

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name	LINQSOL™ EMC-6043
Applications:	Black epoxy molding compound for the encapsulation of semiconductor devices
Advised Against	No further relevant information available
Supplier Name	Caplinq Europe BV

CAPLINQ Europe BV
Industrieweg 15E
1566 JN Assendelft
The Netherlands
+31 20 893 2224

CAPLINQ Corporation
80 Sirocco Crescent
Ottawa, ON K2S 2C9
Canada
+1 (613) 416 8426

CAPLINQ Americas
36972 Schoolcraft Rd
Livonia, MI 48150
United States of America
+1 (618) 416 9739

CAPLINQ Malaysia
S-08-07 Setia Triangle
Penang, BL 11900
Malaysia
+60 (15) 460 00453

SECTION 2. HAZARDS IDENTIFICATION

PROPOSED CLASSIFICATION:

HAZARD CLASS

Skin Sensitization
Carcinogenicity

HAZARD CATEGORY

Category 1
Category 2

HAZARD PICTOGRAMS:



SIGNAL WORD

Warning

HAZARD STATEMENTS

H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer

PREVENTION PRECAUTIONARY STATEMENTS

P203 Obtain, read and follow all safety instructions before use
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P272 Contaminated work clothing should not be allowed out of the workplace
P280 Wear protective gloves/protective clothing/eye protection/face protection

RESPONSE PRECAUTIONARY STATEMENTS

P302+P352 IF ON SKIN: Wash with plenty of water.
P318 If exposed or concerned, get medical advice.
P321 See specific treatment on the label.
P333+P317 If skin irritation or rash occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.

STORAGE PRECAUTIONARY STATEMENTS

P405 Store locked up.

DISPOSAL PRECAUTIONARY STATEMENTS

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. INGREDIENT COMPOSITION

No.	Component	CAS Reg. No.	Proportion (%)
1	Silicon Dioxide (Vitreous)	60676-86-0	40–<60
2	Silanedione	14808-60-7	1–<50
3	Phenolic Resin	Proprietary	1–<10
4	Carbon black	1333-86-4	0.–<1
5	2,2'-((3,5',5,5'-tetramethyl-(1,1'-biphenyl)-4,4'-diyl)bis(oxyethylene))-bis-oxirane	85954-11-6	0.1–<2
6	3-Trimethoxysilylpropane-1-thiol	4420-74-0	0.1–<1

SECTION 4. FIRST AID MEASURES

DESCRIPTION OF FIRST-AID MEASURES

General advice	First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.
If inhaled	Move the individual to fresh air and ensure their comfort for normal breathing. If symptoms persist, get medical attention immediately.
In case of skin contact	In case of skin contact: Flush with plenty of water and soap and seek medical attention.
In case of eye contact	After eye contact: Immediately flush with a soft jet of water for at least 5 minutes. If pain and symptoms persist, continue flushing and get medical attention immediately.
If swallowed	If swallowed, do not induce vomiting. Drink 1-2 glasses of water and rinse your mouth and seek emergency medical help immediately

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

- The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

- Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Suitable	Water spray, dry powder, or foam.
Unsuitable	No information available

SPECIAL HAZARDS ARISING FROM SUBSTANCE OR MIXTURE

Fire hazard	Non-combustible solids
Hazardous decomposition	Oxides of carbon and Irritating organic vapors.

ADVICE FOR FIREFIGHTERS**Protection during firefighting**

Flammable dust-air mixture can be formed when mixed with air in sufficient amounts and proportions. Do not breathe in fumes released from fire. Self-contained breathing apparatus and complete protective clothing should be worn in extinguishing large fires involving chemicals.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

- As a safety precaution, use protective equipment and adhere to emergency procedures. Keep away from sources of ignition and open flames and ensure adequate ventilation.
- Avoid dust formation and wear protective filter mask with particle filter depending on the on workplace dust concentration.

ENVIRONMENTAL PRECAUTIONS

- Prevent from spreading or entering into drains, ditches, or rivers by mechanical recovery of the product, earth, or other appropriate barriers.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

- If spilled material can be pumped and can be safely recovered, store it in an appropriate container. Use a suitable absorbent to clean up the remaining spillage. Consider a final cleaning using methods such as steam, solvents, or detergents if needed. Dispose of saturated absorbents or cleaning materials properly to prevent potential spontaneous heating. Avoid generation of dust. Observe possible material restrictions (see Sections 7 and 10).

REFERENCE TO OTHER SECTIONS

- For disposal, see Section 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING**Advice on safe handling**

Use with adequate ventilation. Avoid open flames, sparsking and sources of ignition. Prevent dust formation and deposition. Take precautionary risk against static discharges.

