

Safety Data Sheet(SDS)

Last revised date : 20-01-2023

1. Identification

1) Product identifier : PC/GF LP-3305

2) Recommended use of the chemical and restrictions on use

○ Recommended use of the chemical

Others(Synthetic Resin Plastics)

○ Restrictions on use

3) Details of the supplier of the safety data sheet

○ Seller

Company name : Lotte Chemical Corporation

Address : 05551 Lotte World Tower, 300, Olympic-ro, Songpa-gu, Seoul, 05551 Rep. of KOREA

Telephone number :

Basic Chemicals	+82-2-829-4114	Advanced Materials	+82-31-596-3114
-----------------	----------------	--------------------	-----------------

Emergency phone number

Yeosu Plant	+82-61-688-2100	Ulsan Plant	+82-52-278-3500
Daesan Plant	+82-41-689-5900	Yeosu Plant(Advanced Materials)	+82-61-689-1100

Fax number : +82-2-834-6070

2. Hazards identification

1) Hazard classification

- Not applicable

2) Allocation label elements

Hazard pictograms

- Not applicable

Signal word

- NONE

Hazard statements

- Not applicable

Precautionary statements

- Not applicable

3) Other hazards:

According to experience and information provided, this product does not affect harmful effects when using and handling it as a regulation.

3. Composition/Information on ingredients

Chemical name	Common name	CAS No.	Content(wt%)
2,2-Bis(4-hydroxyphenyl) propane polycarbonate	Poly[oxy-carbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenylene]	24936-68-3	$\geq 48 \sim \leq 58$
Glass, oxide	Glass, oxide, chemicals	65997-17-3	$\geq 22 \sim \leq 32$
Polyester resin	-		$\geq 10 \sim \leq 20$
C.I. pigment black 028	Copper chromite black spinel	68186-91-4	$\geq 5 \sim \leq 10$

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.
- Seek immediate medical assistance.

2) Following skin contact

- For minor skin contact, avoid spreading material on unaffected skin.
- 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.
- Seek immediate medical assistance.

3) Following inhalation

- Administer oxygen if breathing is difficult.
- 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.
- Keep victim warm and quiet.
- Move to fresh air.

4) Following ingestion

- 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.
- Seek immediate medical assistance.

5) Delayed and immediate effects and also chronic effects from short and long term exposure

- Fatal if swallowed

6) 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
 - Dry chemical.
 - Use dry sand or earth to smother fire.
 - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - CO2.
 - Water spray.
- 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.
 - Can decompose at high temperatures forming toxic gases.
- Risk of fire and explosion
 - Containers may explode when heated.
 - Some may burn but none ignite readily.
- Other
 - May cause toxic effects if inhaled.

3) Special protective equipment for firefighters

- Dike fire-control water for later disposal; do not scatter the material.
- Evacuate area and fight fire from a safe distance.
- 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: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- 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: 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.
- Substance may be transported in a molten form.

6. Accident release measures

- 1) Personal precautions, protective equipment and emergency procedures
 - Clean up spills immediately, observing precautions in Protective Equipment section.
 - Cover with plastic sheet to prevent spreading.
 - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
 - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
 - Isolate hazard area.
 - Keep unnecessary and unprotected personnel from entering.
 - Please note that materials and conditions to be avoided.
 - Stop leak if you can do it without risk.
- 2) Environmental precautions
 - Prevent entry into waterways, sewers, basements or confined areas.
- 3) Methods and materials for containment and 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.
 - Do not enter storage area unless adequately ventilated.
 - Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
 - Handling refer to engineering control/personal protection section.
 - Loosen closure cautiously before opening.
 - Please note that materials and conditions to be avoided.
 - Use care in handling/storage.
- 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.
 - Keep away from food and drinking water.

8. Exposure controls & personal protection

- 1) Chemical exposure limits, Biological exposure standard
 - Contains no substances with occupational exposure limit values.
- 2) Appropriate engineering controls
 - Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
 - Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 3) Personal protective equipment
 - Respiratory protection

- If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.
- Eye protection
 - If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
- Hand protection
 - Wear chemical safety gloves.
- Skin protection
 - Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

9. Physical and chemical information

Property name	Values	Source
Appearance		
Physical state	Soild	
Color	No data available	
Odor	No data available	
Odor threshold	No data available	
pH	No data available	
Melting point/freezing point	No data available	
Initial boiling point and boiling range(°C)	No data available	
Flash point(°C)	449°C	
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(mm²/s, 40°C)	No data available	
Molecular weight(mass)	No data available	
Specific gravity	No data available	

10. Stability and reactivity

1) Chemical stability and Possibility of hazardous reactions

- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Fire may produce irritating, corrosive and/or toxic gases.
- 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.

