

## Safety Data Sheet

## PLA+HS filament

\*Prepared according to UN GHS (the 10th revised edition)

## 1 Identification

## Product identifier

|                   |                 |
|-------------------|-----------------|
| Product Name      | PLA+HS filament |
| CAS No.           | Not applicable  |
| EC No.            | Not applicable  |
| Molecular Formula | Not applicable  |

## Recommended use of the product and restrictions on use

|                          |                              |
|--------------------------|------------------------------|
| Relevant identified uses | Please consult manufacturer. |
| Uses advised against     | Please consult manufacturer. |

## Details of the supplier

|                        |                                                                                                                           |
|------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Name of the company    | Shenzhen Esun Industrial Co.,Ltd.                                                                                         |
| Address of the company | 15A, Microsoft Ketong Building, No. 55 Gaoxinnan 9th Road, High tech Community, Yuehai Street, Nanshan District, Shenzhen |
| Post code              | 518057                                                                                                                    |
| Telephone number       | +86 755 86393186                                                                                                          |
| Fax number             | +86 755 26031982                                                                                                          |
| E-mail address         | bright@esungroup.net                                                                                                      |

## Emergency phone number

|                        |               |
|------------------------|---------------|
| Emergency phone number | 0755-26031980 |
|------------------------|---------------|

## 2 Hazard(s) identification

## Hazard classification according to GHS

According to GHS system (10th revised edition), not classified as a hazardous chemical.

## GHS Label elements

|                   |                |
|-------------------|----------------|
| Hazard pictograms | Not applicable |
| Signal word       | Not applicable |

## Hazard statements

|                   |                |
|-------------------|----------------|
| Hazard statements | Not applicable |
|-------------------|----------------|

## Precautionary statements

## ◆ Prevention

|            |                |
|------------|----------------|
| Prevention | Not applicable |
|------------|----------------|

## ◆ Response

|          |                |
|----------|----------------|
| Response | Not applicable |
|----------|----------------|

## ◆ Storage

|         |                |
|---------|----------------|
| Storage | Not applicable |
|---------|----------------|

## ◆ Disposal

|          |                |
|----------|----------------|
| Disposal | Not applicable |
|----------|----------------|

## | Hazard description

## ◆ Physical and chemical hazards

|  |                          |
|--|--------------------------|
|  | No information available |
|--|--------------------------|

## ◆ Health hazards

|              |                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|
| Inhaled      | Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.        |
| Ingestion    | Accidental ingestion of the product may be harmful to the health of the individual.                                              |
| Skin Contact | Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. |
| Eye          | This product may cause temporary discomfort following direct contact with the eye.                                               |

## ◆ Environmental hazards

|  |                                      |
|--|--------------------------------------|
|  | Please refer to 12th chapter of SDS. |
|--|--------------------------------------|

## 3 Composition/information on ingredients

## | Substance/mixture

|  |         |
|--|---------|
|  | Mixture |
|--|---------|

| Component                                  | CAS No.     | EC No.    | Concentration (wt, %) |
|--------------------------------------------|-------------|-----------|-----------------------|
| polylactic acid(PLA)                       | 26100-51-6  | -         | 92.1~93.2             |
| Net-polyacrylic-inter-net-p<br>olysiloxane | 143106-82-5 | -         | 5                     |
| Calcium carbonate                          | 471-34-1    | 207-439-9 | 1.8~2.9               |

## 4 First-aid measures

## | Description of first aid measures

|                            |                                                                                                                                                |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| General advice             | Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.                                        |
| Eye contact                | Rinse thoroughly with plenty of water and consult a physician if feel uncomfortable.                                                           |
| Skin contact               | No harm in general situation. First aid is not needed.                                                                                         |
| Ingestion                  | Rinse mouth. Rest.                                                                                                                             |
| Inhalation                 | Fresh air, rest.                                                                                                                               |
| Protecting of first-aiders | Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination. |

## | Most important symptoms/effects, acute and delayed

|   |                                                                                                                                        |
|---|----------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. |
|---|----------------------------------------------------------------------------------------------------------------------------------------|

**Indication of any immediate medical attention and special treatment needed**

|   |                          |
|---|--------------------------|
| 1 | Treat symptomatically.   |
| 2 | Symptoms may be delayed. |

**5 Fire-fighting measures****Extinguishing media**

|                                       |                                                                        |
|---------------------------------------|------------------------------------------------------------------------|
| <b>Suitable extinguishing media</b>   | Use extinguishing media suitable for surrounding area.                 |
| <b>Unsuitable extinguishing media</b> | There is no restriction on the type of extinguisher which may be used. |

