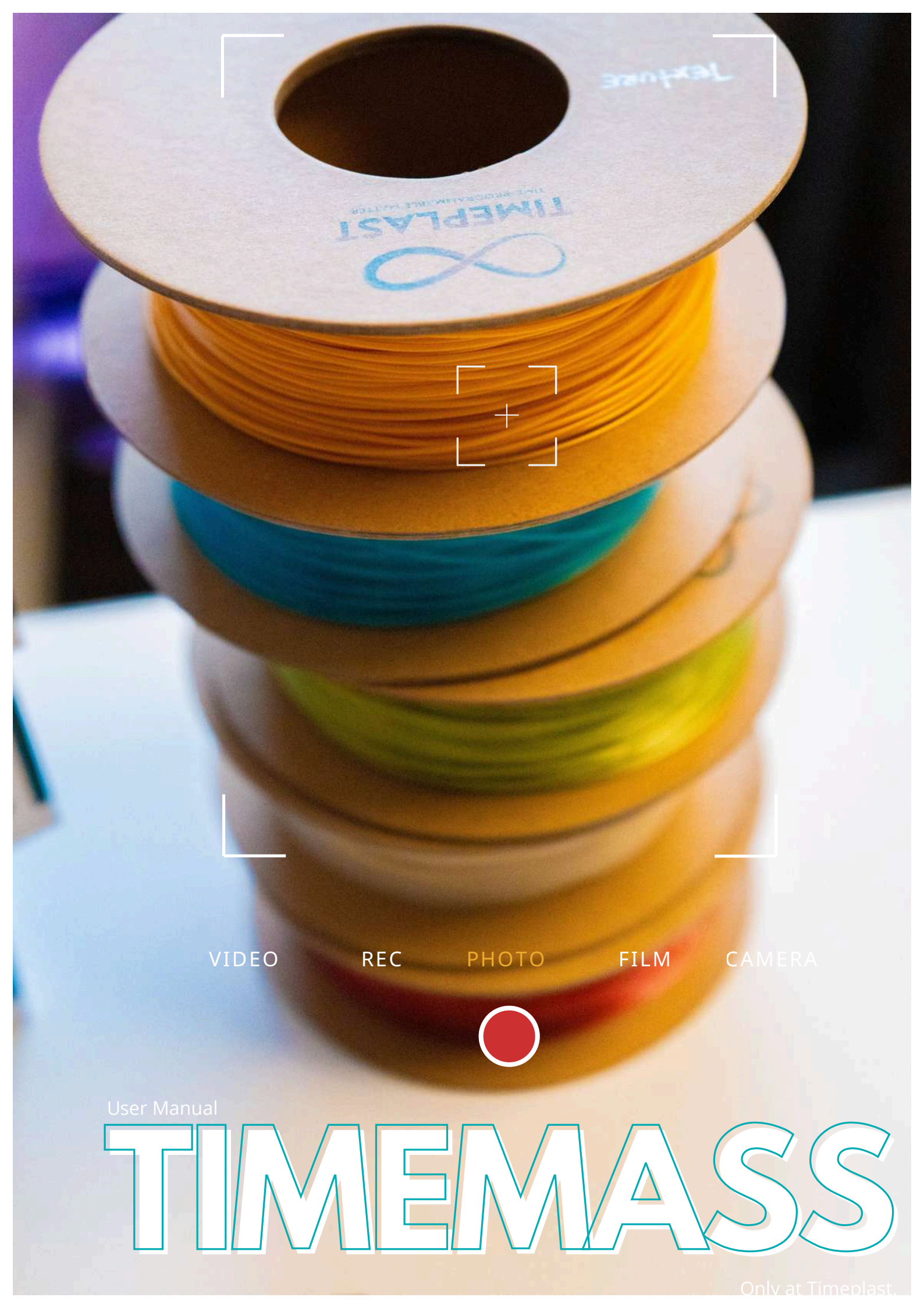




TIMEPLAST
THE PROGRAMMABLE FILTER
Texture

VIDEO

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PHOTO

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CAMERA



User Manual

TIMEMASS

Only at Timeplast.

05

FROM THE CEO

Welcome to Timeplast 3D
Printing

06

Introduction to TimeMass

08

TimeMass: Plant Vitamin

14

TimeMass: Soap Gen 5

20

TimeMass: Stick
and Glow

26

TimeMass: Fire

33

TimeMass: Light

39

TimeMass: Flex

44

TimeMass: Active

49

TimeMass: Passive

51

TimeMass: Support

56

TimeMass: Texture

61

TimeMass: Fiber

65

TimeMass: Metal Surface

Table of Contents

71

TimeMass: Ball

77

TimeMass: Wear

83

TimeMass: Microwave

89

TimeMass: Urn

94

TimeMass: Reflect and Glow

100

TimeMass: Sublimation

105

TimeMass: Paper Surface

110

TimeMass: Hydro Gel

115

TimeMass: Cinnamon

120

TimeMass: Stick, Spark & Glow

125

TimeMass: Antibacterial

130

TimeMass: Fish Food

135

TimeMass: Antibacterial

Soap Gen 2

140

TimeMass: Bug Killer

145

TimeMass: Bug Attractor

150

TimeMass: Toilet Color

155

TimeMass: Fish Bait

160

TimeMass: Vinegar

165

TimeMass: Sugar

170

TimeMass: Fungi Food

175

TimeMass: UV Reveal

180

TimeMass: Thermochromatic

185

TimeMass: Passive cooling

190

TimeMass: Glowing Plant Vitamin

195

TimeMass: Cinnamon Soap

FROM THE CEO

Welcome to Timeplast 3D Printing

Thank you for choosing Timeplast's innovative 3D printing filament. I'm Manuel Rendon, founder & CEO of Timeplast, and I'm excited to introduce you to the future of manufacturing with Time-Mass 4D filament.

With Time-Mass, you will be embedding the dimension of **time** in your three dimensional prints. Our filament offers unparalleled versatility, dissolving at a pre-programmed time to align with your needs.

By choosing Time-Mass, you're advancing your 3D printing capabilities and contributing to a sustainable, microplastic-free future.

We look forward to seeing your creations.



Best regards,
Manuel Rendon
CEO, Timeplast





A PRODUCT BY TIMEPLAST AND STRING CUBED

The First 4D Printing Filament: Soluble, Flexible, Smart.

- No toxic fumes when printing.
- High molecular weight filaments for exceptional print definition.
- Compatible with any FDM 3D printer.
- Prints 2x faster than TPU. Works with AMS systems that pull, but not with push AMS systems like Bambu Lab's (manual filament swap recommended).
- Eco-friendly packaging: 100% recycled cardboard, plastic-free.
- Made in the **USA**.



Multiple dissolution times & special properties:

- **Soap Gen 4** - Now with bubbles.
- **Plant Vitamin** - Growth, Layer by Layer
- **Stick and Glow** - A Guiding Light, Whenever You Need It
- **Fire Gen 2** - Controlled combustion filament for safe 3D- printed burning applications.
- **Light** - The illumination 3D filament
- **Flex - TPU Like** - Same flexibility as TPU, but water-soluble.
- **Active** - Dissolves in minutes to hours.
- **Passive** - Dissolves in months to years.
- **Support** - Flexible yet soluble for clean removal
- **Texture** - Post adhere any texture
- **Fiber - Sacrificial polymer** for soft, fabric-like 3D prints.
- **Metal Surface** - Printing Real Metal Without Metal.
- **Ball** - The Rebound Filament
- **Wear** - The Future of 4D-Printed Fashion & Function.
- **Microwave** - Simulate 1000 years in 1 minute.
- **Urn** - A Meaningful Farewell, A Lasting Tribute.
- **Reflect and Glow** - Visibility That Never Fades.
- **Sublimation** - The filament that vanishes.
- **Paper Surface** - The Art of Printing, The Feel of Paper.
- **Hydro Gel** - Print. Soak. Transform.
- **Cinnamon** - Scent meets function. And it's all natural.
- **Stick, Spark & Glow** - Shine. Reflect. Dazzle.
- **Antibacterial** - Built-in immunity, powered by science.
- **Fish Food** - Feed. Play. Repeat.
- **Antibacterial Soap Gen 2** - Clean hands. Clean surfaces. Clean tech.
- **Bug Killer** - No poison. No smell. Just mechanical insect control.
- **Bug Attractor** - From ant trails to fly swarms, this filament brings the bugs to you.
- **Toilet Color** - Looks clean. Is clean.
- **Fish Bait** - Print. Cast. Catch. No mess left behind.
- **Vinegar** - Clean with nature's oldest solvent.
- **Sugar** - Sweet science.
- **Fungi Food** - Grow your mycelial empire—one layer at a time.
- **UV Reveal** - Plain by day. Purple by blacklight.
- **Thermochromatic** - Color = condition. Let your prints communicate.
- **Passive Cooling** - No fans. No circuits. Just dip in water and get chemical-powered cooling.

TimeMass: Plant Vitamin

What is our Plant Vitamin filament?

Imagine 3D-printed objects that don't just sit in the soil—they **nourish it**. **TimeMass - Plant Vitamin** is a **nutrient-rich, water-retaining filament** designed to **release essential elements** for plant growth **over time**. With a carefully engineered blend of **carbon (C), nitrogen (N), phosphorus (P), and sulfur (S)**—all fundamental to healthy plant development—this filament enables **custom-printed, slow-release fertilizers** that integrate seamlessly into natural ecosystems.

Smart Nutrition for Plants, Precision Control for Growers

Water-Activated Nutrient Delivery – The **hydrophilic polymer matrix** absorbs moisture and **dissolves gradually**, ensuring a **steady release of nutrients** instead of a single burst that can wash away with rain or irrigation.

Sustained Soil Enrichment – Unlike conventional fertilizers that **leach into the environment**, **TimeMass - Plant Vitamin** provides **targeted, long-lasting nourishment** where it's needed most.

Water-Powered Analog Computing for Growth – By strategically designing **TimeMass - Plant Vitamin** into a **pod-like structure**, it can function as an **analog biological computer**—where **water acts as the battery**. As moisture is absorbed, the pod **triggers the controlled release of nutrients at precise intervals**, ensuring plants get what they need, when they need it, without external power or sensors.

Revolutionizing Agriculture & Sustainability

- **Home Gardening & Hydroponics** – Print **customized plant stakes, seed pods, or soil enhancers** that double as nutrient sources for houseplants, vegetable gardens, and hydroponic setups.
- **Precision Farming & Soil Restoration** – Design **root-zone nutrient diffusers**, preventing fertilizer runoff while **enhancing crop yield and soil quality**.
- **Eco-Friendly Reforestation** – Create **biodegradable seed capsules** that decompose **at the perfect rate**, ensuring new plants receive gradual, essential nourishment as they establish roots.
- **Smart Planters & Irrigation Aids** – Print **self-feeding pots, watering spikes, or tree protectors** that integrate slow-release fertilization with water retention for optimized plant health.
- **Sustainable Growth Solutions** – Reduce chemical waste, minimize over-fertilization, and **transform 3D printing into a force for regenerative agriculture**.
- **Nature-Driven Automation** – By leveraging the **self-regulating power of water absorption**, **TimeMass - Plant Vitamin** **turns passive printed objects into functional, nature-powered devices, mimicking biological intelligence** without electronics.

A New Era of 3D-Printed Plant Care

With **TimeMass - Plant Vitamin**, every printed design has the potential to **give back to nature**. Whether used for **home gardens, large-scale agriculture, or reforestation projects**, this filament merges **innovation with ecology**, allowing growers to **print the future of sustainable farming—one layer at a time**.

For those who believe in **nurturing both plants and the planet**, **TimeMass - Plant Vitamin** transforms 3D printing into a **tool for growth—and a system of natural intelligence**.

TimeMass Plant Vitamin Filament Nutrient Guide

TimeMass Plant Vitamin filament integrates premium fertilizers into our unique Timeplast Plus matrix, optimized to support robust plant growth in an innovative and sustainable way.

Comprehensive Nutrient Breakdown (per 350g spool):

- **Nitrogen (N):** 10.8 g – vital for foliage growth and chlorophyll production.
- **Phosphate (P_2O_5):** 8.4 g – essential for root development, flower formation, and energy transfer.
- **Potash (K_2O):** 6.8 g – improves plant vigor, resistance to diseases, and overall health.
- **Calcium (Ca):** 2.4 g – strengthens plant cell walls and improves nutrient uptake.
- **Magnesium (Mg):** 0.8 g – critical component of chlorophyll aiding in photosynthesis.

