



EVOLV3D™ USM Universal Support Material

Introduction

EVOLV3D™ USM overcomes limitations of other support materials through its compatibility with a broad array of popular build materials, a broader print temperature range, easy removal through tap water dissolution at room temperature, and safer disposal of the solution. These features significantly increase the design space for additive manufacturing innovators to build complex and functional parts with an array of materials that may have previously been impossible. 3D printing is often done outside of industrial settings (homes and offices) by users who may not have chemical handling training. As a non-hazardous material that does not use harsh reagents or generate harmful waste, EVOLV3D USM reduces handling concerns and meets environmental requirements.

Application

- Support material for 3D printing

Sustainable Features

- Universal - Works with a broad array of popular build materials
- Cost-efficient - No need to stock multiple support materials
- Easy to remove - Dissolves in tap water at room temperature
- Safer to handle - No harsh chemicals needed for clean-up
- Can be washed down the drain

Recommended Print Conditions

- Print Head Temperature Range 165 °C to 250 °C
- Bed Temperature 20 °C to 70 °C

Compatible Build Materials

Compatible Build Materials	
Acrylonitrile butadiene styrene (ABS)	Thermoplastic polyurethane (TPU)
Polylactic Acid (PLA)	Thermoplastic elastomer (TPE)
Polyethylene terephthalate (PET)	Nylon 6,6
Nylon 12	Alloy Nylon
Liquid Silicone Rubber (LSR)	

Storage and Handling

EVOLV3D™ Universal Support Material (USM) has a high affinity to water, allowing it to easily dissolve in tap water after printing. However, this also means the filament is susceptible to moisture when stored. Below are some best practices to help maintain the product's performance over its lifetime.

Store EVOLV3D USM Filament in Moisture-Free Containers

In high-humidity environments, EVOLV3D USM may pick up moisture from the air, which can cause issues during the printing process. The filament comes with moisture-barrier packaging to prevent this during transportation. Once the package is opened, store EVOLV3D USM spools in air-tight containers with multiple desiccant packets to maintain a low-humidity environment.

Drying EVOLV3D USM Filament Before Printing

When EVOLV3D USM has been exposed to high humidity, drying it before printing is recommended. The filament can be dried at room temperature in approximately six (6) hours. This is done by placing it in an airtight container along with multiple desiccant packets. For faster drying, place the EVOLV3D USM in an airtight container with multiple desiccant packets and place the container in an oven. Heat the filament to 50°C. This reduces drying time to approximately two (2) hours.

Continuous Feed-Dry Devices

For best results, a continuous feed-dry device is recommended when using EVOLV3D USM to help keep the filament dry during the printing process.

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