Safety Data Sheet(SDS)

According to Regulation (EU) No. 2020/878

Version : 2-1

Revision date : 26-12-2022

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

1.1 Product identifier : PC/GF_FR NH-3208GL

Other means of identification : No data

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

○ Relevant identified uses

Others(Synthetic Resin Plastics)

○ Uses advised against

Use for recommended use only

Do not use it for weapons manufacturing and related purposes.

1.3 Details of the supplier of the safety data sheet

○ Seller

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

Fax number : +82-2-834-6070

Email : www.lottechem.com(contact us)

1.4 Emergency telephone 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

Opening hours : 09:00~18:00(GMT+9)

Other comments(e.g. language(s) of the phone service) : English

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

- Not applicable

Signal word

- NONE

Hazard statements

- Not applicable

Precautionary statements

- Not applicable

2.3 Other hazards

- No data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Substance name	1) CAS No 2) EC No	Classification	1) Index number 2) SCL 3) M-Factor 4) ATE	Content(wt%)
2,2-Bis(4-hydroxyphenyl) propane polycarbonate	1) 24936-68-3 2) -		1) - 2) - 3) - 4) -	>=60 ~ <=70
Glass, oxide	1) 65997-17-3 2) 266-046-0		1) - 2) - 3) - 4) -	>=15 ~ <=25
Phosphoric trichloride reaction products with bisphenol A and phenol	1) 181028-79-5 2) -		1) - 2) - 3) - 4) -	>=12 ~ <=17
Addtive	1) - 2) -		1) - 2) - 3) - 4) -	>=0.1 ~ <=5

SECTION 4: First aid measures

4.1 Description of first aid measures

- 4.1.1 Following eye contact
  - Call a physician immediately.
- 4.1.2 Following skin contact
  - Get medical attention if irritation develops and persists.
  - Remove contaminated clothing and shoes.
- 4.1.3 Following inhalation
  - If symptoms persist, call a physician.

- Move to fresh air.

○ 4.1.4 Following ingestion

- If accidentally swallowed obtain immediate medical attention.

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

- In the case of accident or if you feel unwell, seek medical advice immediately.

SECTION 5: Firefighting measures

5.1 Extinguishing media

○ Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

○ Unsuitable extinguishing media

- Do not use a solid water stream as it may scatter and spread fire.

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

- Heating or fire can release toxic gas.
- May cause toxic effects if inhaled.

5.3 Advice for firefighters

- In the event of fire, wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

○ Protective equipment

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

○ Emergency procedures

- Removal of ignition sources, provision of sufficient ventilation.

6.1.2 For emergency responders

- Wear protective equipment and keep unprotected persons away.
- Avoid dust formation.

6.2 Environmental precautions

- Try to prevent the material from entering drains or water courses.

6.3 Methods and material for containment and cleaning up

6.3.1 For containment

- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

6.3.2 For cleaning up

- Clear spills immediately.
- Don't use a brush or compressed air for cleaning surfaces or clothing.

6.3.3 Other information

- Any information on personal protection and disposal is given in sections 8 and 13.

- Keep in suitable, closed containers for disposal.
- Pick up and arrange disposal without creating dust.

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

- For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the application area.

7.2 Conditions for safe storage, including any incompatibilities

- Please note that materials and conditions to be avoided.
- 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

- Contains no substances with occupational exposure limit values.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

- Ensure adequate ventilation and exhaust ventilation at the workplace.

8.2.2 Individual protection measures, such as personal protective equipment

○ Eye/face protection

- If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.

○ Skin protection

(i) Hand protection

- Wear chemical safety gloves.

(ii) Other

- No data available

○ Respiratory protection

- If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.

○ Thermal hazards

- Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

8.2.3 Environmental exposure controls

- Ensure not to cause envirionmental pollution by discharging into rivers or other waterways.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property name	Values	Source
Physical state	Solid	
Colour	Depends on customer needs	
Odour	Odorless	
Melting point/freezing point	No data available	
Initial boiling point and boiling range(℃)	No data available	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	No data available	
Flash point(℃)	No data available	
Auto ignition temperature	400	
Decomposition temperature	No data available	
pH	No data available	
Kinematic viscosity(㎟/s, 40℃)	No data available	
Solubility	Insolubility	
Partition coefficient(n-octanol/water)	No data available	
Vapour pressure	No data available	
Density/Relative density	No data available	
Relative Vapour density	No data available	
Particle characteristics	No data available	
Specific gravity	1.15-1.25	

9.2 Other information

9.2.1 Information with regard to physical hazard classes

- No data available

9.2.2 Other safety characteristics

- No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

- No decomposition if stored and applied as directed.
- Stable at normal ambient temperature and pressure.

10.2 Chemical stability

- No decomposition if stored and applied as directed.
- Stable at normal ambient temperature and pressure.

10.3 Possibility of hazardous reactions

- No decomposition if stored and applied as directed.
- Stable at normal ambient temperature and pressure.