Core Material Composition:

- **Structured Water:** 70% – ensures optimal moisture retention and nutrient solubility, significantly enhancing nutrient availability and ease of uptake by plants.
- **Calcium Carbonate:** 20% – provides structural integrity to the filament and supplies additional calcium essential for plant cell structure and growth.

Nutrient Release Considerations:

- **Gradual Release:** Nutrients embedded within TimeMass Plant Vitamin filament are released gradually as the filament dissolves, providing sustained nutrition to plants over time.
- **Water Solubility:** The structured water within Timeplast Plus ensures efficient nutrient release, maximizing uptake efficiency.

Environmental Impact:

- **Reduced Leaching:** Nutrients are encapsulated and released slowly, minimizing runoff and environmental contamination.
- **Sustainable Design:** Our filament leverages sustainable, biodegradable Timeplast Plus, reducing plastic pollution and supporting environmental responsibility.

Usage Recommendations:

- Ideal for urban gardening, vertical farming, hydroponic systems, mass reforestation efforts, and traditional gardening setups.
- Optimize filament use by monitoring plant response and adjusting print size or fertilizer concentration accordingly.

What to print?

- **Self-fertilizing plant pots and holders**, eliminating the need for chemical fertilizers.
- **Water-dispersible nutrient discs** that can be buried in soil for controlled nutrient release.
- **Eco-friendly seedling trays** that break down naturally, enriching the soil.
- **Hydroponic nutrient carriers**, improving plant growth in water-based systems.
- **Custom garden markers**, serving both as labels and soil enhancers.

How to print with TimeMass: Plant Vitamin?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Plant Vitamin**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Plant Vitamin, as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

Time-Mass Soap Gen 5 - TimeMass Soap Gen 5 - Now with 50% more bubbles and 20% higher print stability.

TimeMass Soap Gen 5 is the world's first truly 3D-printable soap that not only cleans like a lab-engineered miracle—it actually foams. Yes. You read that right. We finally cracked the code.

Built from water, calcium carbonate, in-house polymerized alcohols, olive oil, essential oils, and a balanced mix of surfactants and emulsifiers (Coco-Glucoside and Glyceryl Stearate), this filament is part soap, part science experiment, part victory lap.

With Gen 5, we stabilized the chemistry to unleash full surfactant performance without compromising printability. The result: a bar of soap that prints like butter, foams like a show-off, and still lasts 10x longer than whatever you're buying in a box store.

What's Inside:

- Water + Alcohol – Gives it print flexibility, then hardens post-print like it means business.
- Calcium Carbonate – For that gentle grit you didn't know you loved (also in toothpaste).
- Surfactants & Emulsifiers – Now optimized to actually lather, not just clean in silence.
- Olive Oil – Moisturizing, luxurious, Mediterranean-approved.
- Essential Oils – Fragrance, antimicrobial power, and optional spa vibes.

New in Gen 5: Bubbles. Real Ones.

After years of foam denial, we said, "Fine, let's give the people what they want."

And now? Lather. Suds. Foamy satisfaction.

It's still smart. Still efficient. Still weird. Just now... it's bubbly too.

Use It Like a Mad Soap Alchemist:

- Print your own soaps. Pause mid-print to inject oils, moisturizers, exfoliants—or secrets.
- Embed capsules or time-release additives.
- Sculpt messages into your soap. (Post-apocalyptic love notes, maybe?)

Why It Rules:

- Cleans with actual foam (finally).
- Printable on any basic 3D printer.
- Reusable, regenerative, long-lasting.
- Customizable with whatever wild scent profile you dream up.
- Electrostatically attracts and removes dirt and grease like a polite molecular hitman.

TimeMass Soap Gen 5:

For people who love soap science, hate waste, and secretly always wanted a 3D printer that could make bath products. We did what the skeptics said was impossible.

Now go print something that lathers.

Safety tip: Don't go wild with undiluted essential oils. They're called "concentrated" for a reason. Use responsibly.



What to print?

- **Customizable soap bars:** Print unique shapes, names, or patterns directly into soap for personalized hygiene products.
- **Travel soaps:** Lightweight, small, and easily biodegradable soaps for eco-conscious travel.
- **Medical or hygiene applications:** Print custom ergonomic soap bars for people with disabilities.
- **Educational tools:** Teach kids about 3D printing and chemistry by letting them design and use their own soap bars.
- **Novel marketing items:** Businesses could print logo-shaped soap bars as promotional gifts.



How to print with TimeMass: Soap?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Soap**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Soap as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Stick and Glow

What is our Stick And Glow filament?

In the quiet of night, a guiding glow can bring both comfort and clarity—whether lighting a child's way to their bedside, marking essential items in an emergency, or creating an artistic luminescent design in a living space. TimeMass - Stick & Glow is a self-adhering, long-lasting luminescent filament, designed to function as a repositionable, analog night guide for both practical and creative applications.

Versatile & Intelligent Design

Unlike traditional glow-in-the-dark materials that require adhesives or permanent installation, TimeMass - Stick & Glow features a water-activated adhesive layer that allows it to cling seamlessly to walls, ceilings, and objects. A simple mist of water transforms it from a standard filament into a dynamic, repositionable glowing marker—no glue, no mess, just instant adhesion to smooth or textured surfaces.

Endless Applications for Everyday Life

- **Nighttime Safety & Accessibility** – Create glowing paths to guide loved ones through dark hallways, staircases, or doorways—ideal for children, seniors, or emergency situations.
- **Smart Home Enhancements** – Illuminate light switches, remote controls, or key areas in a power outage, ensuring visibility without harsh electric lights.
- **Artistic & Creative Expression** – Use it for glow murals, starry ceilings, or interactive room designs, making bedrooms, gaming rooms, or event spaces come alive at night.
- **Automotive & Outdoor Utility** – Apply to bike helmets, camping gear, or car interiors for safety and visibility in low-light conditions.
- **Sustainable & Energy-Free Lighting** – Reduce electricity use by leveraging its natural light absorption, powered by a rare-earth phosphorescent blend designed for extended glow performance.

A Glow That Moves With You

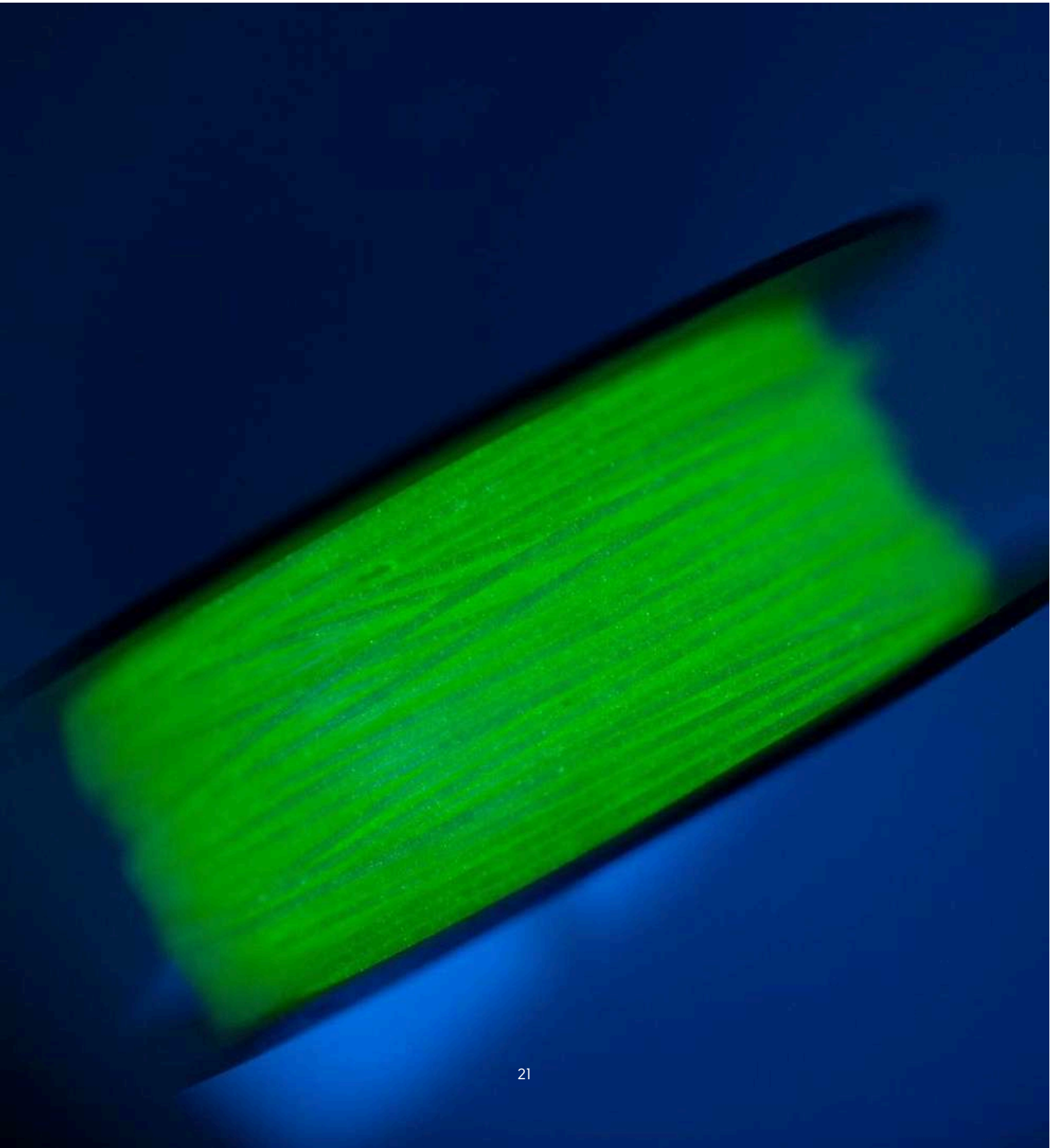
What makes TimeMass - Stick & Glow truly unique is its ability to be repositioned and reused. Unlike adhesive tapes or permanent glow fixtures, this filament allows you to adjust and repurpose your glow designs effortlessly—stick it, move it, and let it shine wherever needed.

For those who seek innovation, functionality, and creativity in one—TimeMass - Stick & Glow transforms the dark into a canvas of light.



What to print?

- **Watch bands, wristbands, and wearable smart device accessories.**
- **Adjustable, ergonomic footwear components**, such as insoles or custom-fit straps.
- **Breathable, flexible clothing elements** for cosplay, sportswear, or fashion.
- **High-impact protective gear**, such as soft armor layers or reinforced gloves.
- **Integrated textile-print hybrid designs**, mixing with TimeMass Fiber for fabric-like finishes.
- **Smart textiles with embedded sensors**, leveraging conductivity-enhancing post-processing techniques.



How to print with TimeMass: Stick and Glow?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Stick and Glow**, tailored for printers with a 0.8 mm nozzle. This is the printing reference for TimeMass Stick and Glow as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm.	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Fire - Gen 2

What is our Fire filament?

*Gen 2 significantly enhances printability through a 15.56% reduction in melting point, which optimizes flow dynamics and accelerates printing speeds. Additionally, it features a 10% increase in water content, enabling superior thermal control and improved burning ratio management. The filament also achieves an enhanced glossy finish, resulting in superior aesthetics and a polished final appearance.

TimeMass Fire by Timeplast is the first ever 3D printing filament designed to be burnable, allowing for the creation of functional objects that can be ignited and consumed by fire in a controlled manner. Unlike traditional filaments, which either resist flames or burn too quickly, TimeMass Fire is engineered to sustain combustion efficiently, making it ideal for applications that require temporary use, controlled incineration, or artistic flame effects.

After successfully printing your candle or burnable object, ensure that the wick-like structures and burning surfaces are neither too thick nor too thin.

Much like a traditional wick, the surface area exposed to oxygen and fuel availability determines the burn rate. If the burning surface is too wide, it may burn too quickly and inefficiently. Conversely, if the wick is too thick, it may struggle to ignite or sustain a flame. To design an interactive and dynamic candle, consider these factors carefully. For example, you could create a birthday candle that burns rapidly through 19 smaller wicks (lasting just as long as the 'Happy Birthday' song) before revealing a larger, slower-burning 20th candle that lasts for 365 days—perfect for celebrating a milestone 20th birthday! With the right calculations, the possibilities for customized, artistic, and time-controlled burn patterns are endless!

