

Safety Data Sheet(SDS)

1. Identification of the substance/mixture and of the company/undertaking

- 1) Product identifier : LUMID GN1001BFY
- 2) Relevant identified uses of the substance or mixture and uses advised against
 - Relevant identified uses
29.Polymer preparations and compounds
 - Uses advised against
Prohibited to use the product in any other way than the recommended purpose
- 3) Supplier information
 - Company name [Manufacture]
Company : LG Chem, Ltd.
Address : 99, Seogam-ro, Iksan-si, Jeollabuk-do, Republic of Korea
Emergency number : 82-63-830-4101

2. HAZARD IDENTIFICATION

- 1) Hazard classification
 - Skin corrosion/irritation Category 2
 - Serious eye damage/eye irritation Category 2
 - Specific target organ toxicity single exposure Category 3(Respiratory tract irritation)

- 2) Allocation label elements

Hazard pictograms



Signal word

- WARNING

Hazard statements

- H303 May be harmful if swallowed
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation

Precautionary statements

- Prevention

- P261 Avoid breathing dust/fume/vapours.
- P264 Wash eye, skin thoroughly after handling.
- P271 Use only outdoors or in a wellventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

- Response

- P302+P352 If you get on your skin: Wash with a large amount of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 If you feel uncomfortable, receive medical institutions and doctors' consultation.
- P321 When contacting with substances, make a treatment such as rinsing the skin and eyes in the water flowing more than 20 minutes.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.

- Storage

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

- Disposal

- P501 Dispose of contents and containers according to the legislation of the waste

3) Other hazards

○ Product NFPA Level

Health	Flammability	Reactivity
2		0

(※ 0 = Stable , 1 = Low , 2 = Medium , 3 = High , 4 = Very High)

3. Composition/Information on ingredients

Components	Common name	CAS No.	PCT(wt%)
Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl]	Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl]	32131-17-2	80 ~ 90

Components	Common name	CAS No.	PCT(wt%)
Polycaprolactam	Polycaprolactam	25038-54-4	5 ~ 15
1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1)	1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1)	37640-57-6	1 ~ 11

Components not listed do not contain hazardous/hazardous substances according to the Occupational Safety and Health Act.

4. FIRST AID MEASURES

1) Following eye contact

- Seek immediate medical assistance.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

2) Following skin contact

- For minor skin contact, avoid spreading material on unaffected skin.
- Seek immediate medical assistance.
- For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.

3) Following inhalation

- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Keep victim warm and quiet.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Move to fresh air.
- Administer oxygen if breathing is difficult.
- Give artificial respiration if victim is not breathing.

4) Following ingestion

- Seek immediate medical assistance.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5) Advice to physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE FIGHTING MEASURES

1) Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media
 - CO2.
 - Dry chemical.
 - Water spray.
 - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - Use dry sand or earth to smother fire.
- Unsuitable extinguishing media
 - Direct water.

2) Special hazards arising from the substance or mixture

- Pyrolytic product
 - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
 - During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Risk of fire and explosion
 - Containers may explode when heated.
 - Some may burn but none ignite readily.
- Other
 - No data available

3) Special protective equipment for firefighters

- Rescuers should put on appropriate protective gear.
- Dike fire-control water for later disposal; do not scatter the material.
- Substance may be transported in a molten form.
- Move containers from fire area if you can do it without risk.
- Evacuate area and fight fire from a safe distance.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Clean up spills immediately, observing precautions in Protective Equipment section.
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Cover with plastic sheet to prevent spreading.
- Please note that materials and conditions to be avoided.

2) Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

3) For cleaning up

- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.

7. HANDLING AND STORAGE

1) Precautions for safe handling

- Avoid breathing vapors from heated material.
- Loosen closure cautiously before opening.
- Handling refer to engineering control/personal protection section.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Avoid prolonged or repeated contact with skin.
- Do not enter storage area unless adequately ventilated.
- Use care in handling/storage.
- Please note that materials and conditions to be avoided.
- Use only in a well-ventilated area.

2) Conditions for safe storage (including any incompatibilities)

- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard

Components	Occupational exposure limits	ACGIH	Biological standard
Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl]	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Polycaprolactam	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1)	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable

2) Appropriate engineering controls

- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

3) Personal protection equipment

- Respiratory protection
 - Wear breathing protection, which needs a confirmation from the Korea Occupational Safety and Health Agency.
 - If high frequency of use or exposure, wear air respirator.
- Eye protection
 - Wear suitable protective goggles and face shields.
- Hand protection
 - Wear suitable protective gloves.
- Body protection
 - Wear suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Pellet
Physical state	Solid
Colour	No data available
Odour	No data
Odour threshold	No data
pH	No data available
Melting point/freezing point	260
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	N/A
Flammability(solid, gas)	N/A
Upper/lower flammability or explosive limits	N/A
Vapour pressure	No data
Solubility(ies)	No data
Vapour density	No data
Relative density	No data
n-octanol/water partition coefficient	No data

Auto ignition temperature	No data
Decomposition temperature	No data
Viscosity	No data available
Molecular weight(mass)	No data

10. STABILITY AND REACTIVITY

1) Stability and hazardous reactivity

- Containers may explode when heated.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Some may burn but none ignite readily.
- Fire may produce irritating, corrosive and/or toxic gases.

2) Conditions to avoid

- Ignition source(heat, spark, flame, etc.).

3) Incompatible materials

- Combustibles, reducing material.

