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Last revised date : 2023-04-20

Safety Data Sheet(SDS)

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

1) Product identifier : POE LF675P

2) Relevant identified uses of the substance or mixture and uses advised against

○ Relevant identified uses

48.Others (Photovoltaic Encapsulant Film)

○ Uses advised against

Medical Use

3) Supplier information

○ Company name [Manufacture]

Company : LG Chem, Ltd.

Address : 54, Dokgot 1-ro, Daesan-eup, Seosan-si, Chungcheongnam-do, Republic of Korea

Emergency number : +82-41-661-1377

2. HAZARD IDENTIFICATION

1) Hazard classification

No data available

2) Allocation label elements

Hazard pictograms

Signal word

- NONE

Hazard statements

No data available

Precautionary statements

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No data available

3) Other hazards

- 자료없음

○ Product NFPA Level

Health	Flammability	Reactivity
1	1	0

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

3. Composition/Information on ingredients

Components	Common name	CAS No.	PCT(wt%)
1-Butene polymer with ethene	1-Butene polymer with ethene	25087-34-7	>99%
Additive			<1%

4. FIRST AID MEASURES

1) Following eye contact

- Get medical aid immediately.
- In case of contact with material, immediately flush eyes with running water for at least 15 minutes.

2) Following skin contact

- Get medical aid immediately.
- In case of contact with material, immediately flush skin with running water for at least 15 minutes.
- Launder contaminated clothing and shoes before re-use.
- Remove and isolate contaminated clothing and shoes.

3) Following inhalation

- Administer oxygen if breathing is difficult.
- Give artificial respiration if victim is not breathing.
- Move to fresh air.
- Seek immediate medial assistance.

4) Following ingestion

- Get medical aid immediately.
- If unconscious but breathing, never give anything by mouth.

5) Advice to physician

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

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5. FIRE FIGHTING MEASURES

1) Suitable (and unsuitable) extinguishing media

○ Suitable extinguishing media

- Large fire: Water spray/fog, regular foam (Suitable extinguishing media).
- Small fire: Dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO2 (Suitable extinguishing media).

○ Unsuitable extinguishing media

- High-pressure water (Unsuitable extinguishing media).

2) Special hazards arising from the substance or mixture

○ Pyrolytic product

- No data available

○ Risk of fire and explosion

- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- May ignited from heat, friction or contamination.
- Some may burn but none ignite readily.

○ Other

- May cause toxic effects if inhaled.
- Some liquids produce vapors that may cause dizziness or suffocation.

3) Special protective equipment for firefighters

- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- 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.
- Move containers from fire area if you can do it without risk.
- Runoff may cause pollution.
- Substance may be transported hot.

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment

- Do not enter areas which have more than 23.5% oxygen in the atmosphere, without respirator or air supplied mask.
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Please note that materials and conditions to be avoided.
- Stop leak if you can do it without risk.

- Ventilate the contaminated area.

2) Environmental precautions

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

3) For cleaning up

- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

- Small Spill: Flush area with flooding quantities of water.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

7. HANDLING AND STORAGE

1) Precautions for safe handling

- CAUTION: High temperature.
- Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.
- Handling refer to engineering control/personal protection section.
- Please note that materials and conditions to be avoided.
- Use adequate machine for prevention when package handling.
- Wash thoroughly after handling.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

2) Conditions for safe storage (including any incompatibilities)

- Choose a place that can be protected from strong oxidizers and acid.
- Please note that materials and conditions to be avoided.
- Store containers: AVOID the place where can be damage and contamination.
- Store in a closed container.
- Store in a cool/low-temperature, well-ventilated {dry} place {away from heat and ignition sources}

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

1) Chemical exposure limits, Biological exposure standard

Components	Occupational exposure limits	ACGIH	Biological standard
1-Butene polymer with ethene	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Additive	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable

2) Appropriate engineering controls

- Make sure you have the right exhaust and ventilation in the workplace.
- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

3) Personal protection equipment

○ Respiratory protection

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- If there is a direct contact or exposure, wear a certified appropriate respiratory protection.
- In the case of particulate matter, the following respiratory protection is recommended: - Facepiece filtering dust mask or air filtering dust mask (high-efficiency particulate filter material) or electric fan attached dust mask (filter material for dust, mist, fume)

○ Eye protection

- Provide emergency showers and eyewash.
- Wear an appropriate eye protection.

○ Hand protection

- Wear protective gloves made of appropriate material considering the physical and chemical properties of chemicals.

○ Body protection

- Wear appropriate protective clothing considering the physical and chemical properties of chemicals.
- Wear suitable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Pellet
Physical state	Solid
Colour	Translucent White
Odour	Slight Wax Odor
Odour threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	340℃
Evaporation rate	No data available
Flammability(solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Solubility(ies)	No data available
Vapour density	No data available
Relative density	<0.880
n-octanol/water partition coefficient	No data available
Auto ignition temperature	350℃
Decomposition temperature	No data available
Viscosity	No data available

Molecular weight(mass)	>1,000

10. STABILITY AND REACTIVITY

1) Stability and hazardous reactivity
- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- May cause toxic effects if inhaled.
- Some liquids produce vapors that may cause dizziness or suffocation.
- Some may burn, but not ignite easily.
- Stable under normal temperatures and pressures.

2) Conditions to avoid
- Ignition source(heat, spark, flame, etc.).

3) Incompatible materials
- Combustibles.
- Irritating and/or toxic gas.