**Specific hazards arising from the substance or mixture**

|   |                                                                                   |
|---|-----------------------------------------------------------------------------------|
| 1 | Development of hazardous combustion gases or vapor possible in the event of fire. |
| 2 | May expansion or decompose explosively when heated or involved in fire.           |

**Special protective equipment and precautions for fire-fighters**

|   |                                                                                                                       |
|---|-----------------------------------------------------------------------------------------------------------------------|
| 1 | As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear. |
| 2 | Fight fire from a safe distance, with adequate cover.                                                                 |
| 3 | Prevent fire extinguishing water from contaminating surface water or the ground water system.                         |

**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

|   |                                                                                                                     |
|---|---------------------------------------------------------------------------------------------------------------------|
| 1 | Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges. |
| 2 | Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.                                   |
| 3 | Use personal protective equipment, do not breathe dust/fume.                                                        |

**Environmental precautions**

|   |                                                       |
|---|-------------------------------------------------------|
| 1 | Prevent further leakage or spillage if safe to do so. |
| 2 | Discharge into the environment must be avoided.       |

**Methods and materials for containment and cleaning up**

|   |                                                                                                                                         |
|---|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Cut off the source of the leak as much as possible.                                                                                     |
| 2 | Keep leaks in a ventilated place.                                                                                                       |
| 3 | Isolation of contaminated areas and restrictions on access.                                                                             |
| 4 | It is recommended that emergency personnel wear dust masks.                                                                             |
| 5 | Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak. |
| 6 | Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.                      |

**7 Handling and storage****Precautions for safe handling**

|   |                                                   |
|---|---------------------------------------------------|
| 1 | Handling is performed in a well ventilated place. |
| 2 | Wear suitable protective equipment.               |
| 3 | Avoid contact with skin and eyes.                 |

|   |                                                       |
|---|-------------------------------------------------------|
| 4 | Keep away from heat/sparks/open flames/ hot surfaces. |
|---|-------------------------------------------------------|

### Conditions for safe storage, including any incompatibilities

|   |                                                                  |
|---|------------------------------------------------------------------|
| 1 | Keep containers tightly closed.                                  |
| 2 | Keep containers in a dry, cool and well-ventilated place.        |
| 3 | Keep away from heat/sparks/open flames/hot surfaces.             |
| 4 | Store away from incompatible materials and foodstuff containers. |

## 8 Exposure controls/personal protection

### Control parameters

| Component         | Country/Region  | Limit value - Eight hours |                       | Limit value - Short term |                   |
|-------------------|-----------------|---------------------------|-----------------------|--------------------------|-------------------|
|                   |                 | ppm                       | mg/m <sup>3</sup>     | ppm                      | mg/m <sup>3</sup> |
| Calcium carbonate | Australia       | -                         | 10                    | -                        | -                 |
|                   | Canada - Québec | -                         | 10                    | -                        | -                 |
|                   | France          | -                         | 10(inhalable aerosol) | -                        | -                 |
|                   | New Zealand     | -                         | 10                    | -                        | -                 |
|                   | South Korea     | -                         | 10                    | -                        | -                 |
|                   | Switzerland     | -                         | 3(respirable aerosol) | -                        | -                 |

#### ◆ Biological limit values

|                         |                         |
|-------------------------|-------------------------|
| Biological limit values | No relevant regulations |
|-------------------------|-------------------------|

#### ◆ Monitoring methods

|   |                                                                                                                                                   |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. |
| 2 | GBZ/T 300 series standard Determination of toxic substances in workplace air.                                                                     |

### Engineering controls

|   |                                                                                        |
|---|----------------------------------------------------------------------------------------|
| 1 | Ensure adequate ventilation, especially in confined areas.                             |
| 2 | Ensure that eyewash stations and safety showers are close to the workstation location. |
| 3 | Use explosion-proof electrical/ventilating/lighting/equipment.                         |
| 4 | Set up emergency exit and necessary risk-elimination area.                             |

### Personal protection equipment

|                          |                                                                                                                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General requirement      | No special requirements, please see the description below.                                                                                                                                |
| Eye protection           | In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.                                       |
| Hand protection          | In general situation, hand protection is not needed.                                                                                                                                      |
| Respiratory protection   | In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask. |
| Skin and body protection | In general situation, skin and body protection are not needed.                                                                                                                            |