TimeMass Fire aligns with sustainability goals, offering a controlled combustion alternative to paraffin-based products, single-use plastics, and traditional wax. It also introduces **new possibilities in design, survival applications, and eco-conscious fire-based art.**

Key Features of TimeMass Fire:

- **Highly Controllable Combustible** – Designed to burn efficiently, leaving minimal residue.
- **Eco-Friendly Decomposition** – Can be engineered to reduce toxic emissions during burning.
- **3D Printable** – Works with standard 3D printers for complex designs.
- **Controlled Burn Rate** – Can be formulated to burn slowly or quickly depending on application.
- **Sustainable Alternative** – Reduces reliance on traditional paraffin-based candles and other non-renewable combustible materials.

One of the most remarkable features of this filament is its ability to absorb and retain oils, liquids, and other additives, allowing you to customize the scent, texture, and functional properties of your prints. For instance, you can 3D print a candle and pause mid-print to infuse it with essential oils, ensuring a lasting and personalized fragrance.

Moreover, the filament enables the creation of specialized compartments within your prints, allowing you to embed liquids, solids, or even time-release capsules directly into the structure during the printing process. This opens up possibilities for self-dissolving packaging, aromatic sculptures, or even interactive objects that change over time.

With this level of customization, the only limit is your imagination.

What to print?

1. Candles & Ritual Objects

- **3D-printed custom candles** that can take any shape while burning naturally.
- **Biodegradable lanterns** or floating fire-based decorations.
- **Custom religious or ceremonial burning objects** (e.g., incense holders, cremation urns).

2. Fireworks & Pyrotechnics

- **3D-printed flammable casings** for controlled burn patterns.
- **Burn-away support structures** for stage effects and theater productions.
- **Timed self-destructing mechanisms** in pyrotechnic displays.

3. Emergency & Survival Gear

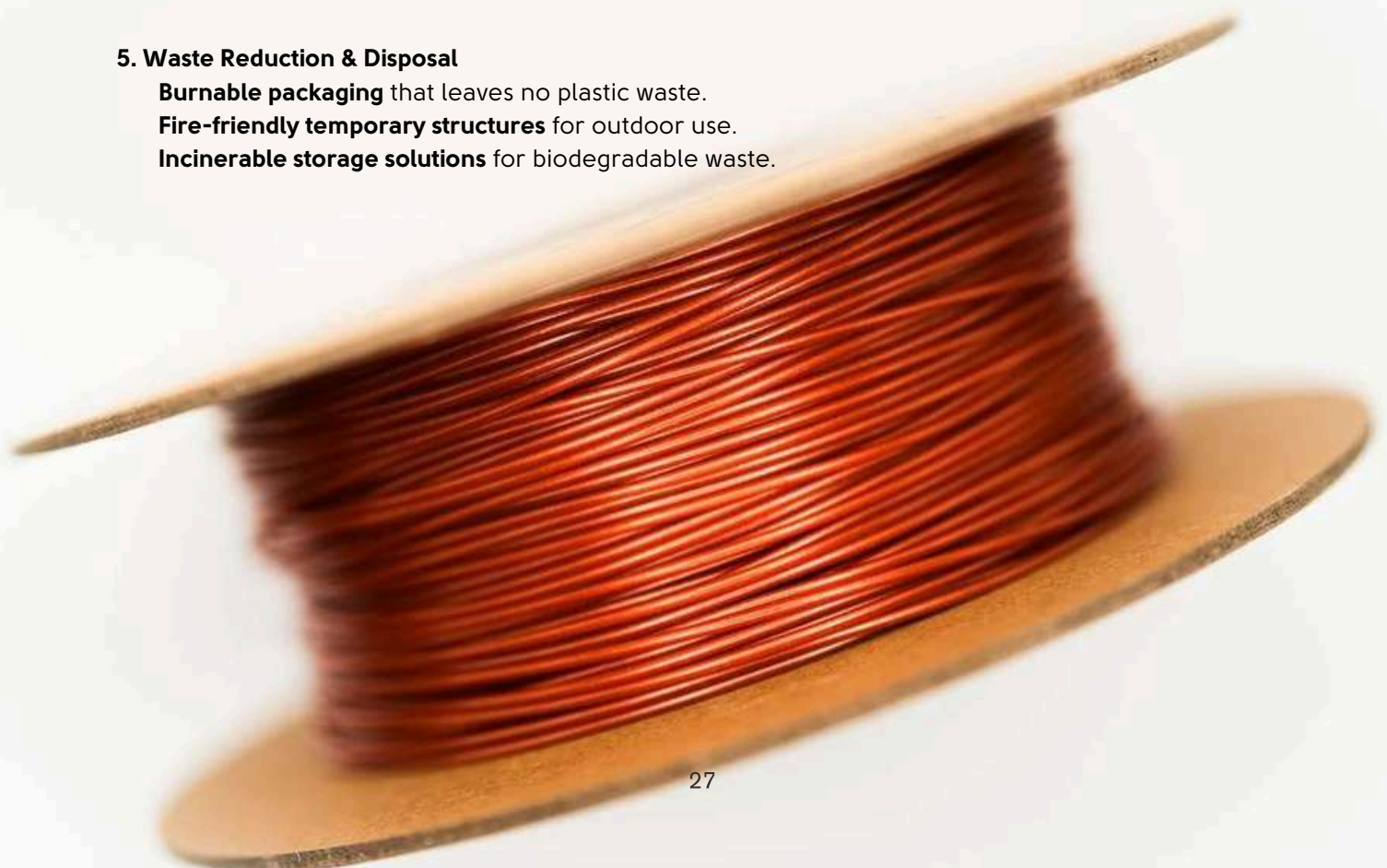
- **Fire-starting materials** that can be shaped into portable, lightweight tinder.
- **Self-burning emergency signals** for rescue situations.
- **Disposable campfire accessories** like quick-ignite logs or eco-friendly kindling.

4. Art & Entertainment

Flammable sculptures or installations that are designed to be set ablaze.
3D-printed fire show props for controlled performances.
Movie and theater set pieces designed for dramatic burn effects.

5. Waste Reduction & Disposal

Burnable packaging that leaves no plastic waste.
Fire-friendly temporary structures for outdoor use.
Incinerable storage solutions for biodegradable waste.



A PLA benchy boat burning.

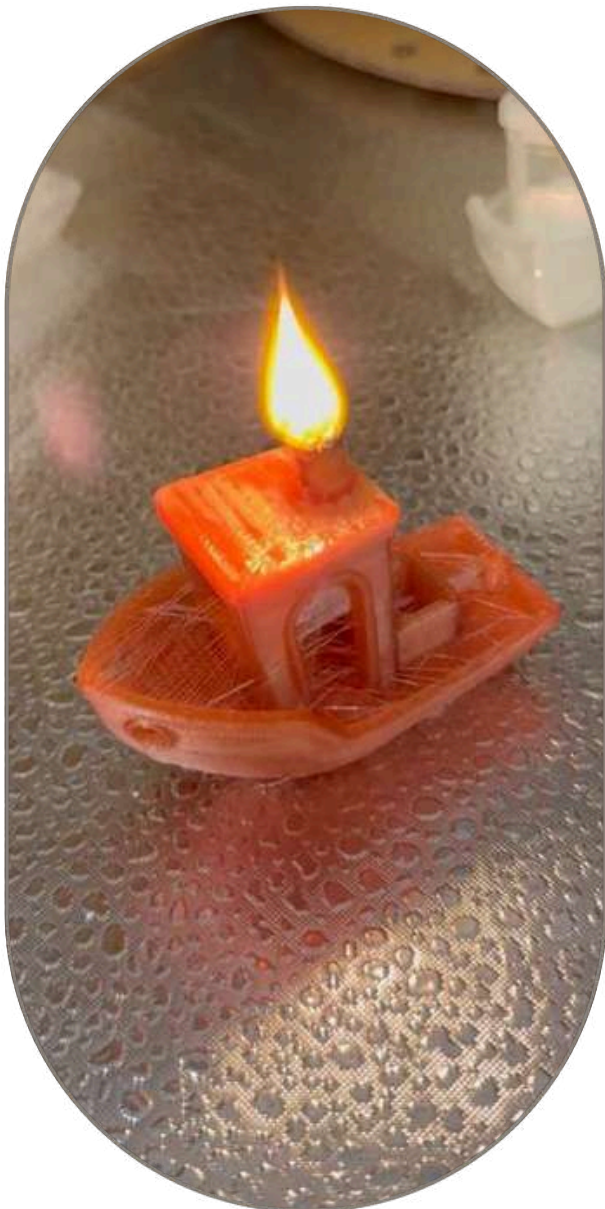
- **PLA** (Polylactic Acid) is not designed for burning and presents several disadvantages compared to Time-Mass - Fire: **Uncontrolled Combustion:** PLA burns unpredictably, often resulting in irregular flames, soot production, and unpleasant odors. **Toxic Fumes:** Burning PLA can release potentially harmful chemicals, making it unsuitable for controlled applications like candles.
- **Rapid Burn Rate:** PLA lacks any inherent mechanism to regulate the burn rate, leading to fast and uneven combustion.



TimeMass: **Fire** - Gen 2

*A **Burning** 3D printing filament*

A Time-Mass Fire Benchy boat burning at a slower, more controlled pace.



- **Combustible Polymer Matrix:** A water-soluble polymer that burns cleanly. This matrix forms the main body of the filament. **Water-Embedded Microstructure:** Tiny microcapsules containing water distributed throughout the filament. **Fiber Reinforcement:** Thin, slow-burning fibers running through the filament, mimicking the wick structure in traditional candles. **Water Vapor Release:** As the filament burns, the embedded water slowly evaporates. This vapor acts as a heat sink, regulating the burn rate and temperature, much like how a candle wick regulates the flame. **Localized Cooling:** The release of water vapor creates localized cooling zones, preventing rapid combustion and ensuring a steady, controlled flame height. **Fiber-Wick Effect:** The embedded fibers function similarly to a candle wick, channeling the flame and maintaining a consistent burn path. This guides the flame through the filament, layer by layer, in a predictable manner.

Time-Mass Fire should only be used in a well-ventilated area.

How to print with TimeMass Fire - Gen 2?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Fire**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Fire as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm ³ /s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm ³ /s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-



Light

The illumination filament

What is our Light filament?

TimeMass Light functions similarly to optical fiber but with a key difference: instead of channeling light along a single axis, it diffuses and scatters light throughout its volume. This is achieved through:

- Microstructured internal diffusion: The filament contains microscopic voids, refractive index variations, and embedded nanoparticles that scatter and distribute light evenly.
- Selective diffraction: Unlike transparent materials, which allow light to pass through with minimal scattering, this filament ensures a controlled diffusion, making the entire print glow.
- Optimal light entry angle: After printing, the object must be cut or polished at flat angles at the base to allow efficient light entry, maximizing the glowing effect.

After successfully printing your illuminated object, ensure that the entry point for the light source—whether an LED, flashlight, or a candle (printed with our TimeMass Fire filament)—is as flat and smooth as possible. A flat contact surface maximizes the efficiency of light transmission by reducing internal reflection losses and allowing more light rays to enter the material at an optimal angle. This ensures that the light disperses evenly throughout the filament, creating a uniform glow rather than concentrated brightness at a single point.

For best results, polishing or slightly sanding the entry surface can further enhance light coupling, allowing for better diffusion and a more vibrant illumination effect.

What to print?

- **Energy-efficient lighting:** Create glowing decorative structures that require fewer LEDs.
- **Wearable illumination:** Print flexible or semi-rigid glowing accessories for clothing, safety gear, or fashion.
- **Art and signage:** Print signs or displays that appear internally lit without needing complex wiring.
- **Emergency lighting:** Produce lightweight, self-illuminating exit signs, safety indicators, or low-power emergency lighting.
- **Holographic and display technology:** Experiment with creating glowing, semi-transparent layers in 3D structures.



How to print with TimeMass: Light?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Light**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Light as tested on the Bambu Labs A1 printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm.	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass **Flex.**

TPU-Like Flexible 3D filament

What is our Flex filament?

TimeMass Flex is a TPU-like flexible filament developed by Timeplast that is also water-soluble. This unique combination allows for applications where temporary flexibility is needed, followed by controlled dissolution.

What to print?

- **Beach wearables** – Can be used as a flexible, water-soluble material for beach footwear, surf apparel, or flexible floating pieces of arts that dissolve.
- **Biodegradable Medical Devices** – Potential use in temporary medical applications, such as dissolvable braces, supports, patches or stents.
- **Smart Packaging** – Could be used for packaging solutions that dissolve in water, ideal for reducing plastic waste.
- **Soft Robotics & Prototyping** – Useful for developing temporary flexible components in soft robotics or product prototyping.
- **Fishing Industry & Eco-Friendly Applications** – Could be used for water-soluble fishing lures, nets, or temporary aquatic structures.
- **Dynamic Molds** – Flexible molds that can later be dissolved for seamless extraction of complex shapes.