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.

11. Toxicological information

1) Information on the likely routes of exposure

- No data available

2) Health hazard information

○ Acute toxicity

- Acute toxicity(Oral) PRODUCT : Category 2(ATEmix = 34.645mg/kg)

- Glass, oxide

: LD50> 2000 mg / kg experimental species: Rat, (route of administration: gavage, Female / Male, OECD TG 423, GLP)

- Acute toxicity(Dermal) PRODUCT : Not classified

- No data available

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

- No data available

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

- No data available

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

- No data available

○ Skin corrosion/irritation PRODUCT : Not classified

- Glass, oxide

: Edema Score: 0/0, fully Restored, no irritant, Rabbit, OECD TG 404

- Serious eye damage/eye irritation PRODUCT : Not classified
 - Glass, oxide
 - : No irritation, Human
- Respiratory sensitization PRODUCT : Not classified
 - No data available
- Skin sensitization PRODUCT : Not classified
 - Glass, oxide
 - : No hypersensitivity
- Carcinogenicity PRODUCT : Not classified
 - No data available
- Germ cell mutagenicity PRODUCT : Not classified
 - Glass, oxide
 - : In Vitro - Genetic Toxicity: Chinese Hamster Ovary (CHO))
- Reproductive toxicity PRODUCT : Not classified
 - No data available
- Specific target organ toxicity single exposure PRODUCT : Not classified
 - No data available
- Specific target organ toxicity repeated exposure PRODUCT : Not classified
 - Glass, oxide
 - : Inhalation (Ambassietic): The rat was exposed to the inhalation of the E-glass fine fibers (Code 104E) fibers for 7 hours for a maximum of 1, 3 days, 8 days or 14 days of actual exposure. 3 weeks. After sacrificing the lungs, BAL fluid was examined for the total concentration of total cells, granules and the total concentration of proteins. This analysis showed that the total number of cells, granule fraction and total protein concentration gradually increased as the accumulated repetition exposure period increases. The data represents the induction of inflammatory reactions even after 7 hours of exposure. In addition, the analysis of the number of proliferation cells per MM bronchial duct was used to investigate the analysis of the number of proliferation cells per MM bronchial duct using BRDU DNA labeling to significantly increase the number of proliferative cells in the lungs of animals exposed to E-glass fine fibers (p <0.05) Note). controls). This also represents inflammatory response in lung reality. In conclusion, the study data indicates that the inhalation of the E-glass fine fibers can lead to inflammation reactions in the lungs of the ripple after repeated exposure of a single exposure or 3 to 14 days. Rats were exposed to inhalation of E-Glass Microfiber (CODE 104E) fibers for 7 hours a day for actual exposure for up to 1, 3, 8 or 14 days. 3 weeks. After sacrificing the lungs, the BAL fluid investigated the total concentration of total cells, granules fractions and proteins. This analysis showed that the longer the accumulated repetition period, the longer the total cell, the granules fraction and the total protein concentration gradually increased. This result shows the induction of inflammatory reactions even after 1 day exposure of 7 hours. Further, as a result of analyzing the number of proliferation cells per MM bronchi, using the BRDU DNA label, the number of proliferation cells was significantly increased in the lungs of the animal exposed to the E-Glass fine fibers (statistically significant in P <0.05 appear). This is

known to exhibit inflammatory reactions in waste propeller. In conclusion, research data indicates that the suction of E-Glass fine fibers can lead to inflammatory responses in the lungs of mice after a single or 3 to 14 days after repetition exposure. As a result of exposed to 650 ppm concentrations, resulting in the brain and thymus lesions of deaths are found. In the exposed rat (male), which is exposed to 650 ppm for 14 weeks, the cause of death occurred because such degenerative lesions are not observed. However, half of the survivors of the 650 ppm group had neuronal deadlocks or malaria in the body stenomed by the brain. The lesions of the central nervous system have been accompanied by nerve behavior. It has been found that each rat exposed to 2,4-pentane dion representing the abnormality during the modified IRWIN screening test has been shown to have brain damage. Generally, the opposite of this statement was true. Exceptionally, two men are exposed to 650 ppm, showing normal reactions with brain malaria during IRWIN tests. In addition, some females exposed to 650 ppm showed acute degeneration of nuclear and displacement temperatures, but died before performing awareness testing. Since the results of electron microscopy test in sciatic nerve preparation were negative, the neurotoxic effect of 2,4-pentane dion appears to be a central rather than peripheral. Description of the difference in mortality rate of men and women (each 650 ppm exposure group, 30% for men and women) is not known. The difference between gender may be related to brain thiamine, folic acid and / or flute single concentration. The proposed mechanism of 2,4-pentane di-toxicity is because B vitamins or the non-activation of the bonding is not activated. Concentration of repetition exposure to 2,4-pentane dion - Reaction profile is very clear

