Issuing(Revision) Date : 29-11-2023
Version number : 2

Safety Data Sheet(SDS)

According to Regulation (EC) No. 2020/878

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

1.1 Product identifier

Product identifier	:	POE LF675
Other means of identification	:	N/A
UFI Code.	:	N/A

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	:	48.Others (Solar power module encapsulant film)
Uses advised against	:	Any use of the product other than for its identified uses is prohibited.

1.3 Details of the supplier of the safety data sheet

1) Manufacturer in Korea

Name	:	LG Chem, Ltd.
Address	:	54, Dokgot 1-ro, Daesan-eup, Seosan-si, Chungcheongnam-do, Republic of Korea
Telephone number	:	+82-2-3773-1114, 08:30~18:00 (KST, Korea Standard Time)

2) Customer Solution Center in Europe

Name	:	LG Chem Europe GmbH
Address	:	Adolph-Prior-Straße 16, 65936 Frankfurt am Main, Germany
Telephone number	:	+49-69-710-455-199, 09:00~17:00 (CET, Central European Time)
Fax number		N/A
Email		lgcegmsds@lgchem.com

1.4 Emergency telephone number

Emergency telephone number	:	+49-69-710-455-199 Customer Solution Center Europe
Opening hours	:	09:00~17:00 (CET, Central European Time)
Other comments(e.g. language(s) of the phone service)	:	English, Deutsch, Korean available.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture according to Regulation (EC) No 1272/2008

- Not applicable

2.2 Label elements

Hazard pictogram

The product does not require a hazard warning label in accordance with GHS criteria.

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Signal word

- NONE

Hazard statements

- Not required

Precautionary statements

-Not required

2.3 Other hazards

No data available

SECTION 3. Composition/information on ingredients

3.1. Substances

Not applicable

3.2 . Mixtures

Substance name	CAS No. EC No. EU REACH No.	Classification	SCL M-Factor	ATE	PCT(wt%)
1-Butene polymer with ethene	25087-34-7 No data available No data available	No data available	No data available No data available	No data available	100

※ Classification according Regulation(EC) No. 1272/2008 [EU CLP]
SCL : Specific concentration limit
M-Factor : The Multiplying factor
ATE : the acute toxicity estimate

SECTION 4. First aid measures

4.1 Description of first aid measures

○4.1.1 Following eye contact

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

○4.1.2 Following skin contact

- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- In case of contact with material, flush skin with running water

○4.1.3 Following inhalation

- Administer oxygen if breathing is difficult.
- Give artificial respiration if victim is not breathing.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Move to fresh air.
- Seek immediate medical assistance.

○4.1.4 Following ingestion

- Get medical aid immediately.
- If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
- If unconscious but breathing, never give anything by mouth.

4.2 Most important symptoms and effects, both acute and delayed

- No data available

4.3 Indication of any immediate medical attention and special treatment needed

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. Firefighting measures

5.1 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

- Water Jet(May scatter and spread fire).

5.2 Special hazards arising from the substance or mixture(Hazardous combustion products)

- Burning can produce carbon monoxide and/or carbon dioxide and other harmful products.
- Dust explosions can occur where any dispersed powdered combustible material is present in high-enough concentrations in the atmosphere or other oxidizing gaseous medium, such as pure oxygen.
- Fire may produce irritating and/or toxic gases.
- May ignited from heat, friction or contamination.
- Some may burn, but not rapidly.

5.3 Advice for firefighters

- Contact may cause burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.
- 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.
- Move containers from fire area if you can do it without risk.
- No action shall be taken involving any personal risk or without suitable training.
- Runoff may cause pollution.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

○Emergency procedures

- Removal of ignition sources, provision of sufficient ventilation.

○Protective equipment

- Wear suitable protective equipment to prevent any contamination of skin, eyes and personal clothing.

6.1.2 For emergency responders

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Please note that materials and conditions to be avoided.
- Prevent dust cloud.
- Spilled material may cause a slipping hazard.
- Stop leak if you can do it without risk.
- Ventilate the contaminated area.

6.2 Environmental precautions

- Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

6.3 Methods and material for containment and cleaning up

6.3.1 For containment

- No data available

6.3.2 For cleaning up

- Clear spills immediately.
- Don't use a brush or compressed air for cleaning surfaces or clothing.
- For large amounts: Collect and dispose of with appropriate tools.
- For small amounts: Collect and dispose of with appropriate tools.
- Move containers from spill area. Use spark-proof tools and explosion-proof equipment.