How to print with TimeMass: Flex?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Flex**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Flex as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm.	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Active.

What is our Active filament?

TimeMass Active by Timeplast is an advanced 3D printing filament designed to introduce 4D printing capabilities, where objects can transform over time due to their material composition. Unlike traditional filaments, TimeMass Active embeds time-sensitive water dissolution properties, allowing printed objects to change, dissolve, or degrade in a controlled manner when exposed to specific environmental triggers like water. This revolutionary material aligns with sustainability goals, offering a potential solution for reducing plastic waste by ensuring objects don't persist indefinitely. It's a step beyond conventional biodegradable materials, as it can be precisely engineered for degradation timelines and environmental impact.

What to print?

Active opens the door to a variety of **cutting-edge applications**, especially in industries that benefit from controlled degradation, temporary functionality, or sustainable disposal. Here are some **key applications** that can be manufactured with it: **1. Sustainable Packaging & Containers**

- **Single-use packaging** that dissolves in water or degrades after a set time.
- **Medical and pharmaceutical blister packs** that disappear after use.
- **E-commerce mailers or shipping materials** that break down naturally.

2. Medical & dissolvable Implants

- **Dissolvable medical devices** (e.g., temporary surgical supports or drug-delivery capsules).
- **Dissolvable splints and casts** for temporary use.
- **Eco-friendly sutures or wound dressings** that dissolve safely in the body.

3. Fishing & Marine Applications

- **Water-soluble fishing line** that reduces ocean waste.
- **Dissolvable bait holders** for sustainable fishing practices.
- **Temporary aquatic structures** that degrade naturally over time.

4. Construction & Temporary Structures

- **Scaffolding that disappears** when exposed to rain or UV light.
- **Dissolvable moldings and supports** for temporary installations.
- **Formwork for concrete** that dissolves after the structure sets.

5. Smart Consumer Goods

- **Eco-friendly toys or festival products** that disappear after use.
- **Single-use utensils or dishware** that self-destruct in water.
- **Event wristbands and passes** that vanish after an event ends.

6. Electronics & Smart Materials

- **Dissolvable circuits or casings** for electronics.
- **Temporary RFID tags or security seals** that disappear after use.
- **Eco-friendly wearable tech components** designed for planned obsolescence.

7. Aerospace & Military

- **Time-sensitive drones or surveillance devices** that degrade after deployment.
- **Dissolvable camouflage materials** for stealth operations.
- **Temporary shelters that degrade in extreme environments.**

8. Art & Design

Interactive sculptures or installations that disappear over time.

Water-soluble fashion pieces that change with rain or humidity.

Degradable 3D-printed decor for temporary displays.

Active has a huge potential for industries looking to reduce waste, enhance sustainability, and introduce functional degradation into 3D printed products.

How to print with TimeMass Active?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Active**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm.	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Passive.

What is our Passive filament?

TimeMass Passive by Timeplast is a specialized 3D printing filament designed to be highly durable, stable, and resistant to external environmental factors. Unlike Time- Mass Active (which degrades over time) or TimeMass Fire (which is designed to burn), TimeMass Passive is engineered for long-term structural integrity, making it ideal for applications that require strength, longevity, and resistance to wear.



Key Features of TimeMass Passive: ⚙️ **Highly Durable** – Designed to last for extended periods without significant degradation. 🛡️ **Resistant to Environmental Factors** – Protects against moisture, UV exposure, and oxidation. 🔩 **Structurally Strong** – Can be used in applications requiring mechanical stability. ♻️ **Sustainable & Non-Toxic** – Developed with eco-friendly material science principles. 📏 **Dimensional Stability** – Maintains its form and function over time without warping or breaking down. **Why TimeMass Passive?** Timeplast designed **TimeMass Passive** as a material solution for industries and consumers needing **durability without excessive waste**. While many materials either degrade too quickly or persist indefinitely as pollutants, **TimeMass Passive offers a balance—lasting as long as needed while remaining eco-conscious.**

What to print?

1. Long-Lasting Consumer Goods

- Durable home decor and furniture components.
- Weather-resistant outdoor accessories.
- Sustainable, long-term-use kitchenware.

2. Industrial & Engineering Applications

- Structural parts for 3D-printed machinery or tools.
- Corrosion-resistant components for marine or aerospace applications.
- Long-lasting prototypes for product development.

3. Infrastructure & Construction

- 3D-printed building materials that withstand the elements.
- Durable interlocking tiles or modular structures.
- Architectural elements requiring longevity.

4. Medical & Safety Equipment

- Hygienic and long-lasting prosthetic components.
- Non-degradable medical tools or diagnostic equipment.
- Protective casings for sensitive instruments.

5. Automotive & Aerospace Applications

- Heat and pressure-resistant vehicle components.
- Protective covers for electronic and mechanical systems.
- Long-term-use parts for sustainable transport solutions.

How to print with TimeMass: Passive?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This is the printing guide for **TimeMass Passive** filament as tested on the **Bambu Labs A1**. This filament features **extremely low moisture exchange**, high structural stiffness, and requires **higher thermal energy** for optimal melt and flow.

Because TimeMass Passive releases minimal vapor but has high melt resistance and moderate elasticity, these profiles focus on thermal force management, mechanical flow stability, and precise extrusion tuning. If the print is not being successful, please lower the nozzle temp by 10C and start over, up until an optimal print is achieved.

Temperature - Nozzle: 255 °C - Bed: 70 °C **Cooling** - No cooling for first 2 layers - Fan min: 20% @ 50 s -

Fan max: 25% - Keep fan always on: Yes -

Overhang cooling: 25–35%

Max Volumetric Flow - 13 mm³/s **Retraction & Pressure Advance** - Retraction distance: 0.5 mm -

Retraction speed: 15 mm/s - Pressure

advance: 0.05

Layer Height & Line Width - Layer height: 0.3 mm - Initial layer: 0.35 mm - Line width: 0.8 mm **Walls,**

Shells & Infill - Wall loops: 2 - Top/bottom shells: 3 - Top/bottom thickness: 1.2 mm - Sparse infill density: 15%

Speed & Acceleration - Travel speed: 160 mm/s - Outer wall speed: 65 mm/s - Infill speed: 130 mm/s - Accel print: 2400 mm/s² - Accel travel: 4500 mm/s²

Adhesion & Brims - Skirt loops: 1–2 - Brim width: 5 mm - Brim gap: 0.15 mm **Consistent Parameters (All**

Nozzles) - Bed temperature: 70 °C - Seam logic: ON - Arc fitting: ON -

Retraction smoothing: Enabled - Cooling timing (layer delay): 2–3 layers

TimeMass: Support



What is our Support filament?

TimeMass Support is a unique flexible and ultra high molecular weight support filament developed by Timeplast. Unlike traditional support materials, it can be cleanly detached in a single stroke, eliminating the need for tedious post-processing or water dissolution. Key Features:

- **Flexible yet removable** – Unlike brittle supports, it bends without breaking and peels off easily. Which is great for complex prints, and large-scale printing systems.
- **No residue or secondary processing** – Leaves a clean surface after removal, reducing labor costs.
- **Compatible with complex geometries** – Ideal for overhangs, bridges, and intricate structures where traditional supports may fail given the ultra high molecular weight.
- **Eco-friendly alternative** – Avoids the need for solvent-based or water-dissolving support materials.

What to print?

1. **High-End Prototyping** – Enables rapid iteration of complex designs without post-processing delays.
2. **Consumer Product Manufacturing** – Ideal for mass production where fast and easy support removal is needed.
3. **Medical & Dental Applications** – Great for printing intricate prosthetics or dental models without risk of damaging fine details.
4. **Architectural Models** – Allows for printing delicate structures that require support but need clean final surfaces.
5. **Soft Robotics & Wearables** – Facilitates the creation of flexible, multi-material parts with temporary internal supports.
6. **Jewelry & Artistic Prints** – Provides an easy way to remove supports without damaging fine engravings or tiny details.

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How to print with TimeMass: Support?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Support**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Support as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Texture



What is Texture filament?

TimeMass Texture is a flexible, semi-water-soluble filament that temporarily becomes sticky upon a quick dip in water so that it can then be covered in any powder material, altering 100% of its texture, and making it a non-plastic feel print. After successfully printing your object, submerge it in water for 2 to 5 seconds, then briefly dry it. Next, coat it with your chosen powder to create the desired texture—for example, stone powder for a stone-like appearance. If you want a thicker texture layer, leave the object in water for a longer period and dry it less, allowing the material to absorb and retain more of the powder. Once coated, use a paper towel to remove any excess powder. After 48 hours, you can refine the texture further with light sandpaper to achieve the final desired finish.

- Surface treatment compatibility: The sticky surface can bond with fine powders, creating a textured, non-plastic finish.

What to print?

- **Hyper-realistic models:** Print objects, then coat them with fine materials (sand, dirt, stone powder) to create ultra-realistic terrain, fossils, or artifacts.
- **Naturally degradable textures:** Print and coat objects with benign materials for natural-looking prototypes.
- **Anti-plastic aesthetic:** Produce objects that feel organic by layering them with non-plastic textures like wood dust, chalk, or minerals.
- **Special effects & cosplay:** Create lightweight, flexible armor or props that look like solid stone or metal.
- **Medical & ergonomic surfaces:** Create handles or grips that become naturally textured when exposed to moisture, improving grip without synthetic rubber.

How to print with TimeMass: Texture?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Texture**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Texture as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-



TimeMass Fiber

(Sacrificial Polymer Technology)

What is our Fiber filament?

TimeMass Fiber incorporates **sacrificial polymer technology**, which enables specific portions of the material to dissolve in a controlled manner. This feature is especially valuable in 3D printed soft fabrics, due to the small diameter of the remaining fibers. It is also used for advanced manufacturing and prototyping, as it allows for internal embedded

supports, temporary reinforcements, or multi-material prints that transition over time. After successfully printing an intricate fabric-like object using our TimeMass Fiber filament, you'll need to submerge it in water for a period directly proportional to the softness you want to achieve. For very soft fabrics, soak the object for **24 to 48 hours**, depending on its thickness. The longer it remains submerged, the more of the **sacrificial polymer** will dissolve, leaving behind finer and more delicate fibers. After the water treatment, it's crucial to **properly dry the material** to finalize its structure. You can air-dry it in the sun or use a food dehydrator for a controlled process. The level of drying will directly impact the final texture—**the more it dries, the firmer it becomes**. Mastering this filament involves experimentation, as balancing water exposure and drying time allows you to tailor the fabric's softness to your specific needs and creative ideas. **How Sacrificial Polymer Technology Works in Time- Mass Fiber**

- 1. Dual-Phase Composition** – The filament consists of a durable, fiber-reinforced phase and a strategically embedded sacrificial polymer that weakens under water.
- 2. Post-Processing Activation** – After printing, the sacrificial polymer can be removed through dissolution, thermal degradation, or mechanical peeling, leaving behind the intended final structure.
- 3. Self-Optimizing Material** – The controlled removal of the sacrificial polymer can reduce weight, create internal channels, or improve flexibility in certain regions of the printed object.
- 4. Enhanced Printability** – This technology ensures complex geometries print more reliably by integrating internal support structures that disappear when no longer needed.

When you print with this filament:



In the image: Our 1.75mm Fiber filament.



In the image: The same fiber filament shown previously, but after 24 hours of exposure to water, the fibers begin to emerge.



In the image: A close-up view of the fibers themselves.



In the image: The before-and-after.

- **Layer Formation:** The filament is deposited in layers, with the sacrificial polymer temporarily binding the fibers to maintain the desired geometry and tension until post-processing.

During printing, the sacrificial polymer:

- Supports intricate designs and fine orientation, acting as scaffolding during the build process.
- Provides enough structural integrity to enable overhangs or complex shapes without collapsing.

After printing, the object undergoes a sacrificial polymer removal process:

- The sacrificial polymer is engineered to dissolve or disintegrate when exposed to room-temperature water. As the sacrificial polymer dissolves, it leaves behind only the structural fibers, which are now loosely interwoven or patterned to create a fabric-like material. The final printed object has to be dried out (for example in a food dehydrator) up until it achieves the desired final texture.