Hygiene measures

Always wear proper personal protective equipment. Avoid contact with the eyes. Exercise good industrial hygiene practice. Wash hands thoroughly after handling, especially before eating, drinking, or smoking. For precautions see section 2.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES**Storage conditions**

Store in a well-ventilated, cool area away from heat and direct sunlight. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

No information available.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

CONTROL PARAMETERS**Exposure Limits**

No.	Components	Standards	Reference
1	Silicon Dioxide (Vitreous)	5 mg/m ³ /0.1 mg/m ³	OSHA ¹ /ACGIH ²
2	Silanedione (Quarts)	0.05 mg/m ³ / 0.025 mg/m ³	OSHA/ACGIH

3	Phenolic Resin	Not Established	OSHA/ACGIH
4	Carbon black	3.5 mg/m ³ / 3 mg/m ³	OSHA/ACGIH
5	2,2'-((3,5,5,5'-tetramethyl-(1,1'-bi phenyl)-4,4'-diyl) bis(oxymethylene)) -bis-oxirane	Not Established	OSHA/ACGIH
6	3-Trimethylsilyl Propane-1-thiol	Not Established	OSHA/ACGIH

¹Occupational Safety and Health Administration (OSHA) 8-hour total weight average (TWA) permissible exposure limit (PEL)

²American Conference of Governmental Industrial Hygienists (ACGIH) 8-hour total weight average (TWA) threshold limit value (TLV)

EXPOSURE CONTROLS

Eye/face protection

Avoid eye contact. Use appropriate eye protective gear, with safety glasses as the minimum requirement.

Hand protection

Protective gloves

Body protection

Wear suitable protective clothing, including protective gloves. Wear refractive gloves while working with the hot melt.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment

Control of environmental exposure

Do not release the product to the environment.

ENGINEERING CONTROLS

Ventilation

Use adequate exhaust ventilation especially in confined areas. Extraction system is necessary to remove fumes released during reflow, use of local exhaust ventilation and good general extraction is sufficient

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid black pellets/powder
Odor	Odorless
pH	Not available
Freezing/Boiling Point	Not applicable
Flash Point	Not applicable
Flammability	Not flammable
Vapour Pressure (mmHg at 25 °C)	Not available
Explosive Limit	Not Applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not available
Solubility	Insoluble
Density	1.97

OTHER INFORMATION

Information with regard to physical hazard classes	No additional information available
Other safety characteristics	No additional information available

SECTION 10. STABILITY & REACTIVITY

Chemical Stability and Reactivity:	Stable and non-reactive under ordinary conditions of use and storage.
Materials and Conditions To Avoid:	Take precaution for the possibility of dust explosions. Prevent electrostatic charge build-up.
Hazardous Polymerization:	No hazard at room temperature. Reacts with strong oxidants. Polymerization may occur at elevated temperature or in the presence of incompatible materials
Hazardous Decomposition Products:	Hydrocarbons, oxides of carbon and irritating organic fragments.

SECTION 11. TOXICOLOGICAL INFORMATION

General Toxicological Information: No Experimental toxicological data on the preparation as such is available.

Acute Toxicity (Oral)	Not classified
Acute Toxicity (Dermal)	Not classified
Acute Toxicity (Inhalation)	Not classified

CAS No.	Value Type	Value	Route of Exposure
85954-11-6	LD50	3,563 mg/kg	Oral
	LD50	>2000 mg/kg	Dermal
4420-74-0	LD50	850 mg/kg	Oral

Skin corrosion/irritation	Not Irritating
Serious eye damage/irritation	Slightly irritating
Respiratory or skin sensitisation	Not sensitizing
Germ cell mutagenicity	Not classified

CAS No.	Result	Route of Study	Method
85954-11-6	Positive	Bacterial	OECD Guideline 476 EU Method B.10
	Positive	Gene Mutation Assay	
	No data	In vitro mammalian chromosome aberration test	
	Positive	Intraperitoneal	EU Method B.12

Carcinogenicity	No information found
Reproductive toxicity	No information found
Specific target organ toxicity (Single and Repeated Exposure)	No information found
Aspiration hazard	No information found

INFORMATION ON OTHER HAZARDS

Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties	No information found
Potential adverse human health effects and symptoms	No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecological Toxicity	Prevent from spreading or entering into drains,surface water, groundwater and rivers The product poses harm to aquatic organisms or may cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short term (acute)	Not classified
Hazardous to the aquatic environment, long-term (chronic)	Not classified
Mobility in soil	No information found.
Bioaccumulation	No significant bioaccumulation potential.
Persistence and biodegradability	No information found.
PBT and vPvB assessment	No information found.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal of waste needs to be carried out at the city, state, or federally permitted disposal facility. Handle in accordance with applicable regulations/instructions and/or local authorities.

SECTION 14. TRANSPORT INFORMATION

Land transport ADR/RID (Cross-border)	
ADR, RID Class	Not subject to ADR classification
Maritime transport IMDG	
IMDG Class	Not subject to IMDG classification
Air transport ICAO-TI and IATA-DGR	
ICAO/IATA Class	Not subject to IATA regulations
Notice for Transportation	Transport according to local and national regulations. Ensure containers will not leak, collapse, or be damaged when transported. DO NOT transport with incompatible materials. Transportation vehicles should be equipped with the right fire-fighting equipment in case of an emergency. Avoid solarization, drenched and high temperatures when transported.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized safety officer. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15. REGULATORY INFORMATION

The product is free from substances restricted by REACH Annex XVII, substances on the REACH candidate list at concentrations $\geq 0.1\%$, substances listed in REACH Annex XIV, substances regulated by EU No 649/2012 on the export and import of hazardous chemicals, and substances governed by EU No 2019/1021 on persistent organic

SECTION 16. OTHER INFORMATION

The information in this safety data sheet was obtained from reputable sources and to the best of our knowledge is accurate and current at the mentioned date. Neither CAPLINQ Corporation, nor CAPLINQ Europe BV accept any liability arising out of the use of the information provided here or the use, application or processing of the product described herein.

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