

# MATERIAL SAFETY DATA SHEET



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LMC 300T-KL

Issue date	2005-08-06	Version
Revision date	2023-03-15	03

## 1. IDENTIFICATION

### A. Product name

LMC 300T-KL

### B. Recommended use and restriction on use

- General use : Encapsulation material for semiconductor
- Restriction on use : Not available

### C. Manufacturer / Supplier information

- Company name : Hysolem.co.,ltd
- Address : (570-350) 99 Seokam-ro, Iksan-si, Jeollabuk-do, Korea
- Telephone number : 82 63 900 7200
- Fax number : 82 63 833 2199

## 2. HAZARD IDENTIFICATION

### A. GHS Classification

- Acute toxicity (oral) : Category5
- Skin corrosion/irritation : Category3
- Carcinogenicity : Category1A
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)

### B. GHS label elements

#### o Hazard symbols



#### o Signal words

- Danger

#### o Hazard statements

- H303 May harmful if swallowed.
- H316 Cause mild skin irritation.
- H335 May cause respiratory irritation.
- H350 May cause cancer

#### o Precautionary statements

##### 1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing dust/fume.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

##### 2) Response

- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- P332+P313 If skin irritation occurs: Get medical advice/attention.

##### 3) Storage

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

##### 4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

### C. Other hazards which do not result in classification : (NFPA Classification)

o NFPA grade (0 ~ 4 level)

- Health : 2, Flammability : 0, Reactivity : 0

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Quartz (SiO <sub>2</sub> )	-	14808-60-7	55~70
Silica, vitreous	-	60676-86-0	10~20
Formaldehyde polymer with (chloromethyl)oxirane and 2-methylphenol	-	29690-82-2	5-13
Phenol polymer with formaldehyde	-	9003-35-4	4-10
Formaldehyde polymer with bromophenol and (chloromethyl)oxirane	-	68541-56-0	<3
Diantimony trioxide	-	1309-64-4	<3
Carbon black	-	1333-86-4	<1

## 4. FIRST AID MEASURES

### A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.

### B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Remove contaminated clothing, shoes and isolate.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

### C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

### D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

### E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

### F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

## 5. FIREFIGHTING MEASURES

### A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

### B. Specific hazards arising from the chemical

- Not available

### C. Special protective actions for firefighters

- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Fine powder may cause ignition.

## 6. ACCIDENTAL RELEASE MEASURES

### A. Personal precautions, protective equipment and emergency procedures

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- Ventilate closed spaces before entering.
- Move container to safe area from the leak area.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Avoid dust formation.
- Moist with water to prevent dust scattering.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

### B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

### C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Dust spills : Cover dust spills with plastic sheet or waterproof cloth to minimize spreading and avoid contact with water.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- Put the spilled material in an appropriate containers and clean the contaminated area
- Spilled material should be treated as a potential risk of waste collected.

## 7. HANDLING AND STORAGE

### A. Precautions for safe handling

- Wash thoroughly after handling.
- Dealing only with a well-ventilated place.
- Do not handle until all safety precautions have been read and understood.
- Operators should wear antistatic footwear and clothing.
- Minimize occurrence of dust and accumulation.
- Contaminated work clothing should not be allowed out of the workplace.

### B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Store according to current laws and regulations
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### A. Exposure limits

- **ACGIH TLV**
  - [Quartz (SiO<sub>2</sub>)] : TWA 0.025 mg/m<sup>3</sup>, Respirable particulate matter
  - [Carbon black] : TWA, 3 mg/m<sup>3</sup>, Inhalable particulate matter
- **OSHA PEL**
  - [Quartz (SiO<sub>2</sub>): 10 mg/m<sup>3</sup>(%SiO<sub>2</sub>+2)
  - [Silica, vitreous]: 80 mg/m<sup>3</sup> (%SiO<sub>2</sub>)
  - [Diantimony trioxide]: 0.5mg/m<sup>3</sup>
  - [Carbon black]: 3.5mg/m<sup>3</sup>

## B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

## C. Individual protection measures, such as personal protective equipment

- **Respiratory protection**
  - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
  - Respiratory protection is ranked in order from minimum to maximum.
  - Consider warning properties before use.
  - Dust, mist, fume-purifying respiratory protection
  - Air-purifying respirator with high-efficiency particulate filtering
  - Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
  - Self-contained breathing apparatus with a corpuscle filter of high efficiency
  - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- **Eye protection**
  - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
  - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- **Hand protection**
  - Wear appropriate glove.
- **Skin protection**
  - Wear appropriate clothing.
- **Others**
  - Not available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Tablet or Powder
- Color	Black
B. Odor	inodorness
C. Odor threshold	inodorness
D. pH	Not available
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	1.5 - 2.5
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	>350°C
R. Viscosity	Not available
S. Molecular weight	Not available

## 10. STABILITY AND REACTIVITY

### A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

### B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

### C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

### D. Incompatible materials

- Not available

### E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

## 11. TOXICOLOGICAL INFORMATION

### A. Information on the likely routes of exposure

- **(Respiratory tracts)**
  - May cause respiratory irritation.
- **(Oral)**
  - May harmful if swallowed.
- **(Eye·Skin)**
  - Cause mild skin irritation.

