

# Technical Data Sheet

## PET-G PROGRAFEN TRANSPARENT

PET-G PROGRAFEN TRANSPARENT: an AGP product, is a thermoplastic. PET-G PROGRAFEN TRANSPARENT is a general purpose extrusion grade polymer. This is a high molecular weight polymer grade that processes easily on conventional extrusion equipment. Extruded roll stock is readily thermoformable. See table at right for typical properties.

### Applications

Potential applications for PET-G PROGRAFEN TRANSPARENT include:

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

### Processing Information

PET-G PROGRAFEN TRANSPARENT 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 200-250 °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 PET-G are 55-60 °C)
3. **Upload previously prepared 3D model into 3D Printer controller**
4. **Printing may be started**

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

| Physical Properties                | PET-G PROGRAFEN TRANSPARENT | Method   |
|------------------------------------|-----------------------------|----------|
| Specific Gravity                   | 1.29                        | D792     |
| MFR, g/10 min (230°C, 2.16kg)      | 10                          | ISO 1133 |
| Color                              | Transparent                 |          |
| Mechanical Properties              |                             |          |
| Tensile Strength, MPa              | 44                          | ISO 527  |
| Tensile Modulus, GPa               | 1.8                         | ISO 527  |
| Elongation at break, %             | 5.6                         | ISO 527  |
| Impact Strength, kJ/m <sup>2</sup> | 3.2                         | ISO 179  |
| Suitable for contact with food     | YES                         |          |

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

### Processing Temperature Profile

|                            |                     |           |
|----------------------------|---------------------|-----------|
| Extruder Head Temperature  | 200-250°C           | 392-482°F |
| Printing table Temperature | 55-60°C             | 122-140°F |
| Printing speed             | <100 mm/s           |           |
| Post-treatment             | Painting, smoothing |           |
| 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.

## **Safety and Handling Considerations**

---

Safety Data Sheets (SDS) for PET-G 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**

---

PET-G polymers 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 PET-G polymers. 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**

---

PET-G polymers 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**

---

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**

---

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

## **Product Stewardship**

---

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**

---

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.

## **PET-G PROGRAFEN TRANSPARENT Technical Data Sheet**

### **NOTICE:**

No freedom from infringement of any patent owned by AGP or others is to be inferred. No information in this publication can be considered a suggestion to infringe patents.

The technical information, recommendations and other statements contained in this document are based upon tests or experience that AGP believes are reliable, but the accuracy or completeness of such information is not guaranteed. Many factors beyond AGP control can affect the use and performance of a AGP product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge or control, it is essential that the user evaluate the AGP product to determine whether it is fit for a particular purpose and suitable for the user's method of application. In addition, because use conditions are outside of AGP control and applicable laws may differ from one location to another and may change with time, Customer is solely responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace, use and disposal practices are in compliance with applicable laws and regulations. AGP assumes no obligation or liability for the information in this document.

AGP MAKES NO WARRANTY, EXPRESS OR IMPLIED, REGARDING THE INFORMATION CONTAINED HEREIN OR ITS PRODUCTS, INCLUDING BUT NOT LIMITED TO ANY WARRANTY AS TO ACCURACY OR COMPLETENESS OF INFORMATION, OR ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

**NOTICE REGARDING PROHIBITED USE RESTRICTIONS:** Unless specifically agreed to in writing by AGP, AGP will not knowingly sell or sample any product into any of the following commercial or developmental applications (i) components of or packaging for tobacco products, (ii) components of products intended for human or animal consumption, (iii) any application that is intended for any internal contact with human body fluids or body tissues, (iv) as a critical component in any medical device that supports or sustains human life, (v) in any product that is designed specifically for ingestion or internal use by pregnant women, (vi) in any application designed specifically to promote or interfere with human reproduction, (vii) in microbeads, including those used in personal care/cosmetic applications, or (viii) to manufacture bottles or bottle pre-forms in North America.

For additional information please contact AGP.

