

Last revised date : 2023-01-02

PCN No. :

Safety Data Sheet(SDS)

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

- 1) Product identifier : LM915NB-L
- 2) Relevant identified uses of the substance or mixture and uses advised against
 - Relevant identified uses
 - 29.Polymer preparations and compounds
 - Uses advised against
 - Prohibition of use other than the manufacture of plastic products
- 3) Supplier information
 - Company name [Manufacture]
 - Company : LG Chem, Ltd.
 - Address : 55, Yeosusandan 2-ro, Yeosu-si, Jeollanam-do, Republic of Korea
 - Emergency number : 82-42-725-7199

2. HAZARD IDENTIFICATION

- 1) Hazard classification
 - Hazardous to the aquatic environment, long-term (chronic) Chronic 3
- 2) Allocation label elements
 - Hazard pictograms
 - Signal word
 - NONE
 - Hazard statements
 - H412 Harmful to aquatic life with long lasting effects
 - Precautionary statements

- Prevention

P273 Avoid release to the environment.

- Disposal

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

3) Other hazards

○ Product NFPA Level

Health	Flammability	Reactivity
0	0	0

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

3. Composition/Information on ingredients

Components	EU REACH No.	CAS No.	PCT(wt%)
ABS resin		9003-56-9	85-95
ASA resin		26299-47-8	1-10
N,N'-ethylenedi(stearamide)		110-30-5	0.1~5.0
Frits, chemicals		65997-18-4	0.1-2.0
Zinc oxide		1314-13-2	0.1-5.0

4. FIRST AID MEASURES

1) Following eye contact

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

2) Following skin contact

- No data available

3) Following inhalation

- No data available

4) Following ingestion

- Get medical aid immediately.

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
 - 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
 - Specific hazards arising from the chemical : Carbon oxides
- Risk of fire and explosion
 - Some may burn but none ignite readily.
- Other
 - May cause toxic effects if inhaled.

3) Special protective equipment for firefighters

- No data available

6. ACCIDENTAL RELEASE MEASURES

1) Health considerations and protective equipment

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Wear suitable personal protective equipment

2) Environmental precautions

- No data available

3) For cleaning up

- No data available

7. HANDLING AND STORAGE

1) Precautions for safe handling

- Wear an appropriate Personal protection. (See Exposure Controls/Personal Protection section.)
- Caution: Dangerous fire hazard when exposed to heat, or flame, sparks.

2) Conditions for safe storage (including any incompatibilities)

- 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
ABS resin	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
ASA resin	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
N,N'-ethylenedi(stearamide)	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Frits, chemicals	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable
Zinc oxide	TWA : Not applicable STEL : Not applicable	TWA : Not applicable STEL : Not applicable	Not applicable

2) Appropriate engineering controls

- Not applicable

3) Personal protection equipment

- Respiratory protection
 - If there is a direct contact or exposure, wear a certified appropriate respiratory protection.
- 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 available
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	No data available
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	No data available
n-octanol/water partition coefficient	No data available
Auto ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight(mass)	No data available

10. STABILITY AND REACTIVITY

1) Stability and hazardous reactivity

- Fire may produce irritating and/or toxic gases.
- Some may burn but none ignite readily.
- May cause toxic effects if inhaled.

2) Conditions to avoid

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

3) Incompatible materials

No data available

4) Hazardous decomposition products

- No data available

11. TOXICOLOGICAL INFORMATION

1) Exposure route information

- Inhalation
 - After inhalation: No data
- Skin Contact
 - Following skin contact: No data
- Eye Contact
 - After eye contact: No data
- Ingestion
 - After ingestion: No data

2) Health hazard information

○ Acute toxicity

● Acute toxicity(Oral) PRODUCT : Not classified

- ABS resin : No data available
- Frits, chemicals : LD50> 2000 mg / kg experimental species: Rat, Source: International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
- Zinc oxide : LD50> 5000 mg / kg experimental species: Rat, (the route of administration: gavage, male / female male, OECD TG 401), Source: ECHA
- ASA resin : LD50> 5000 mg / kg experimental species: Rat, (GE Specialty Chemicals)
- N,N'-ethylenedi(stearamide) : LD50> 5000 mg / kg, Source: IUCLID