- Aspiration hazard PRODUCT : Not classified
- No data available

12. Ecological information

1) Ecotoxicity

- Fish
 - Glass, oxide
 - : LC50> 1000 mg / ℓ 96 hr, (OECD TG 203, ring Formula test i.e. all test media were changed every 24 hours, fresh water, GLP)
- Crustaceans
 - Glass, oxide
 - : NOEC ≥1000 mg / ℓ 3 day Daphnia magna, (OECD TG 202, ring formulas, fresh water, GLP)
- Aquatic algae
 - Glass, oxide
 - : NOEC ≥1000 mg / ℓ 3 day, (OECD TG 201, ring formulas, GLP)

2) Persistence and degradability

No data available

3) Bioaccumulative potential

No data available

4) Mobility in soil

No data available

5) Other adverse effects

No data available

13. Disposal considerations

1) Disposal methods

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

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

- Dispose of in accordance with local regulations.
- Send to a licensed waste management company.

14. Transport information

1) UN No. : Not applicable

2) Proper shipping name : Not applicable

3) Hazard class : Not applicable

4) Packing group : Not applicable

5) Marine pollutant : No

6) Special precautions for user related to transport or transportation measures :

Emergency measures in case of fire : Not applicable

Emergency measures in the effluent : Not applicable

- ADR

- Tunnel restriction code : Not applicable

- IMDG

- Marine pollutant : No

- Air transport(IATA)

- UN No. : Not applicable
- Proper shipping name : Not applicable
- Class or division : Not applicable
- Packing group : Not applicable

15. Regulatory information

Australia Industrial Chemicals Act

- Not applicable

China Inventory of Existing Chemical Substances (IECSC)

- Inventory - China - Inventory of Existing Chemical Substances (IECSC)

- C.I. pigment black 028 : Present [37093]
- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate : Present [21562]
- Glass, oxide : Present [04789]

92/32/EEC

- Not applicable

European Union Official Journal of the European Communities 15 June 1990 - Annex Based on Article 13 of Directive 67/548/EEC Amended by Directive 79/831/EEC

- Inventory - European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

- C.I. pigment black 028 : 269-053-7
- Glass, oxide : 266-046-0

Japan Law Concerning the Examination and Regulations of Manufacture, etc. of Chemical Substances

- Inventory - Japan - Existing and New Chemical Substances (ENCS)

- C.I. pigment black 028 : (1)-284, (1)-297, (1)-475
- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate : (7)-738

New Zealand Environmental Protection Authority, Inventory of Chemicals

- Inventory - New Zealand - Inventory of Chemicals (NZIoC)

- C.I. pigment black 028 : May be used as a single component chemical under an appropriate group standard
- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate : May be used as a single component chemical under an appropriate group standard
- Glass, oxide : May be used as a single component chemical under an appropriate group standard

Turkey Regulation on Inventory and Control of Chemicals

- Not applicable

Taiwan Chemical Substance Inventory

- Inventory - Taiwan - Taiwan Chemical Substance Inventory (TCSI)
- C.I. pigment black 028 : Present
- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate : Present
- Glass, oxide : Present

U.S. Toxic Substances Control Act

Vietnam National Chemicals Inventory (NCI)

- Inventory - Vietnam - National Chemicals Inventory (NCI) (DRAFT)
- C.I. pigment black 028 : Present 21992

- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate : Present 15829
- Glass, oxide : Present 21278

16. Other information

1) Reference

NCIS, KOSHA, Montreal Protocol, ECHA, OECD SIDS, EU IUCLID, HSDB(PubChem), NITE, NTP, ACGIH, IARC, NIOSH, ChemIDplus, EPA, EPI Suite, INCHEM

2) Issue date : 20-01-2023

3) Revision date

- Revised date count : 2-1
- Last revised date : 20-01-2023