### B. Delayed and immediate effects and also chronic effects from short and long term exposure

- **Acute toxicity**
  - \* **Oral**
    - Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
    - [Silica, vitreous] : LD50 = 3160 mg/kg Rat (KOSHA)
    - [Formaldehyde polymer with (chloromethyl)oxirane and 2-methylphenol] : LD50 > 10000 mg/kg Rat (Ciba - Geigy)
    - [Phenol polymer with formaldehyde] : LD50 > 5000 mg/kg Rat (TOMES;RTECS)
    - [Diantimony trioxide] : LD50 > 34600 mg/kg Rat
    - [Carbon black] : LD50 = 15400 mg/kg Rat (NITE(2006))
  - \* **Dermal**
    - Product (ATEmix) : >5000mg/kg
    - [Formaldehyde polymer with (chloromethyl)oxirane and 2-methylphenol] : LD50 > 3000 mg/kg Rabbit (Ciba - Geigy)
    - [Phenol polymer with formaldehyde] : LD50 > 2000 mg/kg Rat (TOMES;RTECS)
    - [Carbon black] : LD50 > 3000 mg/kg rabbit (NITE)
  - \* **Inhalation**
    - Not available
- **Skin corrosion/irritation**
  - Cause mild skin irritation.
- **Serious eye damage/irritation**
  - Not available
- **Respiratory sensitization**
  - Not available
- **Skin sensitization**
  - Not available
- **Carcinogenicity**
  - \* **IARC**
    - [Quartz (SiO<sub>2</sub>)] : Group 1
    - [Silica, vitreous] : Group 3 (Silica, amorphous)
    - [Diantimony trioxide] : Group 2B

- [Carbon black] : Group 2B
- \* **OSHA**
  - Not available
- \* **ACGIH**
  - [Quartz (SiO<sub>2</sub>)] : A2
  - [Diantimony trioxide] : A2
  - [Carbon black] : A3
- \* **NTP**
  - [Quartz (SiO<sub>2</sub>)] : K
- \* **EU CLP**
  - [Diantimony trioxide] : Carc. 2
- **Germ cell mutagenicity**
  - Not available
- **Reproductive toxicity**
  - Not available
- **STOT-single exposure**
  - May cause respiratory irritation.
- **STOT-repeated exposure**
  - Not available
- **Aspiration hazard**
  - Not available

## 12. ECOLOGICAL INFORMATION

### A. Ecotoxicity

- **Fish**
  - [Diantimony trioxide] : LC50 80 mg/ℓ 96 hr
- **Crustaceans**
  - [Diantimony trioxide] : EC50 423.45 mg/ℓ 48 hr
  - [Carbon black] : EC50 > 5600 mg/ℓ 24 hr (NITE)
- **Algae**
  - [Diantimony trioxide] : EC50 67 mg/ℓ 72 hr Selenastrum (NITE: CERH Hazard Data, 2002)

### B. Persistence and degradability

- **Persistence**
  - Not available
- **Degradability**
  - Not available

### C. Bioaccumulative potential

- **Bioaccumulative potential**
  - Not available
- **Biodegradation**
  - [Diantimony trioxide] : Non-biodegradable(because there is no data for rapid degradability and bioaccumulation potential)

### D. Mobility in soil

- Not available

### E. Other adverse effects

- Not available

## 13. DISPOSAL CONSIDERATIONS

### A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

**B. Special precautions for disposal**

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

**14. TRANSPORT INFORMATION****A. UN No. (IMDG CODE/IATA DGR)**

- Not applicable

**B. Proper shipping name**

- Not applicable

**C. Hazard Class**

- Not applicable

**D. IMDG CODE/IATA DGR Packing group**

- Not applicable

**E. Marine pollutant**

- Not applicable

**F. Special precautions for user related to transport or transportation measures**

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available
- Air transport(IATA): Not subject to IATA regulations.

**15. REGULATORY INFORMATION****A. National and/or international regulatory information**

- o **POPs Management Law**
  - Not applicable
- o **Information of EU Classification**
  - \* **Classification**
    - [Diantimony trioxide] : H351
- o **U.S. Federal regulations**
  - \* **OSHA PROCESS SAFETY (29CFR1910.119)**
    - Not applicable
  - \* **CERCLA Section 103 (40CFR302.4)**
    - [Diantimony trioxide] : 453.599 kg 1000 lb
  - \* **EPCRA Section 302 (40CFR355.30)**
    - Not applicable
  - \* **EPCRA Section 304 (40CFR355.40)**
    - Not applicable
  - \* **EPCRA Section 313 (40CFR372.65)**
    - [Diantimony trioxide] : Applicable
- o **Rotterdam Convention listed ingredients**
  - Not applicable
- o **Stockholm Convention listed ingredients**
  - Not applicable
- o **Montreal Protocol listed ingredients**
  - Not applicable

**16. OTHER INFORMATION****A. Reference**

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

**B. Other**

- This MSDS is prepared according to the Globally Harmonized System (GHS).