6.3.3 Other information

- No data available

6.4 Reference to other sections

- Section 8 (protective equipment), section 13 (disposal instructions)

SECTION 7. Handling and storage

7.1 Precautions for safe handling

- CAUTION: High temperature.
- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)
- Wash thoroughly after handling.
- Use adequate machine for safety when package handling.
- Please note that materials and conditions to be avoided.
- May explode when dust cloud creation or friction.

- Check oxygen content before entering area.
- Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.

7.2 Conditions for safe storage, including any incompatibilities

- Choose a place that can be protected from strong oxidizers and acid.
- Drum Handling: Must work at safe place., Loading more than 3 stack is prohibited.
- 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.
- Store in a dry place. Store in a closed container.

7.3 Specific end uses

- See section 1 for recommended use.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Components	Occupational exposure	ACGIH regulations	Biological limit values	DNEL/DMEL	PNEC-Values
1-Butene polymer with ethene	TWA : Not applicable	TWA : Not applicable	No data available	Not applicable	Not applicable
	STEL : Not applicable	STEL : Not applicable			

* The ACGIH has a TLV-TWA of 10 mg/m3 (as total dust) for particulates having a quartz content of less than 1 percent.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

- Ensure adequate exhaust and ventilation in work area.
- Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

8.2.2 Individual protection measures, such as personal protective equipment

○ Eye/face protection

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- Provide emergency showers and eyewash.
- Wear Non-moisture permeable goggle for dust protection.
- Wear an appropriate eye protection.
- Wear suitable protective goggles and face shields.

○ Respiratory protection

- Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.
- If there is a direct contact or exposure, wear a certified appropriate respiratory protection.
- In case of insufficient oxygen (<19.6%), wear a supplied air mask or self-contained respirator.

○ Skin protection

(i) Hand protection

- Use gloves chemically resistant to this material when prolonged or frequently repeated

contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Neoprene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Ethyl vinyl alcohol laminate ("EVAL"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

- Wear Non-moisture permeable chemical resistance protective gloves(latex, nitrile rubber, PVC) for prevent skin contact.
- Wear protective gloves made of appropriate material considering the physical and chemical properties of chemicals.
- Wear suitable protective gloves.

(ii) Other

- No data available

○ Thermal hazards

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

8.2.3 Environmental exposure controls

- Ensure not to cause environmental pollution by discharging into rivers or other waterways.
- See section 6

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	solid	No data available
Relative Vapour density	No data available	No data available
Density/Relative density	0.875~0.879	No data available
Kinematic viscosity	No data available	No data available
Decomposition temperature	No data available	No data available
Auto ignition temperature	>350℃	No data available
Partition coefficient(n-octanol/water)	No data available	No data available
Solubility	No data available	No data available
Vapour pressure	No data available	No data available
Upper/lower flammability or explosive limits	No data available	No data available
Flammability(solid, gas)	No data available	No data available
Flash point	340℃	No data available
Initial boiling point and boiling range	No data available	No data available
Melting point/freezing point	No data available	No data available

pH	No data available	No data available
Odour	Odorless or slight wax odor	No data available
Colour	Translucent white	No data available
Particle characteristics	No data available	No data available

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Flammable liquids	Flash point:340℃	No data available

9.2.2 Other safety characteristics

No data available

SECTION 10. Stability and reactivity

10.1 Reactivity

- Some may burn, but not rapidly.
- Containers may explode when heated.

10.2 Chemical stability

- Stable under normal temperatures and pressures.
- Under storage at normal ambient temperatures, the product is stable.

10.3 Possibility of hazardous reactions

- Fire may produce irritating and/or toxic gases.
- No hazardous reaction when handled and stored according to provisions.

10.4 Conditions to avoid

- Exposure to elevated temperatures can cause product to decompose. Avoid moisture.
- Ignition source(heat, spark, flame, etc.).

10.5 Incompatible materials

- Avoid contact with: Strong oxidizers, Flammables.
- Combustibles.
- Irritating and/or toxic gas.

10.6 Hazardous decomposition products

- No known hazardous decomposition products
- This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regula

SECTION 11. Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

○Acute toxicity

●Acute toxicity(Oral) > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

●Acute toxicity(Dermal) > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

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

- 1-Butene polymer with ethene : No data available

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

- 1-Butene polymer with ethene : No data available

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

- 1-Butene polymer with ethene : No data available

○Skin corrosion/ irritation > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Serious eye damage/ irritation > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Respiratory or skin sensitisation > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Skin sensitization > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Carcinogenicity > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Germ cell mutagenicity > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Reproductive toxicity > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Specific target organ toxicity (single exposure) > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Specific target organ toxicity (repeated exposure) > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

○Aspiration hazard > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

11.2. Information on other hazards

○11.2.1. Endocrine disrupting properties

- 1-Butene polymer with ethene : According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