The remaining structure:

- Retains flexibility and softness because the fibers were embedded in a precise pattern, mimicking woven or knitted textiles. Has
- microvoids and interconnected fiber networks where the sacrificial material was removed, enhancing breathability and softness.

The final product achieves fabric-like properties because:

- **Fiber Orientation:** The structural fibers remain in a pattern that mimics traditional fabric weaving, providing flexibility and drapability.

- **Tunable Thickness and Texture:** By adjusting the sacrificial polymer-to-design ratio and the printing pattern, the properties of the resulting fabric can be tailored for softness, elasticity, or even stretchability. **Porosity:** The dissolution of the sacrificial polymer creates spaces between the fibers, allowing the fabric to feel light and breathable.

Special note: The material needs to be dried out to achieve its final form. You can use a food dehydrator, for example.

Applications:

- **Fashion:** Soft, customizable 3D-printed fabrics for garments with intricate patterns and dynamic properties (e.g., shape memory or thermal adaptability).
- **Medical:** Biocompatible fabrics for bandages, surgical meshes, or wearable sensors.
- **Soft Robotics:** Lightweight, flexible materials for artificial skins or soft robotic components.
- **Eco-Friendly Textiles:** Fully recyclable or biodegradable fabrics due to the innovative polymer chemistry of Timeplast.



How to print with TimeMass: Fiber?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This is the printing reference for **TimeMass Fiber** filament as tested on the **Bambu Labs A1** printer, optimized for **0.8 mm nozzle**.

TimeMass Fiber is more thermally sensitive and contains a dual-phase structure, meaning it emits more vapor and benefits from more careful temperature ramping and reduced internal pressure. All settings are optimized to reduce bubbling, fogging, and material instability. If the print is not being successful, please lower the nozzle temp by 10C and start over, up until an optimal print is achieved.

TimeMass Fiber Filament – 0.8 mm Nozzle Printing Parameters

Temperature - Nozzle: 235 °C - Bed: 60 °C (Textured PEI preferred)

Cooling - No cooling for first 3 layers - Fan min: 0% @ 100 s - Fan max: 10–15% - Keep fan always on: OFF - Overhang cooling: 10–15%

Max Volumetric Flow - 9 mm³/s

Retraction & Pressure Advance - Retraction distance: 0.4 mm - Retraction speed: 15 mm/s - Pressure advance: 0.055

Layer Height & Line Width - Layer height: 0.3 mm - Initial layer: 0.35 mm - Line width: 0.8 mm

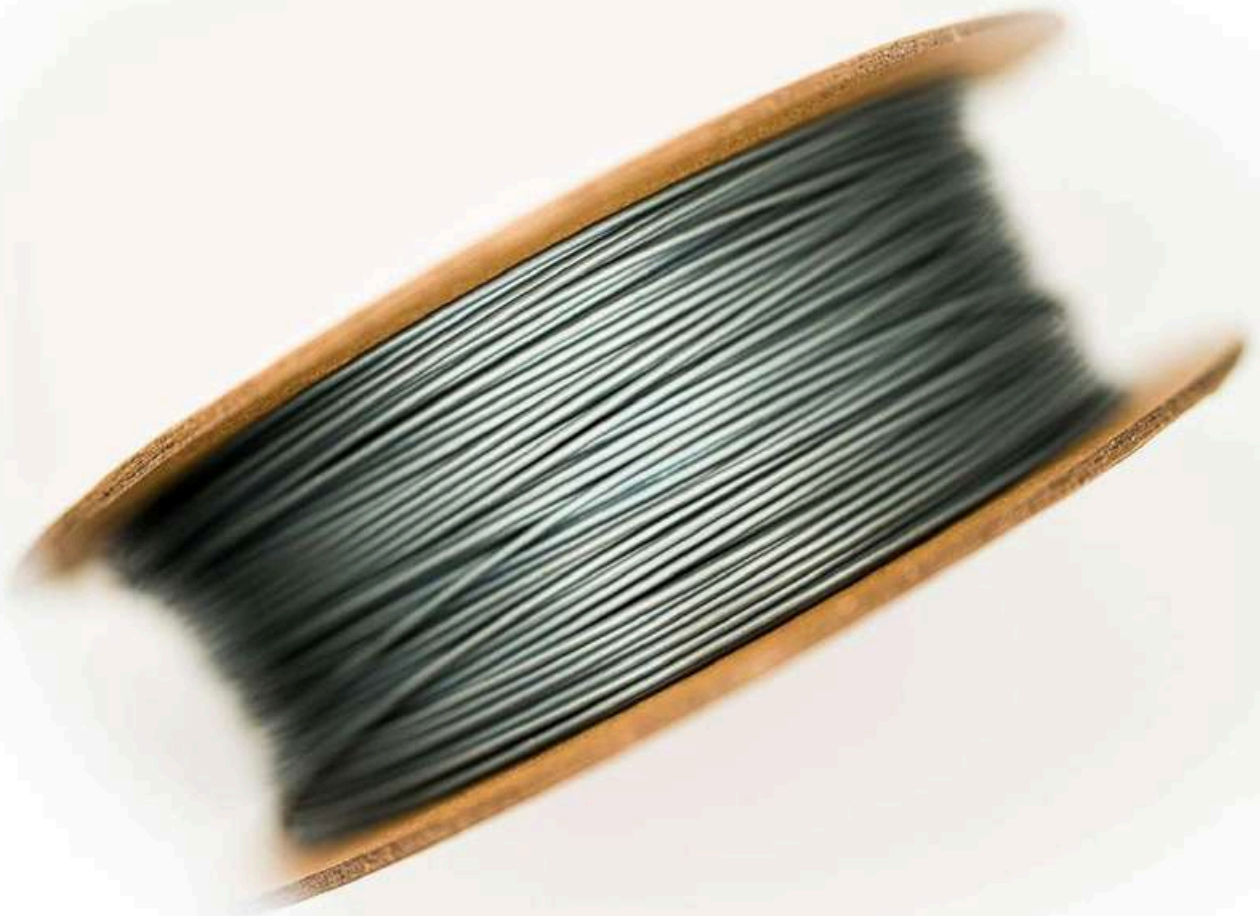
Walls, Shells & Infill - Wall loops: 2 - Top/bottom shells: 3 - Top/bottom thickness: 1.2 mm - Sparse infill density: 20%

Speed & Acceleration - Travel speed: 150 mm/s - Outer wall speed: 55 mm/s - Infill speed: 100 mm/s - Accel print: 1800 mm/s² - Accel travel: 4000 mm/s²

Adhesion & Brims - Skirt loops: 2 - Brim width: 4–6 mm - Brim gap: 0.15 mm

Consistent Parameters (All Nozzles) - Bed temperature: 60 °C - Avoid crossing walls: ON - Smart seam: ON - Cooling delay: 3 layers - Brim and skirt defaults remain functional - Always dry before use, open-door print recommended

Time-Mass: Metal Surface



What is our Metal Surface filament?

What if **3D-printed objects** could look, feel, and behave like real metal—without ever needing a metal printer? **TimeMass - Metal Surface** is an advanced 4D printing filament that transforms **polymer-based prints** into **metallic masterpieces** with just a quick dip in water and fine metal powders. Unlike conventional metal-infused filaments, which contain **embedded metallic particles** that dilute their true metal effect, **TimeMass - Metal Surface** actively **bonds with external metals post-print**. Engineered with a **high- affinity polymer matrix**, this filament **temporarily becomes hydrophilic upon contact with water**, allowing **iron filings, copper, brass, or other metallic powders** to **interlock** with its surface. As the print dries, these metallic elements **lock into place**, creating a **high-density, conductive, and slightly ferromagnetic finish**.

How It Works: A Revolutionary Surface Chemistry

- **Hydrophilic Activation** – Once printed, the object **briefly absorbs water**, creating an ultra-fine **microcapillary structure** that pulls in metallic powders.
- **Metallic Interlocking** – The material's **surface chemistry** actively **bonds with iron, copper, brass, or other metals**, ensuring a **strong, permanent adhesion** without embedded metal particles.
- **Real Metal Behavior** – Unlike plastic-based metallic finishes, **TimeMass - Metal Surface** creates a **true-to-life metal appearance** that **interacts with light, magnetism, and oxidation** just like an actual metal object.

Where Aesthetics Meet Functionality

- **Luxury Finishes & Industrial Design** – Print **stunning metallic sculptures, architectural models, or machine-like prototypes** that look and feel like **cast metal**.
- **Functional Magnetic & Conductive Surfaces** – Use **iron-infused finishes** to create **ferromagnetic parts, magnetic tool holders, or smart electrical components**.
- **Hyper-Realistic Props & Replicas** – Make **high-end movie props, jewelry, or antique recreations** that pass for real metal at a fraction of the weight.
- **Wearable & Fashion Tech** – Design **jewelry, watches, or metallic-textured accessories** that look and behave like **polished, brushed, or oxidized metals**.

- **Custom Art & Home Decor** – Develop **bespoke metal-finished objects**, from **bronze-like sculptures** to **steampunk-inspired creations**.
- **Sustainable Metal Effects** – Achieve **real metal looks** without the need for **costly, heavy, or energy-intensive metal 3D printing processes**. **Beyond Metal-Inspired—This Is Metal Transformed** With **TimeMass - Metal Surface**, 3D-printed plastic no longer looks like plastic. By combining **advanced 4D material engineering with real metal bonding**, this filament makes it possible to **replicate the weight, conductivity, and texture of metal—all with the ease of polymer-based printing**. For artists, engineers, and visionaries seeking **the power of metal without the constraints of metal printing**, **TimeMass - Metal Surface** is the ultimate breakthrough.

Print it. Dip it. Transform it.

Iron filings is one of the best powders for this filament and you can find them on Amazon.

What to print?

- **Functional mechanical components** with improved weight, density, and partial magnetism.
- **Artistic and industrial-grade sculptures** that require authentic metallic aesthetics.
- **Custom jewelry and accessories** that mimic silver, brass, or iron without requiring metal casting.
- **Prop and cosplay armor pieces** with real metallic reflections and textures.
- **Magnetic-reactive designs**, such as hidden latches, sensors, and magnetic puzzles.
- **Customized speaker grilles or conductive surfaces** for artistic and functional electrical projects.



How to print with TimeMass: Metal Surface?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Metal Surface**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Metal Surface as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

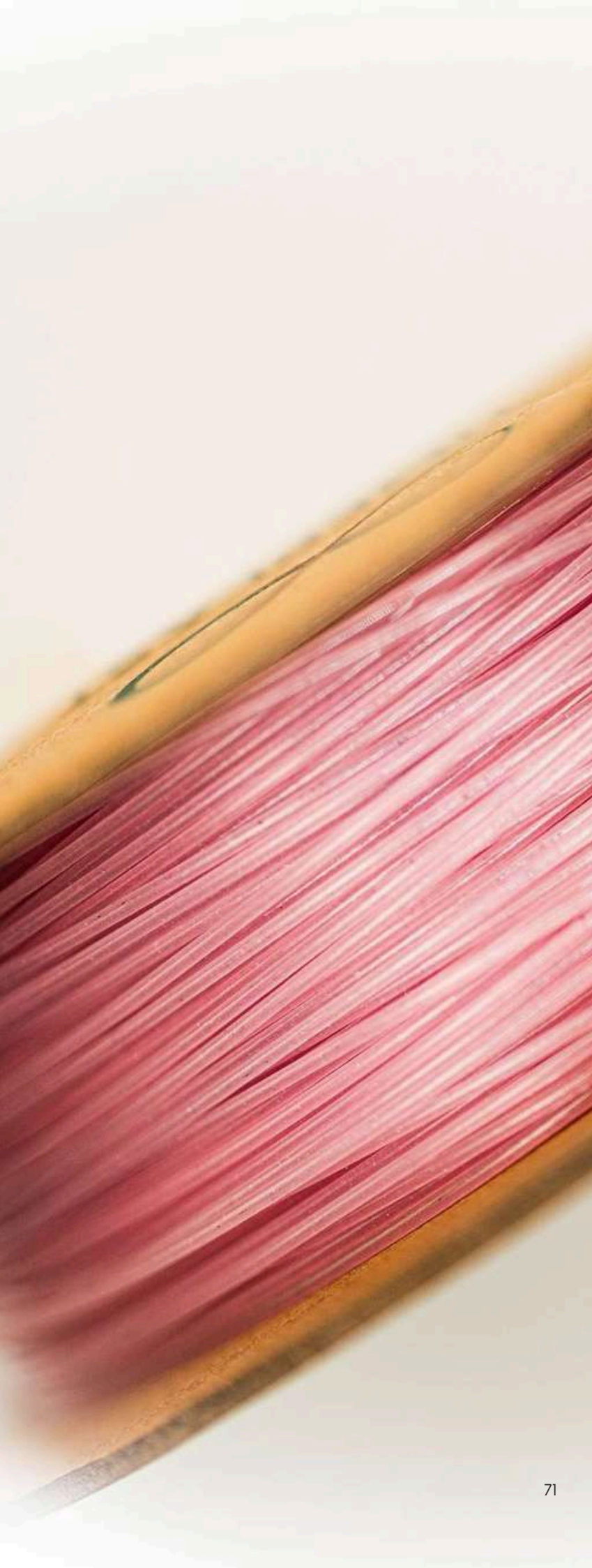
Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-



TimeMass: Ball

What is our Ball filament?

