



Safety Data Sheet according to Singapore Standard SS 586.

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LOCTITE EDAG 7019 E&C known as ELECTRODAG7019

SDS No. : 326189

V001.3

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

Product name: LOCTITE EDAG 7019 E&C known as ELECTRODAG7019

Other means of identification: LOCTITE EDAG 7019 1KG E&C

Product code: IDH1263545

Recommended use of the chemical and restrictions on use

Intended use: Ink

Manufacturer/Importer/Distributor Representative Company

Henkel Singapore Pte Ltd

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Singapore

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Emergency Telephone for Chemical Accidents: FOR EMERGENCIES ONLY (Spill, major leak, Fire, Exposure, or Accident). Call: +65 6424 7016

Section 2. Hazards identification

GHS Classification:

<u>Hazard Class</u>	<u>Hazard Category</u>
Corrosive to metals	Category 1
Acute hazards to the aquatic environment	Category 1
Chronic hazards to the aquatic environment	Category 1

GHS label elements:

Hazard pictogram:



Signal word:

Warning

Hazard statement:	H290 May be corrosive to metals. H410 Very toxic to aquatic life with long lasting effects.
Precaution:	
Prevention:	P234 Keep only in original packaging. P273 Avoid release to the environment.
Response:	P390 Absorb spillage to prevent material damage. P391 Collect spillage.
Storage:	P406 Store in corrosive resistant container with a resistant inner liner.
Disposal:	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Section 3. Composition / information on ingredients

Substance or Mixture:

Mixture

Declaration of hazardous chemical:

Hazard component CAS-No.	Content	GHS Classification
Silver $\geq 99,9$ % Ag as powder ($>100\text{nm}<1\text{mm}$) classified for environment 7440-22-4	30- 60 %	Reproductive toxicant. 2 H361 Target Organ Systemic Toxicant - Repeated exposure 2 H373 Acute hazards to the aquatic environment 1 H400 Chronic hazards to the aquatic environment 1 H410
Silver chloride 7783-90-6	10- 30 %	Corrosive to metals 1 H290 Acute hazards to the aquatic environment 1 H400 Chronic hazards to the aquatic environment 1 H410
methanol 67-56-1	0.1- 1 %	Flammable liquids 2 H225 Acute toxicity 3; Oral H301 Acute toxicity 3; Inhalation H331 Acute toxicity 3; Dermal H311 Target Organ Systemic Toxicant - Single exposure 1 H370

Section 4. First aid measures

Inhalation:	Move to fresh air. If symptoms persist, seek medical advice.
Skin contact:	Wash with soap and water. Get medical attention.
Eye contact:	Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Seek medical attention at once.

Ingestion:	Do not induce vomiting. Keep individual calm. If vomiting occurs, prevent aspiration by keeping the patient's head below the knees. Get immediate medical attention.
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Section 5. Fire fighting measures

Suitable extinguishing media:	Avoid using a direct stream of water. Water spray (fog), foam, dry chemical or carbon dioxide.
Specific hazards arising from the chemical:	Non-combustible.
Special protection equipment and precautions for firefighters:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.
Hazardous combustion products:	Carbon monoxide. Carbon dioxide.

Section 6. Accidental release measures

Environmental precautions:	Do not allow product to enter sewer or waterways. Wear appropriate protective equipment and clothing during clean-up.
Clean-up methods:	Isolate area. Keep unnecessary personnel away. Ventilate area. Prevent further leakage or spillage if safe to do so. Absorb spill with inert material. Shovel material into appropriate container for disposal.

Section 7. Handling and storage

Handling:	Avoid prolonged or repeated skin contact with this material. Do not return unused product to original container. Wash hands before breaks and immediately after handling the product.
Storage:	Keep away from sources of ignition. Keep away from heat and direct sunlight. Store in a cool, dry place. Keep container tightly sealed. Keep container in a well ventilated place. Store below 90°F. (32.2°C)

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

Silver, Metal 7440-22-4	Value type	Time Weighted Average (TWA):
	mg/m³	0.1
	Remarks	SG OEL
Silver, metal, dust and fume 7440-22-4	Value type	Time Weighted Average (TWA):
	mg/m³	0.1
	Remarks	ACGIH
Methanol (Methyl alcohol) 67-56-1	Value type	Time Weighted Average (TWA):
	ppm	200
	mg/m³	262
	Remarks	SG OEL
Methanol 67-56-1	Value type	Time Weighted Average (TWA):
	ppm	200
	Remarks	ACGIH
Methanol 67-56-1	Value type	Skin designation:
	Remarks	ACGIH Danger of cutaneous absorption
Methanol 67-56-1	Value type	Short Term Exposure Limit (STEL):
	ppm	250
	Remarks	ACGIH
Methanol (Methyl alcohol) 67-56-1	Value type	Short Term Exposure Limit (STEL):
	ppm	250
	mg/m³	328
	Remarks	SG OEL

Respiratory protection:	Use NIOSH approved respirator if there is potential to exceed exposure limit(s).
Hand protection:	Suitable protective gloves.
Eye protection:	Wear safety glasses; chemical goggles (if splashing is possible).
Body protection:	Cover as much of the exposed skin area as possible with appropriate clothing.
Engineering controls:	Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.
General protection and hygiene measures:	The workplace should be equipped with an emergency shower and eye-rinsing facility.
Hygienic measures:	Wash hands before work breaks and after finishing work. Do not eat, drink or smoke while working. Take off contaminated clothing and wash before reuse.