● Acute toxicity(Dermal) PRODUCT : Not classified

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : LD50> 2000 mg / kg experimental species: Rat, (female / male, OECD TG 402, GLP), Source: ECHA
- ASA resin : LD50> 2000 mg / kg experimental species: Rabbit, (GE Specialty Chemicals)
- N,N'-ethylenedi(stearamide) : LD50> 2000 mg / kg, Source: IUCLID

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

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : LC50> 5700 mg / m³ 4 hr experimental species: Rat, (female / male, OECD TG 403), Source: ECHA
- ASA resin : LD50> 2000 mg / kg experimental species: Rabbit, (GE Specialty Chemicals)
- N,N'-ethylenedi(stearamide) : No data available

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

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

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

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

○ Skin corrosion/irritation PRODUCT : Not classified

- ABS resin : No data available

- Frits, chemicals : No data available
- Zinc oxide : Not irritant, Rabbit, Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available
- Serious eye damage/eye irritation PRODUCT : Not classified
 - ABS resin : No data available
 - Frits, chemicals : It causes eye irritation
 - Zinc oxide : Not irritant, Rabbit, 72-hour fully reversible, EU Method B.5, Source: ECHA
 - ASA resin : No data available
 - N,N'-ethylenedi(stearamide) : No data available
- Respiratory sensitization PRODUCT : Not classified
 - ABS resin : No data available
 - Frits, chemicals : No data available
 - Zinc oxide : No data available
 - ASA resin : No data available
 - N,N'-ethylenedi(stearamide) : No data available
- Skin sensitization PRODUCT : Not classified
 - ABS resin : No data available
 - Frits, chemicals : No data available
 - Zinc oxide : Sensitization No, Guinea pig, GLP, female, guinea pig maximization test (GMPT): dose levels: 0.02, reaction: 0/10, OECD TG 406, Source: ECHA
 - ASA resin : No data available
 - N,N'-ethylenedi(stearamide) : No data available
- Carcinogenicity PRODUCT : Not classified
 - ABS resin : No data available
 - Frits, chemicals : No data available
 - Zinc oxide : No data available
 - ASA resin : No data available
 - N,N'-ethylenedi(stearamide) : No data available
- Germ cell mutagenicity PRODUCT : Not classified
 - ABS resin : No data available
 - Frits, chemicals : No data available
 - Zinc oxide : in vitro - reverse mutation test using bacteria: Negative (S. typhimurium TA1535, TA1537, TA98, TA100, irrespective of metabolic activation system), OECD TG 471, Source: ECHA
 - ASA resin : No data available
 - N,N'-ethylenedi(stearamide) : In vitro / audio, Source: IUCLID

○ Reproductive toxicity PRODUCT : Not classified

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : May be regarded, under the test conditions, maturity, mating, pregnancy and early lactation showed in adults, and 30, 15 mg / kg / d, effects which, natjiman appear in the 7.5 mg / kg / d that is not substantially important. NOAEL = 7.5 mg / kg / d, equivalent or similar to Guideline: OECD TG 416, under the test conditions, of up to 88 mg / kg of zinc sulfate (about 35.2 mg or 19.9 mg Zn²⁺ / kg bw, for the anhydrous and monohydrate) of when administered adult hamsters and fetal no negative side effects., hamster, Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

○ Specific target organ toxicity single exposure PRODUCT : Not classified

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : Oral: toxic side effects without signs (rat / male / female / equivalent or similar guidelines: OECD TG 401) dermal: general discomfort some signs commonly found in dermal toxicity studies, the overall health status is also good throughout the entire study / over is not found (rat / male / female / OECD TG 402 / GLP) inhalation: nateu dirty hair appears on the head or side effects were observed (rat / male / female / equivalent or similar to Guideline :. OECD TG 403), Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

