MATERIAL SAFETY DATA SHEET

PBT/ABS/GF_Flame Retardant
VB-3100G

Date of issue: 2013-12-30 **Revision Date: 2020-01-01**

1. IDENTIFICATION

A. Product name

- PBT/ABS/GF_FR VB-3100G

B. Recommended use and restriction on use

- General use : Plastic materials of synthetic resin
- Restriction on use : Do not use without advised use

C. Manufacturer / Supplier / Distributor information

○ Manufacturer/Supplier/Distributer information

- Company name : LOTTE CHEMICAL CORPORATION
- Address : Lotte World Tower, 300, Olympic-ro, Songpa-gu, Seoul, 05551 Rep. of KOREA
- Dept. : Quality Control Team
- Telephone number : Head-Office +82-2-829-4190
  : Yeosu Plant +82-61-689-1531
- Fax number : +82-2-834-6070

2. HAZARD IDENTIFICATION

A. GHS Classification

- Carcinogenicity : Category 1B

B. GHS label elements

○ Hazard symbols

○ Signal words

- Danger

○ Hazard statements

- H350 May cause cancer

○ Precautionary statements

1) Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P281 Use personal protective equipment as required.

2) Response

- P308+P313 If exposed: Call a POISON CENTER or doctor/physician.

3) Storage

- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

○ **NFPA grade (0 ~ 4 level)**

- Health : 0, Flammability : 0, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
1,4-Benzenedicarboxylic acid dimethyl ester polymer with 1,4-butanediol	-	30965-26-5	50~60
2-Propenenitrile polymer with 1,3-butadiene and ethenylbenzene	ABS resin	9003-56-9	10~20
Glass, oxide	Glass, oxide, chemicals	65997-17-3	8~12
Diantimony trioxide	Antimony trioxide	1309-64-4	3~10
4,4'-(1-Methylethylidene)bis[2,6-dibromophenol] polymer with 2,2'-[(1-methylethylidene)bis[(2,6-dibromo-4,1-	-	68928-70-1	7~20
Additive	-	-	<2

* Other ingredients which do not contribute to classification of the product

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15minutes and call a doctor/physician.
- Get medical attention immediately.

B. Skin contact

- Flush skin with plenty of wter for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Remove contaminated clothing, shoes and isolate.
- Wear gloves when washing the patient, and please avoid contact with contaminated clothing.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- May Ignite by Heat, sparks, flames.

- Easy to burn, but not easy to fire.
- Irritating, or toxic gases may occur by fire.
- Inhalation of materials may be harmful.

C. Special protective actions for firefighters

- Keep unauthorized personnel out.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
- Avoid inhalation of materials or combustion by-products.
- Do not access if the tank on fire.
- Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away,isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Spilled material should be treated as a potential risk of waste collected.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Wash thoroughly after handling.
- Avoid contact with incompatible materials.
- Operators should wear antistatic footwear and clothing.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Save applicable laws and regulations.
- Keep in the original container.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ **ACGIH TLV**

- [Diantimony trioxide] : TWA : 0.5 mg/m3 Antimony trioxide(handling and use)

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.
- Follow the appropriate engineering controls because unconfirmed gases for hazard among extrusion process may expose.

C. Personal protective equipment

○ **Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.

○ **Eye protection**

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

○ **Hand protection**

- Wear appropriate glove.

○ **Skin protection**

- Wear appropriate clothing.

○ **Others**

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Solid(Pellets)
- Color	- (Please Follow the request for clients)
B. Odor	Odourless
C. Odor threshold	Not applicable
D. pH	Not applicable
E. Melting point/Freezing point	220 ~ 230℃
F. Initial Boiling Point/Boiling Ranges	Not applicable
G. Flash point	Not available
H. Evaporation rate	Not applicable
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not applicable
K. Vapour pressure	Not applicable
L. Solubility	Insolubility (solubility in water)
M. Vapour density	Not applicable
N. Specific gravity	1.4~1.5
O. Partition coefficient of n-octanol/water	Not applicable
P. Autoignition temperature	Over 400℃
Q. Decomposition temperature	Not available
R. Viscosity	Not applicable
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical stability

- This material is stable under recommended storage and handling conditions.
- This material is stable under conditions at room temperature and normal pressure.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.
- Containers may explode if heated..
- Easy to burn, but not easy to fire.
- Irritating, or toxic gases may occur by fire.
- Inhalation of materials may be harmful.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Combustible materials, irritating, toxic gases

E. Hazardous decomposition products

- Not available

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ **(Respiratory tracts)**
- Not available

○ **(Oral)**
- Not available

○ **(Eye·Skin)**
- Not available

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ **Acute toxicity**

*** Oral**
- [1,4-Benzenedicarboxylic acid dimethyl ester polymer with 1,4-butanediol] : LD50 > 5000 ㎎/㎏ Rat
- [Diantimony trioxide] : LD50 > 34600 ㎎/㎏ Rat