Section 9. Physical and chemical properties

Appearance:	Silver liquid
Odor:	sweet
Odor threshold (CA):	No data available.
pH:	Not applicable, Product is non-soluble (in water).
Melting point / freezing point:	Not applicable, Product is a liquid
Specific gravity:	2.17

Boiling point:	225 °C (437 °F)
Flash point:	> 93 °C (> 199.4 °F)
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Lower explosive limit:	0.9 %(V)
Upper explosive limit:	8.0 %(V)
Vapor pressure: (; 20 °C (68 °F))	< 1 hPa
Vapor density:	> 1
Density:	2.17 g/cm ³
Solubility:	No data available.
Partition coefficient: n-octanol/water:	No data available.
Auto ignition:	Not available.
Decomposition temperature:	No data available.
Viscosity:	14,000 cp (; Method: no method / method unknown)
VOC content: (2010/75/EC)	35.6 %

Section 10. Stability and reactivity

Reactivity/Incompatible materials:	Oxidizers.
Possibility of hazardous reactions:	Will not occur.
Conditions to avoid:	Stable Avoid excessive heat and ignition sources. Avoid strong oxidizing agents.
Hazardous decomposition products:	Carbon monoxide. Carbon dioxide.

Section 11. Toxicological information

General toxicological information:	No experimental toxicological data on the preparation as such is available.
Oral toxicity:	Acute toxicity estimate (ATE) : > 2,000 mg/kg Method: Calculation method
Inhalative toxicity:	Acute toxicity estimate (ATE) : > 20 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
Dermal toxicity:	Acute toxicity estimate (ATE) : > 2,000 mg/kg Method: Calculation method

Symptoms of Overexposure: None known.

Acute oral toxicity:

Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 401 (Acute Oral Toxicity)
methanol 67-56-1	Value type	Acute toxicity estimate (ATE)
	Value	300 mg/kg
	Species	
	Method	Expert judgement

Acute dermal toxicity:

Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
methanol 67-56-1	Value type	Acute toxicity estimate (ATE)
	Value	300 mg/kg
	Species	
	Method	Expert judgement

Skin corrosion/irritation:

methanol 67-56-1	Result	not irritating
	Exposure time	20 h
	Species	rabbit
	Method	BASF Test

Serious eye damage/irritation:

methanol 67-56-1	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

methanol 67-56-1	Result	not sensitising
	Test type	Guinea pig maximisation test
	Species	guinea pig
	Method	equivalent or similar to OECD Guideline 406 (Skin Sensitisation)

Germ cell mutagenicity:

Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Result	negative
	Type of study / Route of administration	in vitro mammalian cell micronucleus test
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 487 (In vitro Mammalian Cell Micronucleus Test)
methanol 67-56-1	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
methanol 67-56-1	Result	negative
	Type of study / Route of administration	in vitro mammalian cell micronucleus test
	Metabolic activation / Exposure time	without
	Method	not specified
methanol 67-56-1	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	equivalent or similar to OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
methanol 67-56-1	Result	negative
	Type of study / Route of administration	intraperitoneal
	Metabolic activation / Exposure time	
	Species	mouse
	Method	equivalent or similar to OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Repeated dose toxicity:

methanol 67-56-1	Result	NOAEL=6.63 mg/l
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	4 weeks 6 h/d, 5 d/w
	Species	rat
	Method	equivalent or similar to OECD Guideline 412 (Repeated Dose Inhalation Toxicity: 28/14-Day)
methanol 67-56-1	Result	NOAEL=0.13 mg/l
	Route of application	inhalation: vapour
	Exposure time / Frequency of treatment	12 m20 h/d
	Species	rat
	Method	equivalent or similar to OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

Section 12. Ecological information

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

Ecotoxicity: H410 Very toxic to aquatic life with long lasting effects.