○ Specific target organ toxicity repeated exposure PRODUCT : Not classified

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : Orally (sub-chronic): NOAEL = 31.52 mg / kg-bw / day (. Approx 13.26 mg Zn²⁺ / kg-bw / day), Rat, OECD TG 408, GLP transdermal (short repeated): After a percutaneous exposure through the rat, on the basis of the decrease of collagen content, LOAEL for systemic toxicity natjiman show the lowest test dose of 75 mg / kg bw / day, these effects are reversible been a period of 14 days, Rat, OECD TG 410 suction (sub-chronic): under the experimental conditions, NOAEL was 1.5 mg / m³ to be evaluated, Rat, OECD TG 413, GLP, Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

○ Aspiration hazard PRODUCT : Not classified

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

12. ECOLOGICAL INFORMATION

1) Aquatic toxicity > PRODUCT : Not classified

- Fish

- ABS resin : LC50 11.5 mg / ℓ 96 hr *Pimephales promelas*, Source: ECOTOX
- Frits, chemicals : No data available
- Zinc oxide : LC50 315 µg / ℓ 96 hr *Thymallus arcticus* , (ASTM, exponential expression, fresh water), Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

- Crustacea

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : LC50 1220 µg / ℓ 48 Hr *Daphnia Magna*, (US EPA / 600 / 4-85 / 013, Exponential, freshwater, GLP), Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

- Aquatic Algae

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : EC10 350 µg / ℓ 48 hr *Chlorella sp.* , (Exponential manner, fresh water), Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

2) Persistence and degradation

- n-octanol water partition coefficient

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : (Not applicable)
- N,N'-ethylenedi(stearamide) : 13.98 log Kow (@ 25 °C), Source: ECHA

- Degradation

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

- Biodegradation

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : 100 (%) 40 hr, Source: HSDB
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : 15 (%) 28 day, Source: IUCLID

3) Bioaccumulative potential

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : 0.002 BCF,, Source: ECHA
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

4) Mobility in soil

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : No data available

5) Other adverse effects > PRODUCT : Chronic 3

- ABS resin : No data available
- Frits, chemicals : No data available
- Zinc oxide : No data available
- ASA resin : No data available
- N,N'-ethylenedi(stearamide) : 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.
- 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 - EU. European Inventory of Existing Commercial Chemical Substances (EINECS)

- N,N'-ethylenedi(stearamide)

- Frits, chemicals

- Zinc oxide

- ETC regulation - EU. Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances (L286, Vol. 52, 31 October 2009)

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. Regulation 2019/1021/EU on persistent organic pollutants (POPs) (recast), 25 June 2019, as amended by Regulation 2021/277, 23 February 2021

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 Reg 2021/2030/EU, 22 Nov 2021

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) 2022/692, OJ L 129, 3 May 2022

- Zinc oxide

- ETC regulation - EU. Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex II, New Substances (L286, Vol. 52, 31 October 2009)

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

- Zinc oxide

- ETC regulation - EU. Chemicals & Articles Subject to Export Ban: Annex V (Art. 15), Regulation 649/2012/EU, as amended by Regulation 2022/643, OJ L 118, 20 April 2022

Not applicable

- ETC regulation - EU. F-Gases Subject to Emission Limits/Reporting (Annexes I, II), Regulation 517/2014/EU on FGGs, 20 May 2014

Not applicable

16. OTHER INFORMATION

1) Reference

- CERl
- Directiw 87/302/EEC, GLP . IUCLID
- ECHA
- ECHA registration data
- ECOSAR
- ECOTOX
- EU CLP
- EU IUCLID
- HSDB
- IUCLID
- International Uniform ChemicalL Information Database(IUCLID)(<http://ecb.jrc.it/esis>)
- Ministry of Environment Existing Chemical Safety Test
- NCIS Existing chemical safety test
- National Library of Medicine(NLM)
- OECD SIDS
- OECD SIDS, EU IUCLID
- OECD Screening Information Data Set(<http://cs3-hq.oecd.org/scripts/hpv/>)
- OECD TG 301 C . OECD SIDS
- OECD TG404, OECD SIDS
- OECD TG423, Ministry of Environment Existing Chemical Safety Test(2001-2004)

- QSAR
- Quantitative Structure Activity Relation(QSAR)

2) Print date : 2023-01-02

3) Revision date

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- Last revised history :

4) Other