*** Dermal**
- [1,4-Benzenedicarboxylic acid dimethyl ester polymer with 1,4-butanediol] : LD50 > 2000 ㎎/㎏ Rabbit

*** Inhalation**
- Not available

○ **Skin corrosion/irritation**
- Not available

○ **Serious eye damage/irritation**
- Not available

○ **Respiratory sensitization**
- Not available

○ **Skin sensitization**
- Not available

○ **Carcinogenicity**

*** IARC**
- Not available

*** OSHA**
- Not available

*** ACGIH**
- Not available

*** NTP**
- Not available

*** EU CLP**
- Not available

○ **Germ cell mutagenicity**
- Not available

○ **Reproductive toxicity**
- Not available

○ **STOT-single exposure**
- Not available

○ **STOT-repeated exposure**
- Not available

○ **Aspiration hazard**
- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ **Fish**

- [Diantimony trioxide] : LC50 80 ㎎/ℓ 96 hr

○ **Crustaceans**

- [Diantimony trioxide] : EC50 423.45 ㎎/ℓ 48 hr

○ **Algae**

- [Diantimony trioxide] : EC50 67 ㎎/ℓ 72 hr

B. Persistence and degradability

○ **Persistence**

- [1,4-Benzenedicarboxylic acid dimethyl ester polymer with 1,4-butanediol] : (Not applicable)

○ **Degradability**

- Not available

C. Bioaccumulative potential

○ **Bioaccumulative potential**

- Not available

○ **Biodegration**

- Not available

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other’s waste recycle and dispose, person who establish and operate waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN number

- Not available

B. Proper shipping name

- Not available

C. Hazard class

- Not available

D. Packing group

- Not available

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available
- EmS SPILLAGE SCHEDULE : Not available
- ADR/RID : Not regulated as dangerous goods
- IATA : Not regulated as dangerous goods
- IMDG : Not regulated as dangerous goods

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ **POPs Management Law**

- Not applicable

○ **Information of EU Classification**

*** Classification**

- [Diantimony trioxide] : Carc. Cat. 3; R40

*** Risk Phrases**

- [Diantimony trioxide] : R40

*** Safety Phrase**

- [Diantimony trioxide] : S2, S22, S36/37

○ **U.S. Federal regulations**

*** OSHA PROCESS SAFETY (29CFR1910.119)**

- Not applicable

*** CERCLA Section 103 (40CFR302.4)**

- [Diantimony trioxide] : 453.599 kg 1000 lb

*** EPCRA Section 302 (40CFR355.30)**

- Not applicable

*** EPCRA Section 304 (40CFR355.40)**

- Not applicable

*** EPCRA Section 313 (40CFR372.65)**

- [Diantimony trioxide] : Applicable

○ **Rotterdam Convention listed ingredients**

- Not applicable

○ **Stockholm Convention listed ingredients**

- Not applicable

○ **Montreal Protocol listed ingredients**

- Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- ACGIH(American Conference of Governmental Industrial Hygienists)
- CCRIS(Chemical Carcinogenesis Information)
- ChemIDplus(Chemical Identification/Dictionary)
- CICADs(Concise International Chemical Assessment Documents)
- CPDB(Carcinogenic Potency Database)
- CRC Handbook
- CTD(Comparative Toxicogenomics Database)
- ECHA Registered Substance(REACH)
- e-ChemPortal
- Environmental Health Criteria (EHC) Monographs
- ERG(emergency response guidebook)
- ESIS(European chemical Substances Information System)
- Harmonization Project Publications
- HSDB(Hazardous Substances Data Bank)

- International Agency for Research on Cancer (IARC) - Summaries and Evaluations
- International Chemical Safety Cards (ICSCs)
- IPCS INCHEM(International Programme on Chemical Safety)
- IPCS/CEC Evaluation of Antidotes Series
- IRIS(Integrated Risk Information)
- IUCLID(International Uniform Chemical Information Database)
- Joint Expert Committee on Food Additives (JECFA) - Monographs and Evaluations
- NLM(National Library of Medicine)
- NTP(National Toxicity Program)
- Pesticide Documents (PDs)
- Poisons Information Monographs Archive (PIMs, 1989-2002)
- Screening Information Data Set (SIDS) for High Production Volume Chemicals
- The Merck Index 13th Ed.
- UK Poison Information Documents (UKPID)
- UN RTDG
- Globally Harmonized System of Classification and Labeling of Chemicals
- Chemicals Information System (NCIS)
- National Emergency Management Agency / Korea dangerous material iventory managenent system
- Korea Occupational Safety ＆ Health Agency (KOSHA)

B. Issue date

- 2013-12-30

C. Revision number and Last date revised

- 2020-01-01

D. Other

- This MSDS is prepared according to the Globally Harmonized System (GHS).