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**SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

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<b>Trade Name</b>	LINQSOL™ EMC-7142
<b>Applications:</b>	Black epoxy molding compound for the encapsulation of semiconductor devices
<b>Advised Against</b>	No further relevant information available
<b>Supplier Name</b>	Caplinq Europe BV

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**SECTION 2. HAZARDS IDENTIFICATION**

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**CLASSIFICATION ACCORDING TO REGULATION (EC) No. 1272/2008:** Not classified.

**HAZARD PICTOGRAMS:** None.

**SIGNAL WORD:** None.

**HAZARD STATEMENTS:** None.

**PRECAUTIONARY STATEMENTS:** None.

**POTENTIAL ADVERSE PHYSICOCHEMICAL, HUMAN HEALTH, AND ENVIRONMENTAL EFFECTS:** This product poses no specific risks when handled in accordance with proper occupational hygiene and safety practices.

**OTHER HAZARDS:** This substance/mixture does not meet the PBT or vPvB criteria outlined in Annex XIII of the REACH regulation. The mixture is free from substances listed under Article 59(1) of REACH for having endocrine-disrupting properties. It is also not identified as having endocrine-disrupting properties per the criteria outlined in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

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**SECTION 3. INGREDIENT COMPOSITION**

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No.	Component	CAS Reg. No.	Proportion (%)
1	Silicon dioxide (Vitreous)	60676-86-0	80–90
2	Biphenyl novolac epoxy resin	223769-10-6	5–15
3	3-Trimethoxysilylpropane-1-thiol	4420-74-0	0.1–1
4	Carbon black	1333-86-4	0.1–0.5
5	Phenol	108-95-2	0.01–0.2
6	2-Methylimidazole	693-98-1	0.0001–0.0005
7	Acetic acid	64-19-7	0.1–0.5

## SPECIFIC CONCENTRATION LIMITS

Component	CAS Reg. No.	Specific Concentration Limits
Phenol	108-95-2	( 1 ≤C < 3) Eye Irrit. 2, H319 ( 1 ≤C < 3) Skin Irrit. 2, H315 ( 3 ≤C < 100) Skin Corr. 1B, H314

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**SECTION 4. FIRST AID MEASURES**

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**EYE CONTACT**

- Immediately flush with plenty of water for at least 15 min.

**SKIN CONTACT**

- Immediately flush with plenty of water for at least 15 min.

**INHALATION**

- Move the individual to fresh air and ensure their comfort for normal breathing.

**INGESTION**

- Get medical attention immediately.

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**SECTION 5. FIRE FIGHTING MEASURES**

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**EXTINGUISHING MEDIA**

- Water spray, dry powder, or foam.

**SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE**

- Fire hazard: Non-combustible solids.
- Hazardous decomposition products in case of fire: Toxic fumes may be released.

**FIRE FIGHTING PROCEDURE**

- Toxic fumes may be released in case of fire. Self-contained breathing apparatus and protective clothing should be worn in extinguishing large fires involving chemicals.
- Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

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**PERSONAL PRECAUTIONS**

- As a safety precaution, use protective equipment and adhere to emergency procedures. Avoid contact with the eyes. Do not take it internally.

**ENVIRONMENTAL PRECAUTIONS**

- Prevent from spreading or entering into drains, ditches, or rivers by using sand, earth, or other appropriate barriers.

**LEAKAGE OR SPILL**

- 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.

## SECTION 7. HANDLING AND STORAGE

### HANDLING

- Use with adequate ventilation. Avoid contact with the eyes. Exercise good industrial hygiene practice. Wash hands thoroughly after handling, especially before eating, drinking, or smoking.

### STORAGE

- Store in a well-ventilated, cool area.

## SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### EXPOSURE LIMITS

No.	Components	Standards	Reference
1	Silicon dioxide (Vitreous)	5 mg/m <sup>3</sup> /0.1 mg/m <sup>3</sup>	OSHA <sup>1</sup> /ACGIH <sup>2</sup>
2	Biphenyl novolac epoxy resin	Not Established	OSHA/ACGIH
3	3-Trimethoxysilylpropane-1-thiol	Not Established	OSHA/ACGIH
4	Carbon black	3.5 mg/m <sup>3</sup> /3 mg/m <sup>3</sup>	OSHA/ACGIH
5	Phenol	5 ppm/5 ppm (19 mg/m <sup>3</sup> )	OSHA/ACGIH
6	2-Methylimidazole	Not Established	OSHA/ACGIH
7	Acetic acid	10 ppm/5 ppm (19 mg/m <sup>3</sup> )	OSHA/ACGIH

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

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

### VENTILATION

Use general exhaust ventilation to meet exposure limit requirements.

### PERSONAL PROTECTION

- Respiratory Protection: When ventilation is inadequate, use appropriate respiratory protection.
- Eye Protection: Use appropriate eye protective gear, with safety glasses as the minimum requirement.
- Skin and body protection: Wear suitable protective clothing, including protective gloves.
- Thermal hazard protection: No thermal hazard protection is required under standard processing conditions.
- Environmental exposure control: Avoid release to the environment.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid black pellets
Odor	Odorless
pH	Not Available
pH Solution	Not Available

Freezing/Boiling Point	Not Applicable
Flash Point	Not Applicable
Melting Point	Not Available
Flammability	Not Flammable
Vapour Pressure (mmHg at 25 °C)	Not Available
Explosive Limit	Not Applicable
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	Not Available
Kinematic Viscosity	Not Applicable
Solubility	Insoluble
Density	2.00
Relative Density	Not Available
Particle Size	Not Available
Particle Shape	Not Available
Particle Dustiness	Not Available

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### SECTION 10. STABILITY & REACTIVITY

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**Chemical Stability and Reactivity:** Stable and non-reactive under ordinary conditions of use, storage, and transport.  
**Materials and Conditions To Avoid:** None under recommended storage and handling conditions.  
**Hazardous Polymerization:** No hazard at room temperature.  
**Hazardous Decomposition Products:** Under normal storage and usage conditions, there should be no hazardous decomposition products.  
**Hazardous Reactions:** Under normal conditions of use, no hazardous reactions are known to occur.

