



taulman3D,LLC

Material Safety Data Sheet

PETG (TECH-G)

1.75mm dia and 3mm dia

Round

Clear, Red, Green, Blue, Black 3D Printing material

Prepared June 11 2015

Added FDA Compliance information July 23 2015



MSDS for TECH-G (PETG)

taulman3D,LLC St Louis, MO.



Product and Company:

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Identification:

Generic Name: PETG
Chemical Name: Copolyester
Molecular Formula: N/A
Molecular Weight: N/A

Specific use:

Mono Filament for FFF 3D Printing

Product Classification:

PET Copolyester

Composition of Ingredients

There is NO chemical present in this product at a concentration of 0.1% or more classified as a carcinogen by IARC, NTP or OSHA

Physical Properties

Melting Point: 446 F (220 C)
Appearance: Colorless
Specific Gravity: 1.27 / 23°C
Tg: >76C
Base polymer Proprietary
Water Solubility: N/A
Odor: No noticeable odor
Percent Volatiles: Nil

HAZARDOUS MIXTURES

taulman3D PETG are thermoplastic resins. In the solid state, they are not hazardous. During processing when converted to the molten state, normal precautions for the handling of hot, sticky, fluid melts should be observed.



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Fire Data:

Flash Point: N.A. LEL: N.A. UEL: N.A.

Extinguishing Media: Water, Foam, Carbon Dioxide, Dry Chemical.

Unusual Fire and Explosion Hazards: Smoke and noxious gases (carbon monoxide, hydrocarbons) evolved upon burning.

Special Fire Fighting Procedures: Self-contained breathing apparatus in any closed space.

Health Hazard Data:

Threshold Limit Value: N.A.

Effects of Overexposure:

Ingestion (Swallowing): Low Toxicity, not a probable route of exposure.

Emergency and First Aid Procedures:

Eye Contact: Flush with water for approximately 15 minutes.

Skin Contact: Mechanical or thermal (molten state only) - flush with cool water immediately.

Dermatitis (dust only) - flush with water. Seek medical attention if severe reaction occurs.

Reactivity Data:

Stability: Stable.

Incompatibility (Materials to Avoid): None known.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Temperatures over 550°F may result in thermal decomposition.

Spill or Leak Procedures:

Steps to be Taken in Case Material is Released or Spilled: Sweep up and discard.

Waste Disposal Method: Landfill in accordance with local, state and federal laws.

Special Personnel Protection Information:

Respiratory Protection: None required.

Ventilation : Good room ventilation.

Protective Gloves: Required if contact with molten material or newly molded polymer parts.

Eye Protection: Safety glasses for good work practices when dealing with molten material.

Other Protective Equipment: Clean work clothing.

This Material Safety Data Sheet (MSDS) is presented in good faith, based on currently available information, and is accurate to the best of our knowledge. It does not replace the precautions, directions and information contained on the product label. The user is solely responsible for: 1) following all instructions, recommendations and directions; 2) deciding whether this product or the information about this product is suitable for its use; 3) providing this MSDS.



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FDA Compliance

Regulatory Information:

Under regulations administered by the U. S. Food and Drug Administration (FDA),), "TECH-G" (taulman3D tg1 and tg3) Copolyester may lawfully be used as articles or components of articles intended for use in contact with food subject to provisions of 21 CFR 177.1315 and 21 CFR 174.

"TECH-G" Copolyester, as supplied to TAULMAN3D, LLC, complies with the compositional and inherent viscosity requirements of the FDA regulations at 21 CFR 177.1315 (b)(1). The specifications of 21 CFR 177.1315(b)(1) clear the following conditions of use for non-oriented copolymers: hot-fill temperatures not to exceed 180°F (82.2°C) for contact with foods including foods containing up to 25% aqueous alcohol by volume, excluding carbonated beverages and beer; storage temperatures not to exceed 120°F (48.9°C); and, no thermal treatment in container. It is the responsibility of our customers to determine that their use of our product(s) is safe, lawful, and technically suitable in their intended applications. Because of possible changes in the law and in regulations, as well as possible changes in our products, we cannot guarantee that the status of this product will remain unchanged. We, therefore, recommend that customers continuing to use this product verify its status no less frequently than two years from the date of this publication. For additional as to chemical resistance and general usage, please contact TAULMAN3D, LLC directly.

NOTE: The material as supplied is compliant. All customers should be aware that the act of using this product to 3D Print another article/part/item takes on all of the modifications, additives and environmental contaminants normally associated with the act of 3D Printing. While the FDA has not made judgment on the use of parts 3D Printed with polymers of FDA compliance, we strongly suggest the following as a minimum in the process chain:

1. The use of Stainless Steel Nozzles: - The printing temperature required by TECH-G (238C) is such as to insure the nozzle is sterile. A Stainless Steel Nozzle will insure that no lead is leached out as Stainless Steel Nozzles do not contain lead that Brass Nozzles contain.

2. Surface Wiping: - While the act of extruding TECH-G will raise it's temperature to a minimum of 238C, the path of the material into the melt zone and just prior leave the



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material exposed to the environment. As TECH-G can take on an electrostatic charge in dry environments, you should make sure that the material passes through a sponge/cloth section under sufficient compression to "wipe" particles that may get electrostatically attracted/attached to the raw material.

3. Finished Part Cleaning: - TECH-G has a Tg of 76C, thus it is **not** dishwasher safe. Before a part is used for direct food or beverage contact, at a minimum it should be washed by hand in hot water using a dishwashing detergent specifically for dishes and eating utensils.

4. Used Part Cleaning: - TECH-G has a Tg of 76C, thus it is **not** dishwasher safe. In addition, the act of 3D Printing a utensil will create a part with hundreds of tiny crevices. As these are places bacteria can reside, again at a minimum parts should be washed by hand in hot water using a dishwashing detergent specifically for dishes and eating utensils.

If no such detergent is available, the item can be sanitized by submerging in a water/disinfectant solution with an **ORP** of 800mv minimum for 10 min.

4a. Used Part Inspection: - TECH-G is a transparent material. Even when printed in several layers, a part can be placed over a light and non-clear residue is detectable. If residue can not be washed off and the part cleaned, then the part/utensil should be disposed of.

5. 3D Printing Environment: - At a minimum we suggest that the area where utensils will be created be clear of debris and have active ventilation with clean filters. The motion components of 3D Printers, belts, lead screws, pulleys, motors, bearings, etc., should be sanitized and all contaminants vacuumed. Any moving component that can wear and drop contaminants onto the printed part should have covers to keep them from doing so. If "tapes" are used on printing surfaces, the part should not contact any seams between strips of tape.

6. Utensil Source Acknowledgment: - When providing a 3D Printed part/utensil/eating or drinking component to anyone not directly involved in the creation and production of the said part/utensil/eating or drinking component, the operator/provider **is required to alert the receiver that the part/utensil/eating or drinking component has been 3D Printed.** In addition, the receiver should be supplied with **or** may request a detailed report as to the following:

- a. Materials used including MSDS
- b. The location where the part was created/printed/
- c. The time/date of printing.
- d. Details of post-cleaning of the part/utensil/eating or drinking component.

7. Tractability: - While not a requirement, best practices would dictate a unique provider's "MARK" to denote the source. Because 3D Printed items are derived from digital CAD or 3D Files, the same or similar part can come from any one of thousands of



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sources/3D Printers. The provider can narrow the source by applying a "MARK" during or post part printing.

8. **EOL - End-of-Life Utensil:** - Any part/utensil/eating or drinking component that over time takes on a cloudy appearance or lack of transparency should be disposed of.



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