4) Hazardous decomposition products

- Corrosive/toxic fume.
- Irritating, corrosive and/or toxic gas.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

11. TOXICOLOGICAL INFORMATION

1) Exposure route information

- Inhalation
 - May cause respiratory irritation
- Skin Contact
 - Causes skin irritation
- Eye Contact
 - Causes serious eye irritation
- Ingestion
 - May be harmful if swallowed

2) Health hazard information

○ Acute toxicity

- Acute toxicity(Oral) PRODUCT : Category 5(ATEmix = 2732.143mg/kg)
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : LD50 2500 mg / kg
experimental species: Rat, Source: National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
- Acute toxicity(Dermal) PRODUCT : Not classified(ATEmix = 5598.857mg/kg)
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : LD50 5520 mg / kg
experimental species: Rat, Source: National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
- Acute toxicity(Inhalation:Gases) PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available
- Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available
- Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified(ATEmix = 7.26mg/L)
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : LC50 7.26 mg / ℓ 4 hr experiment Species: Rat, Source: Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Skin corrosion/irritation PRODUCT : Category 2

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : Causes severe skin irritation (which may cause burns)
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Serious eye damage/eye irritation PRODUCT : Category 2

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : The search eye irritation irritation of the skin on the basis of suspicion
- Polycaprolactam : No data available

- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : STANDARD TEST DRAIZE (Rabbit); DOSE: 500 mg / 24H; REACTION: Mild indicates the test results Draize If irritation with rabbits., Source: Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)

○ Respiratory sensitization PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Skin sensitization PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Carcinogenicity PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : 3 (IARC), Source: IARC
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Germ cell mutagenicity PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Reproductive toxicity PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Specific target organ toxicity single exposure PRODUCT : Category 3(Respiratory tract irritation)

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : When inhaled causes irritation of the airway
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

○ Specific target organ toxicity repeated exposure PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data

available

- Aspiration hazard PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

12. ECOLOGICAL INFORMATION

1) Aquatic toxicity

- Fish>PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : LC50 25042.387 mg / ℓ 96 hr (), Source: Ecological Structure Activity Relationships(ECOSAR)
- Crustacea>PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : LC50 40.299 mg / ℓ 48 hr (), Source: Ecological Structure Activity Relationships(ECOSAR)
- Aquatic algae>PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : EC50 11.563 mg / ℓ 96 hr (), Source: Ecological Structure Activity Relationships(ECOSAR)

2) Persistence and degradation

- n-octanol water partition coefficient>PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : -1.37 log Kow (), Source: National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>)
- Degradation>PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available
- Biodegradation>PRODUCT : Not classified
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
 - Polycaprolactam : No data available
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

3) Bioaccumulative potential>PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : 3 (), Source: National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>)

4) Mobility in soil>PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

5) Other adverse effects>PRODUCT : Not classified

- Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : No data available
- Polycaprolactam : No data available
- 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : No data available

13. DISPOSAL CONSIDERATIONS

1) Disposal methods

- Every commercial waste producer shall either treat wastes generated from his/her place of business by him/herself or commission the treatment of such wastes to a person who has license for a waste treatment business under Article 26(3), a person who recycles of such wastes under Article 44(2), a person who has installed and operates a waste disposal facility under Article 4 or 5, a person who has completed the registration of a business of discharging wastes into the sea under Article 18 of the Marine Environment Management Act.

2) Precautions (including disposal of contaminated container of package)

- Do not allow spill material to enter sewers, storm water drains, soil, etc.

14. TRANSPORT INFORMATION

1) UN No. : Not applicable

2) Proper shipping name : Not applicable

3) Class or division : Not applicable

4) Packing group : Not applicable

5) Marine pollutant : Not applicable

6) Special safety response for transportation or transportation measure :

Emergency measures in case of fire : Not applicable

Emergency measures in the effluent : Not applicable

- ADR

· Tunnel restriction code : Not applicable

- IMDG

- Marine pollutant : Not applicable
- Air transport(IATA)
 - UN No. : Not applicable
 - Proper shipping name : Not applicable
 - Class or division : Not applicable
 - Packing group : Not applicable

15. REGULATORY INFORMATION

1) Occupational Safety and Health Act in Korea
PRODUCT : Not applicable

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
PRODUCT : Not applicable

15.2 Chemical Safety Assessment
PRODUCT : Not applicable

2) Toxic Chemical Control Act in Korea
PRODUCT : Not applicable

3) Safety Control of Dangerous Substances Act in Korea
PRODUCT : Not applicable

4) Wastes Control Act in Korea
PRODUCT : Designated waste (Waste from specific facilities - Pulmonary Synthetic Polymer Compounds)

-In case of disposal, it must be disposed of in accordance with Article 13 of the Waste Management Act.

5) Other regulations in KOREA and Abroad regulations

- ETC regulation
- PERSISTENT ORGANIC POLLUTANTS CONTROL ACT
- Act on the registration and evaluation of chemicals PRODUCT : Existing Commercial Chemical Substances
 - Poly[imino(1,6-dioxo-1,6-hexanediyl)imino-1,6-hexanediyl] : Existing Commercial Chemical Substances
 - Polycaprolactam : Existing Commercial Chemical Substances
 - 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione compd. with 1,3,5-triazine-2,4,6-triamine (1:1) : Existing Commercial Chemical Substances

16. OTHER INFORMATION

1) Reference

- Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
- ECHA
- ECHA registration materials
- ECOSAR
- EPIWIN

- Ecological Structure Activity Relationships(ECOSAR)
- IUCLID
- International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
- Ministry of Employment and Labor
- Ministry of Environment
- National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
- National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>)
- OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
- QSAR
- SIDS

2) Print date : 2022-06-17

3) Revision date

- Revised date count : 0
- Last revised date : 2022-06-17
- Last revised history :

4) Other