MATERIAL SAFETY DATA SHEET (MSDS)

1. Product and company identification

1) Product name: BIOGENPOL 1070 (PBAT)

2) Company identification

- Company name: ANKOR Bioplastics
- Address: 216, Munmakgongdan-gil, Munmak-eup, Wonju-si, Gangwon-do, Republic of Korea
- TEL: +82-33-731-5845
- FAX: +82-33-731-5846

3) Recommended use the chemical and restrictions on use

- Recommended use: Film extrusion
- Restriction on use: Use only for the recommended use.

2. Hazards identification, including emergency overview

- Inhalation: Short-term harmful health effects are not expected from vapor
- Skin absorption: No evidence of harmful effects from available information.
- Skin contact: No evidence of harmful effects from available information.
- Eye contact: No evidence of harmful effects from available information

3. Composition / Information on ingredient

Composition	Contents
Aromatic – Aliphatic copolyester (PBAT)/ additives	100%
Total	**100%**

4. First aid measures

- Inhalation: Remove to fresh air.
- Skin contact: Wash skin with soap and water.
- Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses if worn.
- Swallowing: If patient is fully conscious, rinse mouth with water.

5. Firefighting measures

- Firefighting guidance: Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.
- Extinguish media: carbon dioxide, water, halogens, sand, alcohol-type foam, all-purpose-type foam.
- Flash point: Not currently available
- Flammable limits in air: Not determined.
- Auto ignition temperature: 375℃
- Unusual fire and explosion hazards: Static ignition might result from handling and use. Electrically bond & ground all containers, personnel & equipment

before transfer or use of
material.

· Hazardous combustion products: Burning can produce carbon monoxide and/or carbon dioxide.
Carbon monoxide is highly toxic if inhaled;
carbon dioxide in sufficient concentrations can act as asphyxiant.

6. Accidental release measures

· Procedure when material is released or spilled: shut off ignition sources. Cover with sweeping compound. Collect for disposal. Observe government regulations.

7. Handling and storage

· PRECAUTIONS TO BE TAKEN IN HANDLING: Electrically bond and ground all containers, personnel and equipment before transfer or use of material.
Protect from moisture and impurities.
Do not handle or empty in presence of flammable vapor.
Keep container closed.
Use with adequate ventilation. Wash thoroughly after handling.

· PRECAUTIONS TO BE TAKEN IN STORING: Store container in a well dry/cool place.
Keep away from any source of ignition.

8. Exposure control / Personal protection

· INHALATION (ACGIH): TLV = Not established.
Electrically bond and ground all containers, personnel and equipment before

· VENTILATION: Special, local ventilation is recommended in areas where containers are opened and their contents are discharged or in any other areas where dusting conditions may develop.

· PERSONAL ROTECTIVE QUIPMENT:
EYE: Safety glasses or monogoggles
OTHER: Eye bath, safety shower
GLOVES: Protective gloves
RESPIRATORY PROTECTION: Dust respirator if dusting conditions exist.

9. Physical chemical properties

· Physical state:	Solid
· Appearance:	White pellet
· Boiling point:	Not determined.
· Melting point:	100 ~ 130℃ (Variable according to the portion of material composition)
· Density:	1.2 ~ 1.3g/ ㎖
· Solubility in water:	Not determined

- Vapor: Not applicable
- Water/oil dispersion coefficient: Not applicable
- Solubility: Soluble in Halogen chemical like Chloroform.

10. Stability and reactivity

- Reactivity: Stable in ordinary temperature and normal pressure
- Hazardous polymerization: Will not polymerize
- Inhibitors/ stabilizer: Not applicable.

11. Toxicological Information

- Toxicological data: Oral rat LD50 more than 5,000 mg/kg

12. Ecological information

- Biodegradability: Biodegradable in soil, water, activated sludge or compost in the presence of microorganisms.
- Ecotoxicity: OECD Guidelines for the Testing of Chemicals 202(1984) EC50 (Median Effective Concentration): more than 20%

13. Disposal consideration

- WASTE DISPOSAL METHOD

Landfill where permitted under appropriate Federal, State, and local regulations.
Dispose in accordance with all applicable Federal, State, Provincial, and local environmental regulations. Empty containers should be recycled or disposed of through an approved waste management facility.

14. Transport information

Land transport
USDOT
Not classified as a dangerous good under transport regulations

Sea transport
IMDG
Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO
Not classified as a dangerous good under transport regulations

15. Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

· Chemical Safety Assessment: A safety data sheet for this product is legally not required and is provided by us just as a courtesy to our customers. Product is not classified as hazardous.
Chemical Safety Assessment not required

16. Other information

· RECOMMENDED USES AND RESTRICTIONS:

For industry use only.
When processing BIOGENPOL resin after more than 1 year of storage, re-dry before processing.
The shelf life of the products made by ANKOR Bioplastics should be less than 6 months for thin parts (e.g. films and filaments) and less than 1 year for thick parts (e.g. sheet and injection).
Please contact us for products more than 1 year of shelf life.

Numerical values such as content and physical and chemical properties are not guaranteed values. The risk and hazard assessment were made based on the data, information available at this time. However, since not all the data are covered, please handle carefully.