

# HANDAN SHIBO NEW MATERIAL CO.,LTD

## PLA MODIFIED MATERIAL

### TECHNICAL DATA

#### PRODUCT DESCRIPTION

PLA+ raw material is blended and modified by adding toughening agent on the basis of PLA raw material, which is mainly used in the field of 3D printing.

#### TIPICAL APPLICATION

3D printing

#### APPEARANCE

Pellets, 25kg/bag

#### FEATURES AND PROPERTIES

PLA + raw material has the following features:

High rigidity has good fluidity at the same time;

Excellent heat resistance and processing cycle is short;

Excellent resistance to hydrolysis and product stability;

Ultra high toughness.

| Properties                     | Unit              | Test Standard | Data      |
|--------------------------------|-------------------|---------------|-----------|
| Density                        | g/cm <sup>3</sup> | ASTM D-792    | 1.22-1.23 |
| Melt Index (210°C ,<br>2.16kg) | g/10min           | ASTM D-1238   | 4.12      |
| Melt Temperature               | °C                | DSC           | 170-190   |
| Vicat Point A/120              | °C                | ASTM D-648    | 55        |
| Tensile Strength               | MPa               | ASTM D-638    | 61        |
| Flexural Strength              | MPa               | ASTM D-790    | 73        |
| Elongation Break               | %                 | ASTM D-638    | 22        |
| Water Absorption               | %                 | ASTM D-570    | <0.6      |
| Impact Strength                | KJ/m <sup>2</sup> | ASTM D-256    | 8.8       |
| Printing Temperature           | °C                | DSC           | 200-220   |

Note: The above data are typical values and should not be interpreted as technical indicators to determine quality

#### STORAGE

During transportation and storage, the temperature should not exceed 55°C. The product should be stored in a dry, well-ventilated warehouse, pay attention to moisture.

## DRYING PROCESS

It is recommended to test the moisture content of the resin before processing. If the moisture exceeds 0.3%, pre-drying is required. Typical drying conditions: 2-3 hours, 55°C. Before processing, it is recommended to dry in advance to facilitate material processing, the material should be kept sealed before use, and the unused material should be sealed in time after use.

## PRODUCTION EQUIPMENT

The modified PLA+ raw materials can be processed on ordinary machines, and the appropriate processing temperature is the key to get good products.

## CLEANING MACHINE STEPS

The modified PLA+ raw material is incompatible with some petroleum-based materials. If the machine has produced traditional petroleum-based resins, the machine needs to be cleaned before use. In order to clean the machine, please follow the following steps of the cleaning machine:

1. Heat the extruder to the processing temperature of the original resin production;
- 2, with low viscosity, low melting point LDPE cleaning machine, side punching machine side cooling to 150-180 C;
3. Clean up the feeding system to prevent pollution;
4. Add PLA+ raw material to the extruder. After thoroughly removing the residual material with raw material, lower the barrel temperature to the recommended temperature in the following processing parameters;
- 5, when the machine temperature reaches the required temperature, production can be carried out.

## PROCESSING PARAMETERS

Modified PLA+ raw material is sensitive to temperature. At the beginning, ensure that the extruder temperature is as low as possible. If the temperature is too low, the temperature can be adjusted by increasing 5 degrees Celsius each time

### Reference Temperature of Extrusion of Cast Sheet

|                     |           |
|---------------------|-----------|
| Feed Section        | 150-170°C |
| Compression section | 180-200°C |
| Metering section    | 185-205°C |
| Die                 | 180-200°C |