What if 3D-printed objects could bounce, stretch, and absorb impact like real rubber—without the weaknesses of traditional elastomers? TimeMass - Ball is a next-generation ultra-flexible, high-molecular-weight polymer filament, engineered to replicate the mechanical properties of rubber with superior resilience, printability, and long-term durability.

Unlike conventional rubber-like 3D printing filaments, which often suffer from poor elasticity recovery and weak layer adhesion, TimeMass - Ball leverages a specialized polymer structure with long-chain entanglements and high molecular cohesion. This unique formulation ensures exceptional bounce, impact absorption, and mechanical endurance—delivering true rubber-like performance with the reliability of advanced polymers. Designed Efficiency

Unrivaled Strain Recovery Maintains high elasticity and rebounds efficiently, ensuring minimal permanent deformation even after repeated compression.

- **Energy-Efficient Bounce** – Engineered for dynamic response, allowing objects to store and release energy efficiently, mimicking the behavior of real rubber.
- **Superior Layer Adhesion & Tear Resistance** – Unlike other flexible filaments that delaminate or tear easily, TimeMass - Ball retains strong interlayer bonding, making it perfect for high-impact applications. Where Performance Meets Practicality
- **Sporting Goods & High-Impact Prototypes** – Print high-rebound balls, protective padding, and shock-absorbing components with unparalleled flexibility.
- **Automotive & Robotics Applications** – Develop durable vibration dampeners, soft grippers, or suspension elements that can withstand repeated stress.
- **Toys, Games & Interactive Designs** – Create durable, bouncy objects such as stress balls, fidget toys, or play equipment that can endure constant use.
- **Wearable & Medical Innovations** – Design pressure-distributing insoles, orthopedic supports, or flexible exoskeletons that adapt to movement without breaking down.

- **Soft Robotics & Experimental Engineering** – Use TimeMass - Ball to build responsive actuators, inflatable chambers, or shock-resistant casings for cutting-edge research. Revolutionizing Rubber-Like 3D Printing

By eliminating the weaknesses of standard elastomers, TimeMass - Ball enables new possibilities in sports, engineering, robotics, and beyond. Its ability to stretch, compress, and rebound dynamically makes it a game-changer for high-performance, flexible applications.

For those who demand precision, durability, and true rubber-like performance, TimeMass - Ball is the next evolution in flexible 3D printing.

What to print?

- **Fully functional, airless sports balls**, like basketballs and soccer balls, without the need for inflation.
- **Impact-resistant pads and bumpers** for robotics, industrial machinery, or automotive components.
- Vibration-dampening parts for mechanical or soundproofing applications.
- Stress-relief and therapeutic squeeze balls for medical and wellness use.
- Flexible grips, handles, and soft-touch surfaces for ergonomic tools.
- Advanced robotic actuators that require soft material interactions.



*Airless basketball made by



How to print with TimeMass: Ball?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Ball**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Ball as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Wear

The Future of 4D-Printed Fashion & Function

What is our Wear filament?

What if clothing could be printed to fit perfectly, adapt dynamically, and enhance functionality beyond anything traditional fabrics allow? TimeMass - Wear is a next-generation 4D printing filament, engineered for customized, high-performance wearables that move, flex, and breathe—all while maintaining exceptional durability and comfort. Unlike traditional flexible filaments, TimeMass - Wear is designed with highly ordered molecular alignments, ensuring it remains strong, stretchable, and breathable under repeated stress. Whether used for clothing, accessories, or specialized gear, this filament represents the future of 3D-printed fashion and function.

Revolutionizing Wearables: Fashion Beyond Limits

- Unprecedented Dress Designs – When combined with TimeMass Fiber, TimeMass - Wear unlocks revolutionary soft fabric-like structures, making it possible to print dresses the likes of which no one has ever seen before. Intricate patterns, seamless organic curves, and one-piece garments can now be created without the limitations of traditional sewing and stitching. Imagine flowing gowns with interwoven lattices, geometric sculptural forms, or self-supporting textile structures that could never be achieved with conventional materials.
- Next-Level Suits for Any Purpose – Fashion is no longer just about aesthetics—TimeMass - Wear enables fully functional suits tailored for specific jobs, survival, and extreme conditions:
 - Survivalist Suits – Glow in the dark, provide thermal insulation, float on water, and even integrate insect-repellent properties.
 - Industrial & Job-Specific Gear – Design heat-resistant, impact-absorbing, or weatherproof suits tailored for construction, firefighting, or space exploration.
 - Adaptive Uniforms – Military, first responders, and outdoor enthusiasts can wear multi-layered, intelligent fabrics that react dynamically to temperature, moisture, and movement. A Fusion of Fashion, Science & Utility
- Hybrid Fabric-Texture Printing – When paired with TimeMass Fiber, TimeMass - Wear can mimic woven textiles, layered fabrics, and organic fiber patterns—merging the best qualities of traditional materials and futuristic design. 🌬️ Breathable, Soft, Yet Ultra-Durable – Unlike rigid 3D-printed plastics, this filament is designed for comfort in motion, ensuring clothing is lightweight, flexible, and skin-friendly.
- Sustainable, Waste-Free Manufacturing – Print on-demand apparel, accessories, and functional gear, eliminating fabric waste and pioneering a more circular, eco-friendly fashion industry.
- Combining 4D Printing for Maximum Impact – When paired with other TimeMass filaments, wearable designs become even more multifunctional:
 - TimeMass Glow & Reflect – Create self-illuminating safety wear for nighttime visibility.
 - TimeMass Sublimation – Print temporary dissolvable designs that disappear on command.
 - TimeMass Plant Vitamin – Integrate biodegradable, self-sustaining materials into garments that support nature and growth.

A New Era of Wearable Design Begins With TimeMass - Wear, fashion becomes more than fabric—it becomes an extension of the body, a tool for survival, and a limitless canvas for innovation. For designers, engineers, and visionaries shaping the future, this filament unlocks possibilities never before imagined—from gravity-defying dresses to intelligent, multifunctional suits that adapt to their environment.

The future of wearables isn't just smart—it's printed.

What to print?

- Watch bands, wristbands, and wearable smart device accessories.
- Adjustable, ergonomic footwear components, such as insoles or custom-fit straps.
- Breathable, flexible clothing elements for cosplay, sportswear, or fashion.
- High-impact protective gear, such as soft armor layers or reinforced gloves.
- Integrated textile-print hybrid designs, mixing with TimeMass Fiber for fabric-like finishes.
- Smart textiles with embedded sensors, leveraging conductivity-enhancing post-processing techniques.



How to print with Time-Mass: Wear?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Wear**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Wear as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Microwave

What is our Microwave filament?

What if a printed object could morph, expand, or collapse in real-time—not through motors or mechanical forces, but through pure electromagnetic energy? TimeMass - Microwave is a groundbreaking Ultrahigh-Frequency Radiation (UHF)-reactive filament, designed to undergo rapid shape transformation, expansion, and structural modification when exposed to microwave frequencies.

Unlike standard thermoplastics, which remain inert inside a microwave due to their non-polar nature, TimeMass - Microwave is engineered with microwave-absorbing polar molecular groups. When subjected to millimeter-long electromagnetic waves, these molecules excite and generate internal heat, triggering self-activating transformations that blur the line between material science and kinetic art.



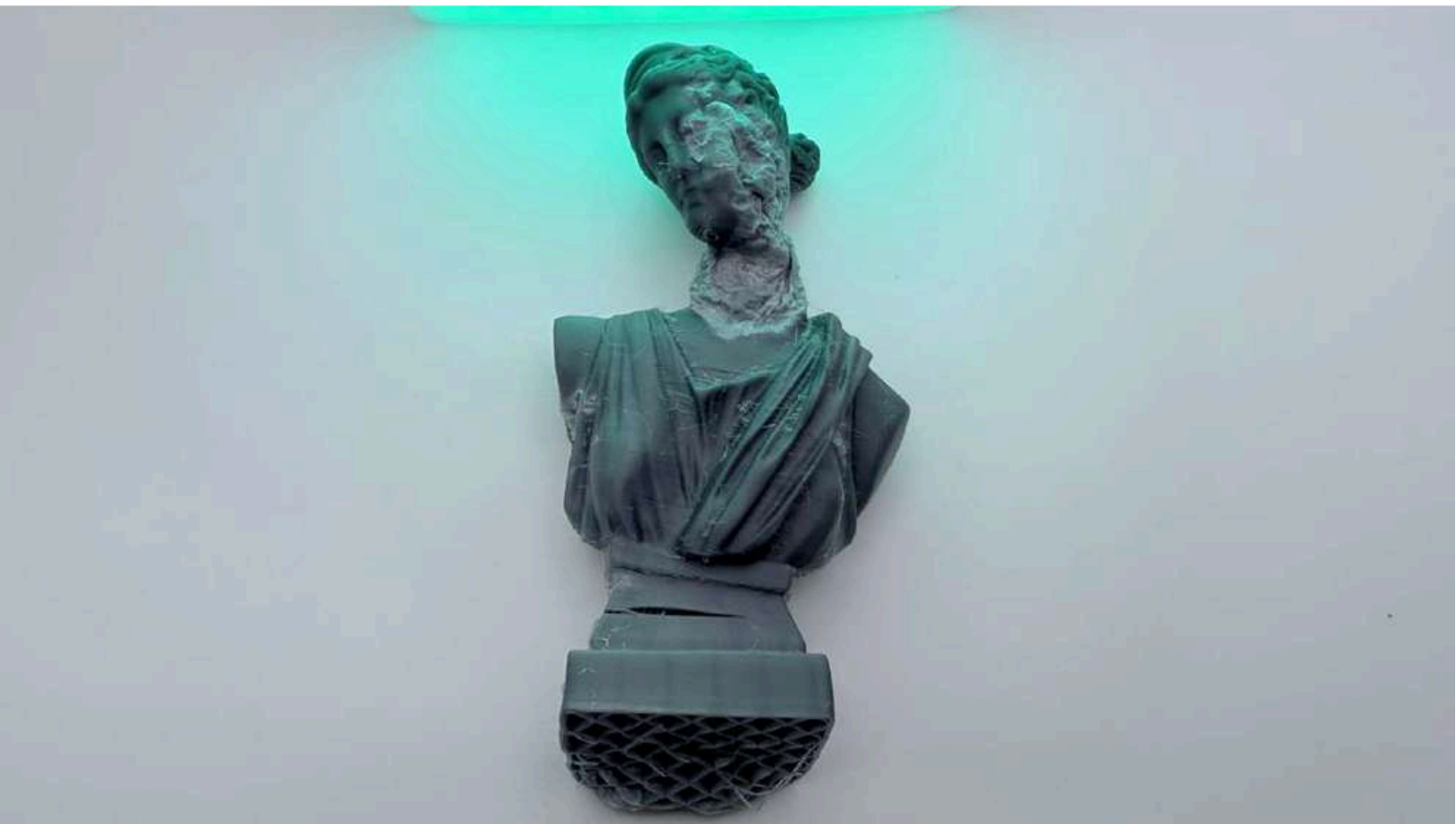
How It Works: The Science of Microwave-Induced Shape Shifting

- **Electromagnetic Activation** – The filament absorbs microwave energy, creating internal heat generation that activates movement, deformation, or expansion in the printed object.
- **Microfluidic Vaporization** – Entrapped microfluidic water rapidly vaporizes, generating internal pressure shifts that cause the material to inflate, contract, or warp unpredictably.
- **Programmable Deformation** – Through precise print geometries and controlled microwave exposure, designers can fine-tune movement, timing, and transformation effects. Expanding the Boundaries of Material Behavior
- **Kinetic Art & Morphing Sculptures** – Create ever-changing, living sculptures that shift unpredictably when exposed to microwaves, bringing new dimensions to interactive and generative art.
- **Shape-Memory Engineering** – Print adaptive components that expand, bend, or collapse on demand, opening new possibilities for self-assembling structures and dynamic architectural design.
- **Experimental Engineering & Soft Robotics** – Develop programmable soft actuators or self-inflating systems without the need for complex electronics.
- **Futuristic Packaging & Display Technology** – Design packages that expand to reveal hidden compartments, or interactive designs that respond to energy exposure.
- **Aerospace & Extreme Environments** – Imagine deployable structures in space exploration that remain compact until activated by radiation-based triggers.