○11.2.2. Other information

- 1-Butene polymer with ethene : No other hazards have been identified

SECTION 12. Ecological information

12.1 Toxicity > PRODUCT : Not classified

●Fish
- 1-Butene polymer with ethene : No data available

●Crustaceans
- 1-Butene polymer with ethene : No data available

●Aquatic Algae
- 1-Butene polymer with ethene : No data available

12.2 Persistence and degradability

●Persistence
- 1-Butene polymer with ethene : (None)

●Degradability
- 1-Butene polymer with ethene : No data available

●Biodegradation
- 1-Butene polymer with ethene : No data available

12.3 Bioaccumulative potential

- 1-Butene polymer with ethene : No data available

12.4 Mobility in soil

- 1-Butene polymer with ethene : No data available

12.5 Results of PBT and vPvB assessment

- 1-Butene polymer with ethene : NOT_APPLICABLE

12.6 Endocrine disrupting properties

- 1-Butene polymer with ethene : According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

12.7 Other adverse effects > PRODUCT : Not classified

- 1-Butene polymer with ethene : No data available

SECTION 13. Disposal considerations

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal
- Empty containers should be taken to an approved waste handling site for recycling or disposal.

Waste codes / waste designations according to LoW
- No data available

13.1.2 Waste treatment-relevant information
- Disposal according to local regulations.

13.1.3 Sewage disposal-relevant information
- Disposal according to local regulations and avoid release to the environment.

13.1.4 Other disposal recommendations
- No data available.

SECTION 14. Transport information

14.1 UN number or ID number : Not applicable

14.2 UN proper shipping name : Not applicable

14.3 Transport hazard class(es) : Not applicable

14.4 Packing group : Not applicable

14.5 Environmental hazards : Not applicable

14.6 Special precaution for user

Emergency measures in case of fire : Not applicable

Emergency measures in the effluent : Not applicable

14.7 Maritime transport in bulk according to IMO instruments

- **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

SECTION 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

•ETC regulation - EU. Chemicals & Articles Subject to Export Ban: Annex V (Art. 15), Regulation 649/2012/EU, as amended by Regulation 2024/3199, OJ L of 31 December 2024

- Not applicable

•ETC regulation - EU. Directive 2012/18/EU on major accident hazards involving dangerous substances, Annex I, OJ (L 197)1, 24 July 2012

- Not applicable

•ETC regulation - EU. F-Gases Subject to Emission Limits/Reporting (Annexes I, II, III), Regulation (EU) 2024/573 on Fluorinated Greenhouse Gases, 20 February 2024

- Not applicable

•ETC regulation - EU. GHS Classification. CLP Regulation (EC) No 1272/2008, Annex VI, Table 3, Harmonized List of Hazardous Substances, as amended by Regulation (EU) 2024/2564, OJ L of 30 September 2024

- Not applicable

•ETC regulation - EU. Ozone Depleters, Annex I to Regulation 2024/590 on Substances that Deplete the Ozone Layer, 20 February 2024

- Not applicable

•ETC regulation - EU. Polluting Substances: Annex II, Directive 2010/75/EU on Industrial Emissions (IPPC), 17 December 2010

- Not applicable

•ETC regulation - EU. REACH, Annex XIV, Substances Subject to Authorization (Authorization List), as amended through Regulation (EU) 2022/586, 11 April 2022

- Not applicable

•ETC regulation - EU. REACH, Annex XVII, Restrictions on manufacture, placing on the market and use of certain dangerous substances, 1907/2006/EC, as amended by Regulation (EU)

2024/2462, OJ of 20 September 2024

- Not applicable

●ETC regulation - EU. REACH: Candidate List of Substances of Very High Concern for Authorization (SVHC) (last inclusion as of 21 January 2025)

- Not applicable

●ETC regulation - EU. Regulation 2019/1021/EU on persistent organic pollutants (POPs) (recast), 25 June 2019, as amended by Commission Delegated Regulation (EU) 2024/2570, OJ L, 27 September 2024

- Not applicable

●ETC regulation - EU. Substances that Deplete the Ozone Layer (Annex II) Regulation (EU) 2024/590, 20 February 2023

- Not applicable

●Global Inventory - EU. European Inventory of Existing Commercial Chemical Substances (EINECS)

- Not applicable

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out.

SECTION 16. Other information

16.1 Key literature references and sources for data

- EU CLP

16.2 Issuing date : 2022-07-20

16.3 Indication of changes

Revision number : 2

Revision date : 2023-11-29

Revision history : N/A

16.4 Abbreviations and acronyms

N/A