## 9 Physical and chemical properties

### Physical and chemical properties

|                                             |                                                                              |
|---------------------------------------------|------------------------------------------------------------------------------|
| Physical state                              | Different diameter coiled wires                                              |
| Colour                                      | No information available                                                     |
| Odor                                        | Odorless                                                                     |
| Odor threshold                              | No information available                                                     |
| pH                                          | No information available                                                     |
| Melting point/freezing point(°C)            | 155~175                                                                      |
| Initial boiling point and boiling range(°C) | No information available                                                     |
| Flash point(Closed cup, °C)                 | Not applicable                                                               |
| Evaporation rate                            | Not applicable                                                               |
| Flammability                                | Not flammable, can burn under high temperature or combustion conditions      |
| Upper/lower explosive limits[% (v/v)]       | Upper limit: No information available; Lower limit: No information available |
| Vapor pressure(kPa)                         | Not applicable                                                               |
| Relative vapour density(Air = 1)            | Not applicable                                                               |
| Relative density(Water=1)                   | 1.24                                                                         |
| Solubility(mg/L)                            | Insoluble in water, soluble in organic solvents                              |
| n-octanol/water partition coefficient       | No information available                                                     |
| Auto-ignition temperature(°C)               | No information available                                                     |
| Decomposition temperature(°C)               | >260                                                                         |
| Kinematic viscosity(mm <sup>2</sup> /s)     | Not applicable                                                               |
| Particle characteristics                    | No information available                                                     |

## 10 Stability and reactivity

### Stability and reactivity

|                                    |                                                                                                      |
|------------------------------------|------------------------------------------------------------------------------------------------------|
| Reactivity                         | Contact with incompatible substances can cause decomposition or other chemical reactions.            |
| Chemical stability                 | Stable under proper operation and storage conditions.                                                |
| Possibility of hazardous reactions | No information available.                                                                            |
| Conditions to avoid                | Incompatible materials, heat, flame and spark.                                                       |
| Incompatible materials             | No information available.                                                                            |
| Hazardous decomposition products   | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

## 11 Toxicological information

### Acute toxicity

|                |                          |
|----------------|--------------------------|
| Acute toxicity | No information available |
|----------------|--------------------------|

### Carcinogenicity

| Component                                  | List of carcinogens by the IARC Monographs | Report on Carcinogens by NTP |
|--------------------------------------------|--------------------------------------------|------------------------------|
| polylactic acid(PLA)                       | Not Listed                                 | Not Listed                   |
| Net-polyacrylic-inter-net-p<br>olysiloxane | Not Listed                                 | Not Listed                   |
| Calcium carbonate                          | Not Listed                                 | Not Listed                   |

## Others

| PLA + HS filament             |                                                                  |
|-------------------------------|------------------------------------------------------------------|
| Skin corrosion/irritation     | Based on available data, the classification criteria are not met |
| Serious eye damage/irritation | Based on available data, the classification criteria are not met |
| Skin sensitization            | Based on available data, the classification criteria are not met |
| Respiratory sensitization     | Based on available data, the classification criteria are not met |
| Reproductive toxicity         | Based on available data, the classification criteria are not met |
| STOT-single exposure          | Based on available data, the classification criteria are not met |
| STOT-repeated exposure        | Based on available data, the classification criteria are not met |
| Aspiration hazard             | Based on available data, the classification criteria are not met |
| Germ cell mutagenicity        | Based on available data, the classification criteria are not met |

## 12 Ecological information

### Acute aquatic toxicity

|                        |                          |
|------------------------|--------------------------|
| Acute aquatic toxicity | No information available |
|------------------------|--------------------------|

### Chronic aquatic toxicity

|                          |                          |
|--------------------------|--------------------------|
| Chronic aquatic toxicity | No information available |
|--------------------------|--------------------------|

### Persistence and degradability

|                               |                          |
|-------------------------------|--------------------------|
| Persistence and degradability | No information available |
|-------------------------------|--------------------------|

### Bioaccumulative potential

|                           |                          |
|---------------------------|--------------------------|
| Bioaccumulative potential | No information available |
|---------------------------|--------------------------|

### Mobility in soil

|                  |                          |
|------------------|--------------------------|
| Mobility in soil | No information available |
|------------------|--------------------------|

### Results of PBT and vPvB assessment

| Component                                  | Results of PBT and vPvB assessment [according to (EC) No 1907/2006] |
|--------------------------------------------|---------------------------------------------------------------------|
| polylactic acid(PLA)                       | Insufficient information, temporarily unable to evaluate            |
| Net-polyacrylic-inter-net-p<br>olysiloxane | Insufficient information, temporarily unable to evaluate            |
| Calcium carbonate                          | Not applicable                                                      |

