62-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		not specified

Repeated dose toxicity:

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
α, α-dimethylbenzyl hydroperoxide 80-15-9		inhalation: aerosol	6 h/d5 d/w	rat	not specified
methacrylic acid 79-41-4		inhalation	90 d6 h/d, 5 d/w	rat	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)
methyl methacrylate 80-62-6	LOAEL=2000 ppm	inhalation	14 weeks6 hrs/day, 5 days/wk	mouse	Dose Range Finding Study
methyl methacrylate 80-62-6	NOAEL=1000 ppm	inhalation	14 weeks6 hrs/day, 5 days/wk	mouse	Dose Range Finding Study

SECTION 12. ECOLOGICAL INFORMATION

General ecological information: Do not empty into drains / surface water / ground water.

Ecotoxicity: H412 Harmful to aquatic life with long lasting effects.

Toxicity:

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
α, α-dimethylbenzyl hydroperoxide 80-15-9	LC50	3.9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	EC50	18.84 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	EC50	3.1 mg/l	Algae	72 h	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	NOEC	1 mg/l	Algae	72 h	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	EC10	70 mg/l	Bacteria	30 min	not specified	not specified
N,N-Diethyl-p-toluidine 613-48-9	LC50	78.62 mg/l	Fish	96 h	Danio rerio	OECD Guideline 203 (Fish, Acute Toxicity Test)
N,N-Diethyl-p-toluidine 613-48-9	EC50	10.34 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
N,N-Diethyl-p-toluidine 613-48-9	EC50	7.42 mg/l	Algae	72 h	Desmodesmus subspicatus	OECD Guideline 201 (Alga, Growth Inhibition Test)
N,N-Diethyl-p-toluidine 613-48-9	EC50	23.69 mg/l	Algae	72 h	Raphidocelis subcapitata (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
N,N-dimethyl-o-toluidine 609-72-3	LC 50	46 mg/l	Fish	96 h	Fathead minnow (Pimephales promelas)	
methacrylic acid 79-41-4	LC50	85 mg/l	Fish	96 h	Salmo gairdneri (new name: Oncorhynchus mykiss)	EPA OTS 797.1400 (Fish Acute Toxicity Test)
methacrylic acid 79-41-4	NOEC	10 mg/l	Fish	35 d	Danio rerio	OECD Guideline 210 (fish early lite stage toxicity test)
methacrylic acid 79-41-4	EC50	> 130 mg/l	Daphnia	48 h	Daphnia magna	EPA OTS 797.1300 (Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids)
methacrylic acid 79-41-4	NOEC	8.2 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
methacrylic acid 79-41-4	EC50	45 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
methacrylic acid 79-41-4	EC10	100 mg/l	Bacteria	17 h	Pseudomonas putida	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
methyl methacrylate 80-62-6	LC50	350 mg/l	Fish	96 h	Leuciscus idus	OECD Guideline 203 (Fish, Acute Toxicity Test)
methyl methacrylate 80-62-6	EC50	69 mg/l	Daphnia	48 h	Daphnia magna	EPA OTS 797.1300 (Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids)
methyl methacrylate 80-62-6	EC50	170 mg/l	Algae	96 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

methyl methacrylate 80-62-6	NOEC	100 mg/l	Algae	96 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
methyl methacrylate 80-62-6	EC20	> 150 - 200 mg/l	Bacteria	30 min	activated sludge, domestic	ISO 8192 (Test for Inhibition of Oxygen Consumption by Activated Sludge)

Persistence and degradability:

Hazardous components **CAS-No.**	**Result**	**Route of application**	**Degradability**	**Method**
α, α-dimethylbenzyl hydroperoxide 80-15-9	not readily biodegradable.	aerobic	3 %	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
N,N-Diethyl-p-toluidine 613-48-9	not readily biodegradable.	not specified	1 %	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
N,N-dimethyl-o-toluidine 609-72-3	not readily biodegradable.		1 %	other guideline:
methacrylic acid 79-41-4	readily biodegradable	aerobic	86 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
methacrylic acid 79-41-4	inherently biodegradable	aerobic	100 %	OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test)
methyl methacrylate 80-62-6	readily biodegradable	aerobic	94 %	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))

Bioaccumulative potential / Mobility in soil:

Hazardous components CAS-No.	LogPow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
α, α-dimethylbenzyl hydroperoxide 80-15-9		9.1		calculation		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
α, α-dimethylbenzyl hydroperoxide 80-15-9	1.6				25 °C	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
N,N-Diethyl-p-toluidine 613-48-9	3.7					QSAR (Quantitative Structure Activity Relationship)
methacrylic acid 79-41-4	0.93				22 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
methyl methacrylate 80-62-6	1.38				20 °C	other guideline:

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal of product: Collection and delivery to recycling enterprise or other registered elimination institution. Dispose of in accordance with local and national regulations.

Disposal for uncleaned package: 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.

SECTION 14. TRANSPORT INFORMATION

Dangerous Goods information:

Land Transport:
Not classified as Dangerous Goods under the Land Transport Rule: Dangerous Goods 2005.

Marine transport IMDG:
Not dangerous goods

Air transport IATA:
Not dangerous goods

SECTION 15. REGULATORY INFORMATION

New Zealand regulatory information:
Classified as hazardous under the New Zealand Hazardous Substances and New Organisms Act (HSNO).

HSNO Approval Number:	HSR002670
Site and Storage:	Refer to the site and storage requirements for this Group Standard. Refer to the HSNO controls for approved hazardous substances.
NZIoC:	All components are listed or are exempt from listing on the New Zealand Inventory of Chemicals (NZIoC)

SECTION 16. OTHER INFORMATION

Abbreviations/acronyms:	LC 50: Lethal Concentration 50% LD 50: Lethal Dose 50% CAS: Chemical Abstracts Service GHS: Globally Harmonized System HSNO - Hazardous Substances and New Organisms TWA - Time weighted average STEL - Short term exposure limit IMDG: International Maritime Dangerous Goods code IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
Reason for issue:	Reviewed SDS. Reissued with new date. involved chapters: 1 - 16

Date of previous issue: 24.07.2017

Disclaimer:

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