

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 : SAN/GF GR-5020 T

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
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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

- Acute toxicity(Oral) Category 4
- Skin corrosion/irritation Category 2
- Serious eye damage/eye irritation Category 2
- Specific target organ toxicity single exposure Category 3(Respiratory tract irritation)

2.2 Label elements

Hazard pictogram



Signal word

- WARNING

Hazard statements

H302 Harmful if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

Precautionary statements

- Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a wellventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

- Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/...if you feel unwell.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a POISON CENTER/ doctor/.../if you feel unwell.

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash it before reuse.

- Storage

P403+P233 Store in a wellventilated place. Keep container tightly closed.

P405 Store locked up.

- Disposal

P501 Discard the contents/containers in accordance with the laws and laws related to waste.

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%)
Acrylonitrile-styrene copolymer	1) 9003-54-7 2) 404-370-8		1) - 2) - 3) - 4) Acute toxicity(Oral) : 1800mg/kg	$\geq 75 \sim \leq 85$
Glass, oxide	1) 65997-17-3 2) 266-046-0		1) - 2) - 3) - 4) -	$\geq 15 \sim \leq 25$

SECTION 4: First aid measures

4.1 Description of first aid measures

○ 4.1.1 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.

○ 4.1.2 Following skin contact

- For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
- 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.

○ 4.1.3 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.
- 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.
- Keep victim warm and quiet.
- Move to fresh air.

- 4.1.4 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.
- 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.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media
 - CO₂.
 - Direct water.
 - Dry chemical.
 - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - Use dry sand or earth to smother fire.
 - Water spray.
- 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)

- Containers may explode when heated.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- 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.

5.3 Advice for firefighters

- Substance may be transported in a molten form.
- 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.
- Rescuers should put on appropriate protective gear.

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

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

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

- 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.

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

- Avoid breathing vapors from heated material.
- Avoid prolonged or repeated contact with skin.
- 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.
- Use only in a well-ventilated area.

7.2 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.

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

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

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 environmental 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(°C)	No data available	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	No data available	
Flash point(°C)	No data available	
Auto ignition temperature	No data available	
Decomposition temperature	400°C over	
pH	No data available	

Kinematic viscosity(mm ² /s, 40°C)	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	1.1 ~ 1.5	

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

- 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.

10.2 Chemical stability

- 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.

10.3 Possibility of hazardous reactions

- 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.

10.4 Conditions to avoid

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

10.5 Incompatible materials

- Combustibles, reducing material.

10.6 Hazardous decomposition products

- Corrosive/toxic fume.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Irritating, corrosive and/or toxic gas.

SECTION 11: Toxicological information

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

- Acute toxicity
 - Acute toxicity(Oral) PRODUCT : Category 4(ATEmix = 494.022mg/kg)
 - Acrylonitrile-styrene copolymer
 - : LD50 1800 mg / kg experimental species: Rat
 - 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 : Category 2
 - Acrylonitrile-styrene copolymer
 - : It causes skin irritation.
 - Glass, oxide
 - : Edema Score: 0/0, fully Restored, no irritant, Rabbit, OECD TG 404
- Serious eye damage/eye irritation PRODUCT : Category 2
 - Acrylonitrile-styrene copolymer
 - : It causes eye irritation
 - 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
 - Acrylonitrile-styrene copolymer
 - : 3 (IARC)
- 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 : Category 3(Respiratory tract irritation)

- Acrylonitrile-styrene copolymer

: Inhalation Irritating to pray

- 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

- Acrylonitrile-styrene copolymer

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

- Glass, oxide

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

11.2.2 Other information

- Acrylonitrile-styrene copolymer

No other hazards have been identified

- Glass, oxide

No other hazards have been identified

SECTION 12: Ecological information

12.1 Toxicity

- 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)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Endocrine disrupting properties

- Acrylonitrile-styrene copolymer

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

- Glass, oxide

: 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

- 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.