## 13 Disposal considerations

### Disposal considerations

|                 |                                                                                      |
|-----------------|--------------------------------------------------------------------------------------|
| Waste chemicals | Before disposal should refer to the relevant national and local laws and regulation. |
|-----------------|--------------------------------------------------------------------------------------|

|                                 |                                                                                                                                                        |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 | Recommend the use of incineration disposal.                                                                                                            |
| <b>Contaminated packaging</b>   | Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. |
| <b>Disposal recommendations</b> | Refer to section waste chemicals and contaminated packaging.                                                                                           |

## 14 Transport information

### Label and Mark

|                           |                |
|---------------------------|----------------|
| <b>Transporting Label</b> | Not applicable |
|---------------------------|----------------|

### IMDG-CODE

|                  |                                                |
|------------------|------------------------------------------------|
| <b>IMDG-CODE</b> | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|------------------|------------------------------------------------|

### IATA-DGR

|                 |                                                |
|-----------------|------------------------------------------------|
| <b>IATA-DGR</b> | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|-----------------|------------------------------------------------|

### UN-ADR

|               |                                                |
|---------------|------------------------------------------------|
| <b>UN-ADR</b> | NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS |
|---------------|------------------------------------------------|

## 15 Regulatory information

### International chemical inventory

| Component                              | EC inventory | TSCA | DSL | IECSC | NZIoC | PICCS | KECI | AIICS | ENCS |
|----------------------------------------|--------------|------|-----|-------|-------|-------|------|-------|------|
| polylactic acid(PLA)                   | ×            | √    | ×   | ×     | ×     | ×     | √    | ×     | √    |
| Net-polyacrylic-inter-net-polysiloxane | ×            | ×    | √   | √     | √     | √     | √    | √     | ×    |
| Calcium carbonate                      | √            | √    | √   | √     | √     | √     | √    | √     | √    |

|                |                                                               |
|----------------|---------------------------------------------------------------|
| [EC inventory] | European Inventory of Existing Commercial Chemical Substances |
| [TSCA]         | United States Toxic Substances Control Act Inventory          |
| [DSL]          | Canadian Domestic Substances List                             |
| [IECSC]        | China Inventory of Existing Chemical Substances               |
| [NZIoC]        | New Zealand Inventory of Chemicals                            |
| [PICCS]        | Philippines Inventory of Chemicals and Chemical Substances    |
| [KECI]         | Korea Existing Chemicals Inventory                            |
| [AIICS]        | Australian. Inventory of Industrial Chemical (AIICS)          |
| [ENCS]         | Japan Inventory of Existing & New Chemical Substances         |

Note:

|     |                                                           |
|-----|-----------------------------------------------------------|
| “√” | Indicates that the substance included in the regulations. |
| “×” | No data or not included in the regulations.               |

## 16 Other information

### Information on revision

|                            |            |
|----------------------------|------------|
| <b>Creation Date</b>       | 2025/11/01 |
| <b>Revision Date</b>       | -          |
| <b>Reason for revision</b> | -          |

### Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.

- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.chemportal.org/chemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

## Abbreviations and acronyms

|                  |                                      |           |                                                           |
|------------------|--------------------------------------|-----------|-----------------------------------------------------------|
| CAS              | Chemical Abstracts Service           | UN        | The United Nations                                        |
| PC-STEL          | Short term exposure limit            | OECD      | Organization for Economic Co-operation and Development    |
| PC-TWA           | Time Weighted Average                | IMDG-CODE | International Maritime Dangerous Goods CODE               |
| MAC              | Maximum Allowable Concentration      | IARC      | International Agency for Research on Cancer               |
| DNEL             | Derived No Effect Level              | ICAO      | International Civil Aviation Organization                 |
| PNEC             | Predicted No Effect Concentration    | IATA      | International Air Transportation Association              |
| NOEC             | No Observed Effect Concentration     | ACGIH     | American Conference of Governmental Industrial Hygienists |
| LC <sub>50</sub> | Lethal Concentration 50%             | NFPA      | National Fire Protection Association                      |
| LD <sub>50</sub> | Lethal Dose 50%                      | NTP       | National Toxicology Program                               |
| EC <sub>50</sub> | Effective Concentration 50%          | PBT       | Persistent, Bioaccumulative, Toxic                        |
| EC <sub>x</sub>  | Effective Concentration X%           | vPvB      | very Persistent, very Bioaccumulative                     |
| P <sub>ow</sub>  | Partition coefficient Octanol: Water | CMR       | Carcinogens, mutagens or substances toxic to reproduction |
| BCF              | Bioconcentration factor              | RPE       | Respiratory Protective Equipment                          |
| ED               | Endocrine disruptor                  |           |                                                           |

## Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 10th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.