The Future of Smart Materials & Reactive Design The ability to control and harness electromagnetic-driven transformations opens the door to a new class of programmable matter. Whether it's for interactive installations, self-assembling mechanisms, or experimental research, TimeMass - Microwave brings kinetic motion, energy absorption, and material evolution into a single, revolutionary filament. For creators, scientists, and designers looking to push the boundaries of what materials can do, TimeMass - Microwave is a filament that doesn't just exist—it evolves.

What to print?

- **Transforming sculptures and kinetic art pieces** that change under microwave exposure.
- **Self-expanding objects**, such as soft robotic actuators or deployable structures.
- **Educational experiments in thermodynamics and microwave interaction physics.**
- **Custom food-safe molds** that expand slightly when heated to create precise shaping.
- **Biomimetic designs**, inspired by nature's shape-shifting structures.



How to print with TimeMass: Microwave?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Microwave**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Microwave as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm ³ /s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm ³ /s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

Time-Mass: Urn

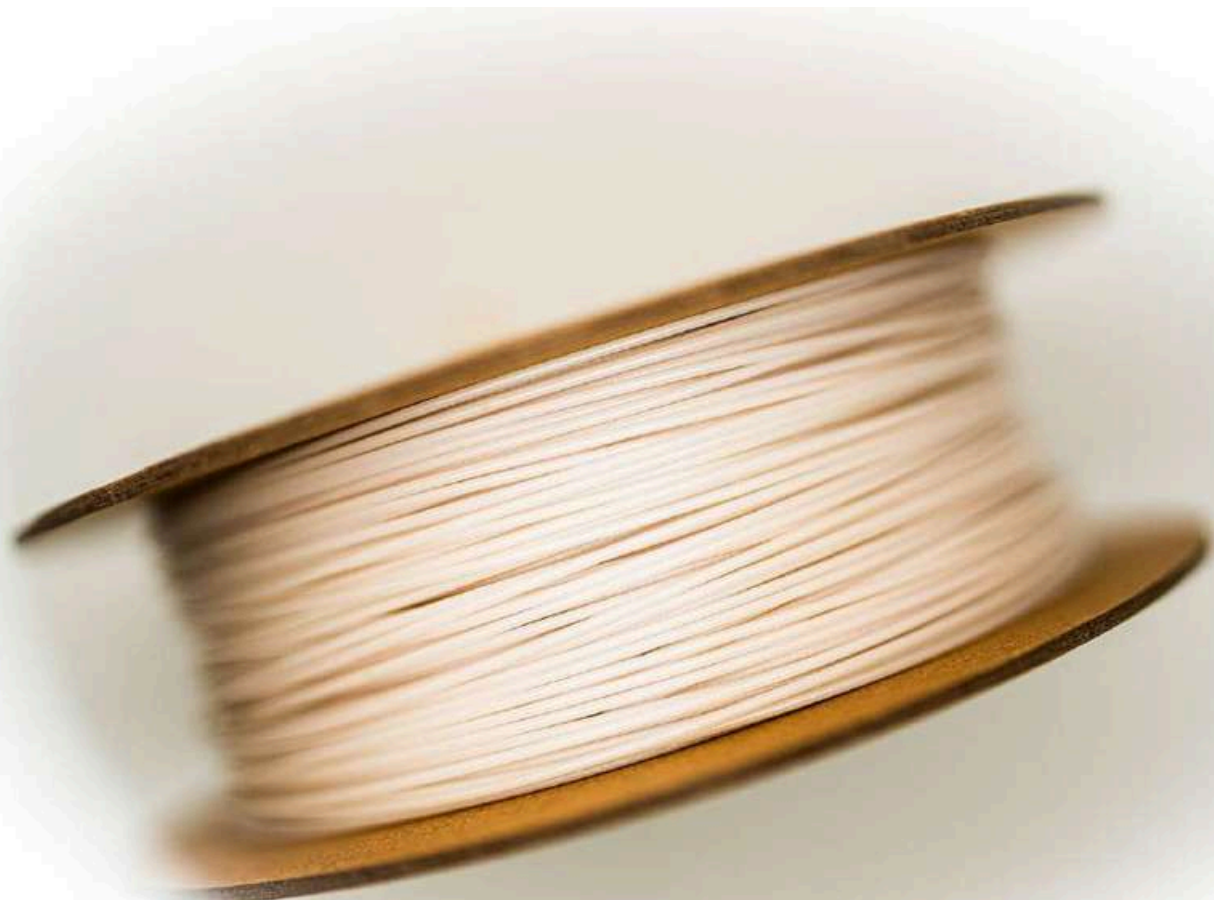
What is our Urn filament?

The passing of a loved one is a moment of profound loss, but also an opportunity to honor their life in a way that is as unique as they were. **TimeMass - Urn** is a thoughtfully crafted **4D-filament**, designed to provide a respectful, beautiful, and meaningful way to create a custom urn for someone dear. Imagine a farewell that merges remembrance with renewal—an urn that floats gently upon the water, carrying the ashes of a loved one under the night sky. As it dissolves, it leaves behind something greater: **Lotus seeds**, symbolizing rebirth and enlightenment across many cultures, and **Kelp spores**, fostering new marine life in the waters that embrace them. Crafted from **planet-neutral, water-soluble materials**, **TimeMass - Urn** is infused with:

- **Lotus Seeds** (*Nelumbo nucifera*) – representing purity, spiritual awakening, and the cycle of life.
- **Kelp Spores** (*Macrocystis pyrifera*) – nourishing marine environments, sustaining underwater ecosystems.
- **Crushed Coral** (Calcium Carbonate) – aiding reef regeneration and symbolizing eternal connection to the ocean. If combined with **TimeMass Fire, Light, or Glow**, you can create a one-of-a-kind urn that glows softly in the twilight, offering a final radiant tribute before gracefully dissolving into the water. As **TimeMass - Urn** gently breaks down, it disperses its embedded elements to support aquatic ecosystems —**a final act of giving, turning loss into renewal, and remembrance into life**. For those seeking a farewell as beautiful as the life it honors, **TimeMass - Urn** offers a serene, unforgettable goodbye—one that echoes in the waters and hearts forever.

What to print?

- **Floating urns for ceremonies**, allowing ashes to be released into natural waters.
- **Commemorative sculptures** that gradually dissolve over time, leaving no waste.
- **Aquatic life-support structures**, such as artificial reef foundations or eco-art projects.
- **Eco-conscious time capsules** that release elements into the water when needed.



How to print with TimeMass: Urn?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Urn**, tailored for printers with a 0.8 mm nozzle. This is the printing reference for TimeMass Urn as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Reflect and Glow



What is our Reflect and Glow filament?

In the dark, being seen can mean the difference between safety and danger, or if used while partying can mean the difference between a regular night, or a fun one. TimeMass - Reflect & Glow is a dual-purpose safety filament designed to provide continuous visibility—whether in complete darkness or under direct light. By combining phosphorescent luminescence with microprismatic retroreflection, it ensures you remain visible from all angles, whether walking, cycling, or marking key objects in low-light environments.

How It Works:

A Hybrid Glow & Reflect System
Glow-in-the-Dark Function – The material absorbs ambient light throughout the day and gradually emits a soft, lasting glow in darkness—perfect for low-light safety guidance.

Retroreflective Technology – When struck by direct light from sources like car headlights or flashlights, embedded microprisms reflect the beam straight back to the source, making objects highly visible even from a distance. This advanced dual-action visibility means that even if the glow fades, TimeMass - Reflect & Glow remains active, ensuring you're always seen when it matters most.

Where Safety Meets Practicality
Wearable Safety Gear – Enhance bike helmets, running gear, backpacks, or jackets, ensuring visibility on night runs, cycling routes, or hiking trails.

Roadside & Vehicle Safety – Apply to bike frames, reflective road signs, emergency kits, or vehicle bumpers for added night protection.

Outdoor & Camping Essentials – Mark tent zippers, hiking poles, or survival tools, making them easy to locate in the dark.

Home & Emergency Use – Highlight door frames, stair edges, or exit pathways to provide guidance during power outages or emergencies.

Creative & Interactive Applications – Design glowing art, custom signage, or functional night markers that react dynamically to both light and darkness.

Designed for Reliability & Ease
Crafted with optically engineered retroreflectors embedded directly into the TimeMass filament matrix, Reflect & Glow requires no batteries, no wires, and no maintenance—just light to charge it and motion to activate it. For those who seek safety, innovation, and sustainability in one, TimeMass - Reflect & Glow ensures you're never left in the dark.

What to print?

- Wearable safety gear, such as jogging armbands and biking accessories.
- Reflective road signs and trail markers for enhanced nighttime navigation.
- Emergency equipment labels visible in low light and under direct illumination.
- Glow-reactive sculptures and interactive designs.



How to print with TimeMass: Reflect and Glow?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Reflect and Glow**, tailored for printers with a 0.8 mm nozzle. This is the printing reference for TimeMass Reflect and Glow as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Sublimation

The filament that vanishes

What is our Sublimation filament?

What if a material could transform, disappear, or reshape itself—on demand? TimeMass - Sublimation is a revolutionary microwave-sensitive filament that bypasses the liquid phase, shifting directly from solid to gas. Engineered with sublimation-prone compounds and a high water content, this material responds aggressively to microwave frequencies, enabling controlled vaporization, collapsible structures, and reactive mechanical components.

A New Dimension of Design & Experimentation

- **Microwave-Triggered Disappearance** – Watch as structures vanish in seconds when exposed to specific heat conditions, leaving behind no messy residue.
 - **Precision-Controlled Void Creation** – Design temporary supports, chambers, or scaffolds that remove themselves at the perfect moment.
 - **Reactive, Self-Collapsing Mechanisms** – Develop pistons, pressure-release valves, or dissolving seals that respond to thermal input.
 - **Accelerated Future Simulation** – Simulate how objects will deform over centuries under exposure to sunlight, geological radiation, or heat by rapidly accelerating their decay process. Researchers, material scientists, and engineers can now study long-term environmental effects in real time—compressing 1,000 years of exposure into minutes. With TimeMass - Sublimation, traditional design limits evaporate—literally.
- Where Science Meets Innovation
- **Self-Disassembling Prototypes** – Create temporary support structures that remove themselves without manual post-processing.
 - **Smart Manufacturing & Tooling** – Use vaporization to clear out internal cavities in 3D-printed molds, forming complex hollow geometries.
 - **Special Effects & Theatrical Props** – Design disappearing objects for immersive experiences, magic tricks, or experimental art installations.
 - **Transient Mechanical Components** – Build heat-activated pistons or self-erasing message systems, perfect for experimental engineering.
 - **Environmental Aging Simulation** – Speed up centuries of degradation to predict how materials, structures, or artifacts will react to extreme environments over time.
 - **Zero-Waste Printing** – No need for dissolving chemicals or breakaway supports—just heat and gone. Engineered for the Future of Fabrication By harnessing microwave frequencies as an activation trigger, TimeMass - Sublimation unlocks a new class of transient, responsive, and self-removing designs.

Whether you're an innovator, engineer, or artist, this filament disrupts conventional 3D printing, replacing permanence with precision-controlled impermanence. For those who dream of materials that change, disappear, and evolve—TimeMass - Sublimation brings the future into focus, then lets it fade away.

What to print?

- **Evolving sculptures**, where sections vanish upon activation.
- **Microwave-driven actuators** for experimental soft robotics.
- **Disappearing piston chambers** that create vacuum-driven motion.
- **Vaporization-based energy release designs.**

How to print with TimeMass: Sublimation?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Sublimation**, tailored for printers with a 0.8 mm nozzle. This is the printing reference for TimeMass Sublimation as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

Time-Mass: Paper Surface

What is our Paper Surface filament?

What if 3D-printed objects could feel as natural as paper, yet retain the strength of a polymer? TimeMass - Paper Surface is a specialized post-process reactive filament that transforms printed objects into textured, paper-like creations, perfect for artistic, design, and functional applications.