10.4 Conditions to avoid

- Follow precautionary advice and avoid incompatible materials and conditions

10.5 Incompatible materials

- Combustible material

10.6 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
  - 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

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

- Glass, oxide
  According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.
- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate
  According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.
- Phosphoric trichloride reaction products with bisphenol A and phenol
  According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.
- Addtive
  According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

11.2.2 Other information

- Glass, oxide
  No other hazards have been identified
- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate
  No other hazards have been identified
- Phosphoric trichloride reaction products with bisphenol A and phenol
  No other hazards have been identified
- Addtive
  No other hazards have been identified

SECTION 12: Ecological information

12.1 Toxicity

- Fish
  - Glass, oxide
    : LC50> 1000 ㎎ / ℓ 96 hr, (OECD TG 203, ring Formula test i.e. all test media were changed every 24 hours, fresh water, GLP)
  - Phosphoric trichloride reaction products with bisphenol A and phenol
    : LC50 40.287 ㎎ / ℓ 96 hr (ECOSAR: Phenols)
- Crustaceans
  - Glass, oxide
    : NOEC ≥1000 ㎎ / ℓ 3 day Daphnia magna, (OECD TG 202, ring formulas, fresh water, GLP)
  - Phosphoric trichloride reaction products with bisphenol A and phenol
    : LC50 15.340 ㎎ / ℓ 48 hr (ECOSAR: Phenols)
- Aquatic algae
  - Glass, oxide
    : NOEC ≥1000 ㎎ / ℓ 3 day, (OECD TG 201, ring formulas, GLP)
  - Phosphoric trichloride reaction products with bisphenol A and phenol
    : EC50 69.098 ㎎ / ℓ 96 hr (ECOSAR: Phenols)

12.2 Persistence and degradability

- Degradability

  No data available

- Biodegradation

  - Phosphoric trichloride reaction products with bisphenol A and phenol

    : (Recalcitrant (Biowin 1,2,5,6,7))

12.3 Bioaccumulative potential

- n-octanol water partition coefficient

  - Phosphoric trichloride reaction products with bisphenol A and phenol

    : 2.21 log Kow

- Bioconcentration factor(BCF)

  - Phosphoric trichloride reaction products with bisphenol A and phenol

    : 2.011

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Endocrine disrupting properties

- Glass, oxide

  : According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

- 2,2-Bis(4-hydroxyphenyl) propane polycarbonate

  : According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

- Phosphoric trichloride reaction products with bisphenol A and phenol

  : According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

- Addtive

  : According to Regulation(EU) 2017/2100 and 2018/605, the substance not affects to endocrine system.

12.7 Other adverse effects

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 : No

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 :

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

SECTION 15: Regulatory information

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

15.1.1 EU regulations

- EU - REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances

- Not applicable

- EU - REACH (1907/2006) - Annex XIV - Substances Subject to Authorization

- Not applicable

15.1.2 Other EU regulations

- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex III - Substances Subject to Release Reduction Provisions

- Not applicable

- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex I - Substances Subject to Prohibitions

- Not applicable

- EU - Persistent Organic Pollutants (POPs) (2019/1021) - Annex IV - Waste Management - Concentration Limits

- Not applicable

- EU - Persistent Organic Pollutants (POPs) (2019/1021) -Annex V-Waste Management-Maximum Concentration Limits
  - Not applicable
- EU - Substances Depleting the Ozone layer (1005/2009) - Annex I Substances
  - Not applicable
- EU - Substances Depleting the Ozone layer (1005/2009) - Annex II Part A Substances
  - Not applicable
- EU - Substances Depleting the Ozone layer (1005/2009) - Annex II Part B Substances
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - WB Phase 1 - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - WB Phase 2 - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II B - Vehicles - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - SB Phase 1 - VOCs
  - Not applicable
- EU - Paints, Varnishes, Vehicle Refinishing Products (2004/42/CE) - Annex II A - SB Phase 2 - VOCs
  - Not applicable
- EU - Seveso III Directive (2012/18/EU) - Qualifying Quantities of Dangerous Substances - Lower-Tier Requirements
  - Not applicable
- EU - Seveso III Directive (2012/18/EU) - Qualifying Quantities of Dangerous Substances - Higher-Tier Requirements
  - Not applicable
- EU - Export and Import Restrictions (649/2012) - Chemicals Subject to Export Notification Procedure
  - Not applicable
- EU - Export and Import Restrictions (649/2012) - Chemicals and Articles Subject to Export Ban
  - Not applicable
- EU - Export and Import Restrictions (649/2012) - Chemicals Subject to the PIC Procedure under the Rotterdam Convention
  - Not applicable
- EU - Export and Import Restrictions (649/2012) - Chemicals Qualifying for PIC Notification
  - Not applicable
- EU - Industrial Emissions (2010/75/EU) - Integrated Pollution Prevention and Control Directive - List of Polluting Substances
  - Not applicable
- EU - Fluorinated Gases (517/2014) - Global Warming Potential
  - 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

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

16.2 Issuing date : 26-12-2022

16.3 Revision date

- ○ Revision number : 2-1
- ○ Revision date : 26-12-2022

16.4 Abbreviations and acronyms

Not applicable

For explanation of abbreviations see section 16.

- • This substance/mixture contain(s) only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006 (REACH).

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.