4) Hazardous decomposition products
- NO_DATA_AVAILABLE

11. TOXICOLOGICAL INFORMATION

1) Exposure route information

○ Inhalation
- Not applicable

○ Skin Contact
- Not applicable

○ Eye Contact
- Not applicable

○ Ingestion
- Not applicable

2) Health hazard information

○ Acute toxicity

● Acute toxicity(Oral) PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : LD50 3160 ㎎ / ㎏ experimental species: Rat, Source: TOMES; HAZARDTEXT

● Acute toxicity(Dermal) PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

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- Additive : LD50> 5000 ㎎ / kg experimental species: Rabbit, Source: ECHA

● Acute toxicity(Inhalation:Gases) PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

● Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

● Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : LC50 5.01 ㎎ / ℓ 4 hr experiment Species: Rat (Source: Aerosol), Source: ECHA

○ Skin corrosion/irritation PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : If irritation Levitt, Source: ECHA

○ Serious eye damage/eye irritation PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

○ Respiratory sensitization PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

○ Skin sensitization PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No skin sensitization, Source: (SIDS)

○ Carcinogenicity PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : 3 Silica, amorphous (IARC), Source: IARC

○ Germ cell mutagenicity PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

○ Reproductive toxicity PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

○ Specific target organ toxicity single exposure PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

○ Specific target organ toxicity repeated exposure PRODUCT : Not classified

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- 1-Butene polymer with ethene : No data available

- Additive : In men, quartz, cristobalite is being reported silicosis. In animal experiments it has been reported that the possibility of forming fibers from quartz, cristobalite. It reported that for the quartz with autoimmune diseases such as chronic kidney disease., Source: ACGIH(7th, 2006)

○ Aspiration hazard PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

- Additive : No data available

12. ECOLOGICAL INFORMATION

1) Aquatic toxicity > PRODUCT : Not classified

- Fish

  - 1-Butene polymer with ethene : No data available
  - Additive : LL0 10000 ㎎ / ℓ 96 hr Brachydanio rerio, Source: ECHA

- Crustacea

  - 1-Butene polymer with ethene : No data available
  - Additive : EC50> 5000 ㎎ / ℓ 48 hr Daphnia magna, Source: ECHA

- Aquatic Algae

  - 1-Butene polymer with ethene : No data available
  - Additive : EC50> 173.1 ㎎ / ℓ 72 hr Other (NOEC: 173.1mg / L, the test species Desmodesmus subspicatus), Source: ECHA

2) Persistence and degradation

- n-octanol water partition coefficient

  - 1-Butene polymer with ethene : (None)
  - Additive : 0.53 log Kow

- Degradation

  - 1-Butene polymer with ethene : No data available
  - Additive : No data available

- Biodegradation

  - 1-Butene polymer with ethene : No data available
  - Additive : No data available

3) Bioaccumulative potential

- 1-Butene polymer with ethene : No data available
- Additive : 3.162

4) Mobility in soil

- 1-Butene polymer with ethene : No data available
- Additive : No data available

5) Other adverse effects > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available
- Additive : 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)

- Discuss it according to waste regulation.
- Empty containers may explode and residues can be ignited when pressured, cut, weld, heated.
- Empty containers may rupture when pressured.
- Empty containers recycled under environmental laws.
- Use a certified waste disposal company.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)

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

- Global Inventory - USA. Toxic Substances Control Act (TSCA) Chemical Substances Inventory (12 April 2018)

- 1-Butene polymer with ethene

- Additive

- ETC regulation - EPCRA (SARA Title III) Section 302 Extremely Hazardous Substance (EHS) (40 CFR 355, Appendix A)

Not applicable

- ETC regulation - OSHA Hazard Communication Standard: On One of the Floor Lists of the OSHA HCS (29 CFR 1910.1200)

Not applicable

- ETC regulation - EPCRA (SARA Title III) Section 313 Toxic Chemical Release Inventory (TRI) Reporting for RY 2013 (as amended Sep. 30, 2014)

Not applicable

- ETC regulation - CERCLA Hazardous Substances [other than radionuclides] (40 CFR 302.4) (as amended by 75 FR 78918, Dec. 17, 2010)

Not applicable

- ETC regulation - RCRA Appendix VII: Hazardous Wastes (40 CFR 261, App. VII, Basis for Listing Hazardous Waste)

Not applicable

- ETC regulation - CERCLA. Radionuclides and their Reportable Quantities (40 CFR 302.4, App. B)

Not applicable

- ETC regulation - RCRA D List of Characteristic Hazardous Wastes (40 CFR 261.21-24)

Not applicable

- ETC regulation - RCRA F List of Hazardous Wastes from Non-Specific Sources (40 CFR 261.31(a)) (as amended by 73 FR 31756, June 4, 2008)

Not applicable

- ETC regulation - RCRA K List of Hazardous Wastes from Specific Sources (40 CFR 261.32)

Not applicable

- ETC regulation - RCRA P List of Hazardous Wastes (40 CFR 261.33(e) and 40 CFR 302 [CERCLA])

Not applicable

- ETC regulation - RCRA U List of Hazardous Wastes (40 CFR 261.33(f) and 40 CFR 302 [CERCLA], as amended 75 FR 78918, Dec 17, 2010

Not applicable

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● ETC regulation - DOT Hazardous Materials Table Listings (49 CFR 172.101, as amended through October 31, 2013)

Not applicable

● ETC regulation - EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

Not applicable

16. OTHER INFORMATION

1) Reference

- (SIDS)
- ACGIH(7th, 2006)
- ECHA
- EPA
- OSHA
- TOMES; HAZARDTEXT

2) Print date : 2023-04-20

3) Revision date

○ Revised date count : 0

○ Last revised date : 2023-04-20

○ Last revised history :

4) Other