

# Technical Data Sheet

## PLA PROGRAFEN TRANSPATENT

PLA PROGRAFEN TRANSPATENT: an AGP product, is a thermoplastic polymer derived from renewable resources and is specifically designed for use in fresh food packaging and food service-ware applications. PLA PROGRAFEN TRANSPATENT is a general purpose extrusion grade polymer. This is a high molecular weight biopolymer that processes easily on conventional extrusion equipment. Extruded roll stock is readily thermoformable. See table at right for typical properties.

### Typical Material & Application Properties <sup>(1)</sup>

Physical Properties	PLA PROGRAFEN TRANSPATENT	Method
Specific Gravity	1.24	D792
MFR, g/10 min (230°C, 2.16kg)	20.5	ISO 1133
Color	Transparent	
Mechanical Properties		
Tensile Strength, MPa	50	ISO 527
Tensile Modulus, GPa	2.7	ISO 527
Elongation at break, %	4.7	ISO 527
Impact Strength, kJ/m <sup>2</sup>	2.75	ISO 179
Shrinkage is similar to PET		

(1) Typical properties; not to be construed as specifications.

### Applications

Potential applications for PLA PROGRAFEN TRANSPATENT include:

- Prototype 3D models
- Toys
- Construction elements
- Every-day-use items

### Processing Information

PLA PROGRAFEN TRANSPATENT is easily processed on conventional printing equipment. The material is stable in the filament state, provided that it is being stored in a dry environment.

### Process Details

#### Preparation for printing

Before printing following steps must be taken:

1. **Load filament into extruder head:** Is very important to heat up extruder before printing (optimal extruder temperature are 190-210 °C). When extruder reach set temperature insert filament int the way approved by 3D Printer manufacturer.
2. **Level up printing table and turn up its heating** (optimal printing table temperatures for PLA are 20-60 °C)
3. **Upload previously prepared 3D model into 3D Printer controller**
4. **Printing may be started**

### Processing Temperature Profile

Extruder Head Temperature	192-208°C	377-406°F
Printing table Temperature	20-60°C	68-140°F
Printing speed	30-60 mm/s	
Post-treatment	Painting	
Base	Glass, masking tape	

(1) These are starting points and may need to be optimized.

### Storage

In order to maintain the highest possible quality of the printout, care should be taken to properly protect the filament against moisture. The filament should be stored in a cool, dry and shaded place. In case of problems with too high humidity, drying agents can be used, which should be placed in the filament packaging. The original packaging maintains optimal humidity and temperature of the filament.

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## **Safety and Handling Considerations**

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Safety Data Sheets (SDS) for PLA PROGRAFEN TRANSPARENT are available at <https://prografen.com/>. SDS's are provided to help customers satisfy their own handling, safety, and disposal needs, and those that may be required by locally applicable health and safety regulations. SDS's are updated regularly; therefore, please request and review the most current SDS's before handling or using any product.

### **Hazards and Handling Precautions**

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PLA biopolymers have a very low degree of toxicity and, under normal conditions of use, should pose no unusual problems from incidental ingestion or eye and skin contact. However, caution is advised when handling, storing, using, or disposing of these resins, and good housekeeping and controlling of dusts are necessary for safe handling of product. Pellets or beads may present a slipping hazard.

No other precautions other than clean, body-covering clothing should be needed for handling PLA biopolymers. Use gloves with insulation for thermal protection when exposure to the melt is localized. Workers should be protected from the possibility of contact with molten resin during fabrication.

Handling and fabrication of resins can result in the generation of vapors and dusts that may cause irritation to eyes and the upper respiratory tract. In dusty atmospheres, use an approved dust respirator.

Good general ventilation of the polymer processing area is recommended. At temperatures exceeding the polymer melt temperature (typically 175°C), polymer can release fumes, which may contain fragments of the polymer, creating a potential to irritate eyes and mucous membranes. Good general ventilation should be sufficient for most conditions. Local exhaust ventilation is recommended for melt operations. Use safety glasses (or goggles) to prevent exposure to particles, which could cause mechanical injury to the eye. If vapor exposure causes eye discomfort, improve localized fume exhausting methods or use a full-face respirator.

### **Combustibility**

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PLA biopolymers will burn. Clear to white smoke is produced when product burns. Toxic fumes are released under conditions of incomplete combustion. Do not permit dust to accumulate. Dust layers can be ignited by spontaneous combustion or other ignition sources. When suspended in air, dust can pose an explosion hazard.

Firefighters should wear positive-pressure, self-contained breathing apparatuses and full protective equipment. Water or water fog is the preferred extinguishing medium. Foam, alcohol-resistant foam, carbon dioxide or dry chemicals may also be used. Soak thoroughly with water to cool and prevent re-ignition.

## **Disposal**

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DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. For unused or uncontaminated material, the preferred option is to recycle into the process otherwise, send to an incinerator or other thermal destruction device. For used or contaminated material, the disposal options remain the same, although additional evaluation is required. Disposal must be in compliance with Federal, State/Provincial, and local laws and regulations.

## **Environmental Concerns**

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Due to its chemical composition, PLA does not pose a threat to the environment. Nevertheless, plastics should be disposed of in appropriately labeled containers.

## **Product Stewardship**

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AGP has a fundamental duty to all those that use our products, and for the environment in which we live. This duty is the basis for our Product Stewardship philosophy, by which we assess the health and environmental information on our products and their intended use, and then take appropriate steps to protect the environment and the health of our employees and the public.

## **Customer Notice**

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AGP encourages its customers and potential users of its products to review their applications from the standpoint of human health and environmental quality. To help ensure our products are not used in ways for which they were not intended or tested, our personnel will assist customers in dealing with ecological and product safety considerations. Your sales representative can arrange the proper contacts. AGP literature should be consulted prior to the use of the company's products.

## **PLA PROGRAFEN TRANSPARENT Technical Data Sheet**

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