Toxicity:

Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Value type	LC50
	Value	0.0012 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	other guideline:
	Value type	EC10
	Value	0.00019 mg/l
	Acute Toxicity Study	Fish

	Exposure time	217 d
	Species	Salmo trutta
	Method	OECD Guideline 210 (fish early lite stage toxicity test)
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Value type	EC50
	Value	0.00022 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	other guideline:
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Value type	EC10
	Value	0.00016 mg/l
	Acute Toxicity Study	Algae
	Exposure time	15 d
	Species	other:
	Method	other guideline:
Silver chloride 7783-90-6	Value type	LC50
	Value	1.93 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Pimephales promelas
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Silver chloride 7783-90-6	Value type	EC50
	Value	0.00022 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	not specified
Silver chloride 7783-90-6	Value type	EC10
	Value	0.00041 mg/l
	Acute Toxicity Study	Algae
	Exposure time	24 h
	Species	Pseudokirchneriella subcapitata
	Method	not specified
Silver chloride 7783-90-6	Value type	EC10
	Value	0.006 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	16 h
	Species	
	Method	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)
methanol 67-56-1	Value type	LC50
	Value	15,400 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Lepomis macrochirus
	Method	EPA-660 (Methods for Acute Toxicity Tests with Fish, Macroinvertebrates and Amphibians)
	Value type	NOEC
	Value	7,900 mg/l
	Acute Toxicity Study	Fish
	Exposure time	200 h
	Species	Oryzias latipes
	Method	OECD Guideline 210 (fish early lite stage toxicity test)
methanol 67-56-1	Value type	EC50
	Value	18,260 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	96 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
methanol 67-56-1	Value type	EC50
	Value	22,000 mg/l
	Acute Toxicity Study	Algae
	Exposure time	96 h
	Species	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
methanol 67-56-1	Value type	IC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge of a predominantly domestic sewage

	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
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Persistence and degradability:

methanol 67-56-1	Result	readily biodegradable
	Route of application	aerobic
	Degradability	82 - 92 %
	Method	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)

Bioaccumulative potential / Mobility in soil:

Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Bioconcentration factor (BCF)	70
	Exposure time	42 d
	Species	Cyprinus carpio
	Temperature	20 °C
	Method	other guideline:
methanol 67-56-1	Bioconcentration factor (BCF)	< 10
	Exposure time	72 h
	Species	Leuciscus idus melanotus
	Temperature	
	Method	not specified
methanol 67-56-1	LogPow	-0.77
	Temperature	
	Method	other guideline:

Section 13. Disposal considerations

Product

Method of disposal: Dispose of in accordance with local and national regulations.

Packaging

Disposal of uncleaned packages: Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

Section 14. Transport information

Road transport ADR:

Class:	9
Packing group:	III
Classification code:	M6
Hazard ident. number:	90
UN no.:	3082
Label:	9
Technical name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver,Silver chloride)

Railroad transport RID:

Class:	9
Packing group:	III
Classification code:	M6
Hazard ident. number:	90
UN no.:	3082
Label:	9
Technical name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver,Silver chloride)

Inland water transport ADN:

Class:	9
Packing group:	III
Classification code:	M6
Hazard ident. number:	90
UN no.:	3082
Label:	9
Technical name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver,Silver chloride)

Marine transport IMDG:

Class:	9
Packing group:	III
UN no.:	3082
Label:	9
EmS:	F-A ,S-F
Seawater pollutant:	Marine pollutant
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver,Silver chloride)

Air transport IATA:

Class:	9
Packing group:	III
Packaging instructions (passenger):	964
Packaging instructions (cargo):	964
UN no.:	3082
Label:	9
Proper shipping name:	Environmentally hazardous substance, liquid, n.o.s. (Silver,Silver chloride)

Further information for transport:

The transport classifications in this section apply generally to packed and bulk goods alike. For containers with a net volume of no more than 5 L for liquid substances or a net mass of no more than 5 kg for solid substances per individual or inner package, the exemptions SP 375 (ADR), A197 (IATA), 2.10.2.7 (IMDG), NZ 4.3(10) may be applied, which can result in a deviation from the transport classification for packed goods.

Section 15. Regulatory information

Regulatory Information: Workplace Safety And Health Act (Chapter 354A, Section 40B) Workplace Safety And Health (Approved Codes of Practice) Notification 2020.
Workplace Safety And Health Act (Chapter 354A, Section 65) Workplace Safety And Health (General Provisions) (Amendment No.2) Regulations 2024

Global inventory status:

Regulatory list	Notification
TSCA	yes
DSL	yes
KECI (KR)	yes
ENCS (JP)	yes
ISHL (JP)	yes
IECSC	yes
AIIC	yes
TCSI	yes
PICCS (PH)	yes
EINECS	yes

Section 16. Other information

Disclaimer:

This Safety Data Sheet has been generated based on Workplace Safety And Health Act (Chapter 354A, Section 40B) Workplace Safety And Health (Approved Codes of Practice) Notification 2020 and Workplace Safety And Health Act (Chapter 354A, Section 65) Workplace Safety And Health (General Provisions) (Amendment No.2) Regulations 2024 only. No warranty or representation of any kind is given with respect to the substantive or export laws of any other jurisdiction or country. Please confirm that the information provided herein conforms to the substantive export or other law of any other jurisdiction prior to export. Please contact Henkel Product Safety and Regulatory Affairs for additional assistance. This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

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