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### SECTION 11. TOXICOLOGICAL INFORMATION

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**Acute Toxicity (Oral, Dermal, and Inhalation):** Not classified.  
**Aspiration Hazard:** Not classified.  
**Inhalation:** No expected significant effect.  
**Skin Contact:** No expected significant irritation.  
**Eye Contact:** No hazard.  
**Endocrine disrupting properties:** The product is free from substances listed under Article 59(1) of REACH for having endocrine-disrupting properties. It is also not identified as having endocrine-disrupting properties per the criteria outlined in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

Carbon black (1333-86-4)	
LD50 Oral - Rat	>15400 mg/kg
LC50 Inhalation - Rat	>4.6 mg/l/4h
Phenol (108-95-2)	
LD50 Oral - Rat	340 mg/kg
Carbon black (1333-86-4)	
LD50 Dermal - Rabbit	630 mg/kg
LC50 Inhalation - Rat (Dust/Mist)	1.27 mg/l/4h

<b>3-Trimethoxysilylpropane-1-thiol(4420-74-0)</b>	
LC50 Inhalation - Fish	439 mg/l/96h
EC50 Inhalation - Daphnia	6.7 mg/l/48h
EC50 Inhalation - Algae	267 mg/l/72h

<b>Silica, vitreous (60676-86-0)</b>	
IARC Group	3 - Not classifiable

<b>Carbon black (1333-86-4)</b>	
IARC Group	2B - Possibly carcinogenic to humans

<b>Phenol (108-95-2)</b>	
IARC Group	3 - Not classifiable

## SECTION 12. ECOLOGICAL INFORMATION

**Ecological Toxicity:** The product does not pose harm to aquatic organisms or cause long-term adverse effects in the environment.

**Short-term hazard to the aquatic environment (Acute):** Not classified.

**Long-term hazard to the aquatic environment (Chronic):** Not classified.

<b>Carbon black (1333-86-4)</b>	
LC50 - Fish	>1000 mg/l

<b>Phenol (108-95-2)</b>	
LC50 - Fish [1]	11.9–50.5 mg/l/96 h Pimephales promelas [flow-through]
LC50 - Fish [2]	20.5–25.6 mg/l/96 h Pimephales promelas [static]
EC50 - Crustacea [1]	4.24–10.7 mg/l/48 h Daphnia magna [Static]
EC50 - Crustacea [2]	10.2–15.5 mg/l/8 h Daphnia magna
EC50 - Algae [1]	187–279 mg/l/72h Desmodesmus subspicatus [static]

### Persistence and biodegradability

Component	CAS No.	Application	Degradability	Method
3-Trimethoxysilylpropane-1-thiol	4420-74-0	Aerobic	51%	OECD Guideline 301 A (new version) (Ready Biodegradability: DOC Die Away Test)

Phenol (108-95-2)	
BCF - Fish [1]	No significant bioaccumulation potential.
Partition coefficient n-octanol/water (Log Pow)	1.5

**Mobility in soil:** No information found.

**Results of PBT and vPvB assessment**

LINQSOL EMC-7142
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII.

**Endocrine disrupting properties:** The product is free from substances listed under Article 59(1) of REACH for having endocrine-disrupting properties. It is also not identified as having endocrine-disrupting properties per the criteria outlined in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

**Other adverse effects:** No information available.

**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 and/or local authorities.

**SECTION 14. TRANSPORT INFORMATION**

In accordance with ADR/ IMDG/ IATA/ ADN/ RID

ADR	IMDG	IATA	ADN	RID
<b>UN Number or ID Number</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>UN Proper Shipping Name</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>Transport Hazard Class</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>Packing Group</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
<b>Environmental Hazards</b>				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available.				

**SPECIAL PRECAUTIONS FOR USER**

<b>Overland Transport</b>	Not regulated.
<b>Transport by Sea</b>	Not regulated.
<b>Air Transport</b>	Not regulated.
<b>Inland Water Transport</b>	Not regulated.
<b>Rail Transport</b>	Not regulated.

*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.*

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**SECTION 15. REGULATORY INFORMATION**


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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 pollutants.

**National regulations**

<b>France - Occupational Diseases</b>	
Code	Description
RG 66	Occupational rhinitis and asthma

<b>Netherlands</b>	
SZW-lijst van kankerverwekkende stoffen	Carnauba wax,Fatty acids, montan-wax, ethylene esters are listed
SZW-lijst van mutagene stoffen	Carnauba wax,Fatty acids, montan-wax, ethylene esters are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	None of the components are listed.
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	2-Methylimidazole is listed.
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling	2-Methylimidazole is listed.

<b>Denmark</b>	
Danish National Regulations	Individuals under the age of 18 are prohibited from using the product. Pregnant or breastfeeding women working with the product should avoid direct contact.

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**SECTION 16. OTHER INFORMATION**

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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.

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgments of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance

with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**ABBREVIATIONS AND ACRONYMS**

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level



NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

#### FULL TEXT OF H- AND EUH-STATEMENTS

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Aquatic Chronic 4	Hazardous to the aquatic environment – Chronic Hazard, Category 4
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Flam. Sol. 1	Flammable solids, Category 1

Muta. 2	Germ cell mutagenicity, Category 2
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 1B	Reproductive toxicity, Category 1B
Self-heat. 2	Self-Heating Substances and Mixtures, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H252	Self-heating in large quantities; may catch fire.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.