A Fusion of Innovation & Tradition

- **True Paper Texture** – After printing, the object undergoes a **temporary hydrophilic activation stage**—a brief **water submersion softens the surface**, making it receptive to a **fine layer of cellulose-based powders**. As the object dries, these **fibers crystallize**, forming a **soft, fibrous texture** that **looks and feels like real paper**.
- **Durability Meets Elegance** – Unlike fragile traditional paper, **TimeMass - Paper Surface** maintains the **strength and flexibility of a polymer**, offering the **best of both worlds**—aesthetic beauty with lasting resilience. **Limitless Applications for Creativity & Functionality**
- **Fine Art & Custom Stationery** – Bring 3D-printed art to life with **canvas-like surfaces**, textured sculptures, or bespoke **handmade-style stationery**. 📖 **Bookbinding & Paper Prototyping** – Craft **durable book covers**, **experimental paper models**, or **prototypes** that mimic real paper properties without degradation.
- **Aged Manuscripts & Historical Replicas** – Create **weathered, parchment-like surfaces**, perfect for museum displays, movie props, or collector's pieces.
- **Interior & Architectural Design** – Develop **wall panels, decorative elements, or artistic reliefs** that carry the warmth and organic feel of paper, while remaining sturdy and long-lasting.
- **Tactile Branding & Packaging** – Print **luxurious, textured product packaging, business cards, or signage** that stands out with its unique paper-like appeal.
- **Designed for Artists, Designers, & Innovators** By combining **traditional craftsmanship with cutting-edge materials**, **TimeMass - Paper Surface** transforms how we interact with 3D-printed objects—blurring the line between **printed plastic and handcrafted paper**. For those who seek **elegance, texture, and innovation in every layer**, **TimeMass - Paper Surface** makes every print a masterpiece.

What to print?

- **Books, scrolls, and artistic paper-like sculptures**, preserving a unique handmade aesthetic.
- **Paper-textured prototypes** for product design and packaging concepts.
- **Custom greeting cards, business cards, and invitations** with intricate 3D textures.
- **Tactile signage and educational tools**, combining print durability with a paper feel.
- **Handwritten notebooks or calligraphy-ready sheets**, offering **3D-printed permanence with a paper finish**.

How to print TimeMass: Paper Surface

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Paper Surface**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Paper Surface as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm ³ /s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm ³ /s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Hydro Gel

What is our Hydro Gel filament?

A moisture-activated, shape-retaining filament that turns into a soft gel after printing. Engineered with Timeplast's proprietary hydrogel matrix, it absorbs water post-print to become pliable, squishy, and tactile –perfect for soft robotics, aquatic enrichment tools, or sensory tech.

Print. Soak. Transform.

How it works:

Hydrophilic polymer blends absorb and lock in water, expanding the printed structure up to 3x its original volume.

Soak time = behavior – Customize squishiness and size by controlling the submersion duration (1–4 hours).

No solvents. No post-processing. Just water-activated performance.

Core Material Composition:

- Hydrogel Matrix: 75% – Creates gel-like consistency through water entrapment
- Alcohol-based Polymers: 25% – Maintain structural form pre- and post-swelling

Tunable Softness:

- 1 hr soak = Slight flex
- 2–3 hr soak = Full gel feel
- 4 hr soak = Maximum expansion

Where to use it:

- Soft robotics prototypes – Create compliant, adaptive components
- Sensory toys – Print stress balls or squishy elements for therapy or fun
- Aquarium enrichment – Submersible, gentle-texture objects for aquatic pets
- Hydrophilic gaskets – Expands to form watertight seals



How to print with TimeMass Hydro Gel?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Hydro Gel**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Cinnamon.

This aromatic filament slowly releases real cinnamon—thanks to our water-encapsulation technology that protects and diffuses versatile compounds. Create interactive, scent-forward designs with a warm, spiced identity.

Scent meets function. And it's all natural.

How it works:

Microencapsulated cinnamon oil and powder are protected during extrusion and slowly released as ambient moisture activates the surface.

Always fresh.

Core Material:

- Encapsulated Cinnamon: 18% – Ground and oil blend stabilized via silica-gel shells
- Structured water polymer: 82% – Enables consistent print quality and scent diffusion

Scent Design:

- Gradual release for up to 6 months depending on exposure
- Can be triggered faster in high humidity or warm air flow

Where to use it:

- Home fragrance objects – Scented wall tiles, drawer inserts, or ornaments
- Edutainment – Teach kids about aromatic molecules with interactive models
- Event décor – Custom cinnamon-scented printables for holidays
- Bug repellents – Print cinnamon-scented outdoor items (mosquitoes hate it!)



How to print with TimeMass Cinnamon?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Cinnamon**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Stick, Spark & Glow

A triple-visibility filament that glows in the dark, reflects light, and sparkles in daylight. Made for visibility, safety, and unapologetic flair. If you want your prints to pop—day or night—this is your go-to.

Shine. Reflect. Dazzle.

How it works:

Multiple light-responsive additives are embedded within a durable polymer carrier, activated by natural or artificial light.

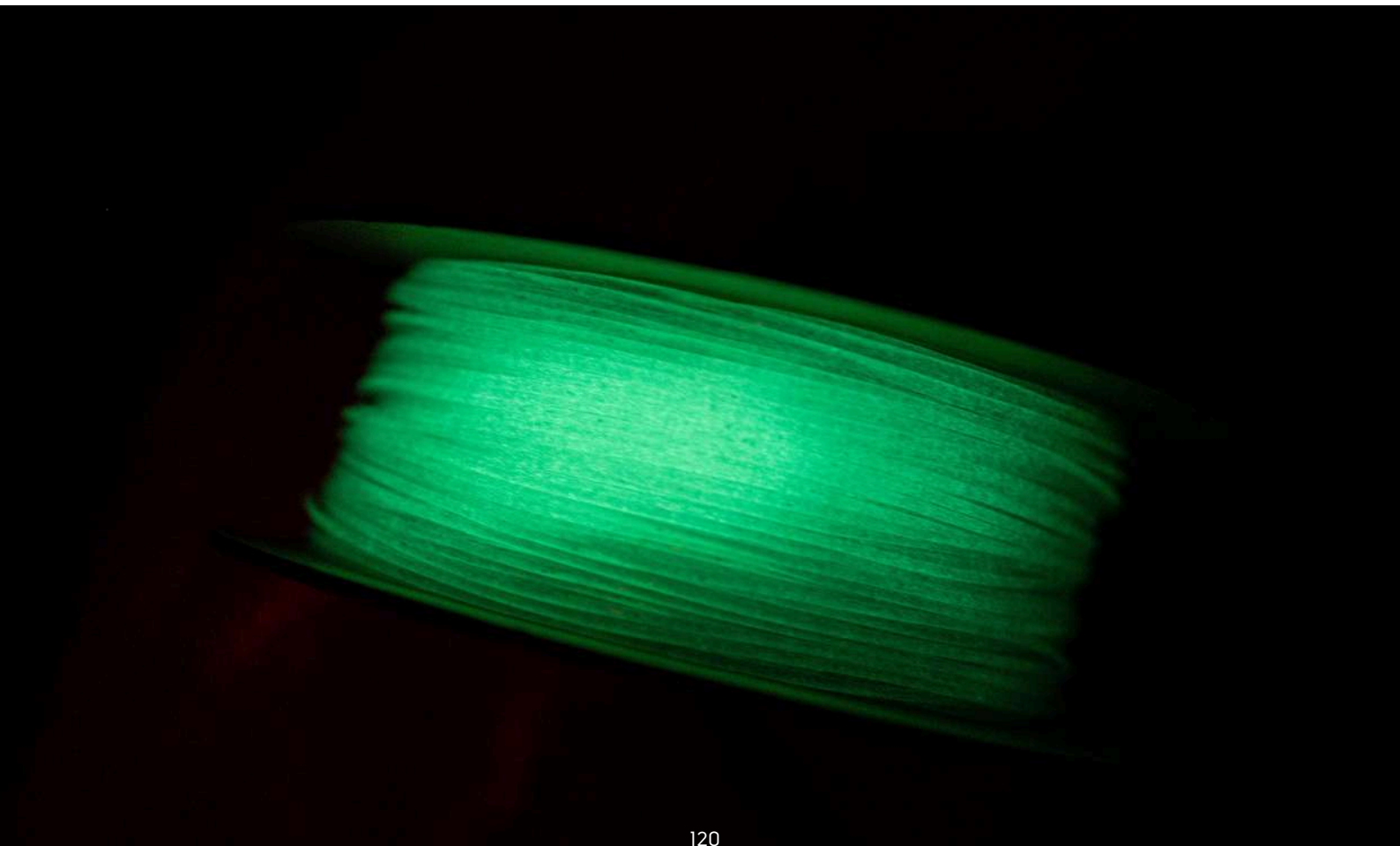
Day or night – it never goes unnoticed.

Core Components:

- Photoluminescent Pigments: 30% – Recharge in light, glow for hours
- Retroreflective Microbeads: 20% – Bounce light directly back to source
- Iridescent Flakes: 10% – Add visual punch under sunlight
- Base Material: 40% – Tough and printable for long-lasting use

Where to use it:

- Night cycling accessories – Make yourself seen
- Safety gear prototypes – Reflective tools for visibility testing
- Party/event props – Light up the night with flair
- Fashion or cosplay – Wearable elements that glow and shimmer



How to print with TimeMass Stick, Spark & Glow

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Stick, Spark & Glow**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-



TimeMass: Antibacterial

What is our Ball filament?

Engineered with embedded slow-release antibacterial agents like Vinegar, borax and chloride compounds, this filament forms a protective and immunity aura around your printed part. Designed to maintain hygiene and reduce microbial growth on high-contact surfaces.

Built-in immunity, powered by science.

How it works:

Encapsulated antimicrobials are slowly released upon contact with ambient moisture, delivering long-term protection without leaching or surface degradation.

No coatings. No sprays. Just baked-in sanitation.

Antibacterial Agents:

- Vinegar and Borax: Inhibits bacterial metabolism
- Calcium hypochlorite, powerful oxidant and cell killer.
- Zinc Oxide (trace): Reinforces microbe resistance

Where to use it:

- Public touchpoints – Door handles, elevator buttons, light switches
- Healthcare prototypes – Lab tools, dispensers, trays
- Pet products – Clean bowls, toys, or water-dispensing structures
- Educational tools – Safe-to-touch classroom models

How to print with TimeMass Antibacterial?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Antibacterial**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

Time-Mass: Fish Food

A protein-rich, interactive filament made from shrimp meal, fish meal, earthworm powder, and spirulina. This is more than food—it's enrichment. Print mini prey-like structures your fish will explore and nibble on over time.

Feed. Play. Repeat.

How it works:

Bioavailable proteins and marine vitamins are embedded within a low-leach matrix that softens underwater, triggering interest and gradual release.

It's enrichment disguised as nutrition.

Nutrient Composition (per 350g spool):

- Fish & Shrimp Meal: 20 g – Rich in omega-3s
- Spirulina & Earthworms: 15 g – For immunity and digestion
- Vitamin Mix: 5 g – A, D3, B-complex

Where to use it:

- Aquarium toys – Print fish- or squid-shaped items for slow feeding
- Breeder tanks – Enrichment for bettas, cichlids, and other active fish
- Decorative feeders – Combine style and sustenance
- Education kits – Demonstrate animal behavior and nutrition in action



How to print with TimeMass Fish Food?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Fish Food**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm.	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Antibacterial Soap Gen 2.

A self-cleaning filament that combines natural antibacterial and antifungal power into one. Made with vinegar, borax, zinc oxide, and miconazole nitrate (2%), this filament is ready to fight microbial threats from every angle.

Clean hands. Clean surfaces. Clean tech.

How it works:

Moisture triggers the slow release of antimicrobial actives while preserving integrity for extended use.

No slime. No waste. Just embedded hygiene.

Active Components:

- Vinegar + Borax – Natural disinfectants
- Zinc Oxide – Skin-safe germ barrier
- Miconazole Nitrate – Fungus-fighting hero

Where to use it:

- Reusable soap bars – Long-lasting, antibacterial blocks
- Public-use objects – Prevent bacteria build-up
- Gym or school items – Stay protected with every touch
- Anti-fungal trays or dispensers



How to print with TimeMass Antibacterial Soap Gen 2?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Antibacterial Soap Gen 2**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Bug Killer

This bug-busting filament is loaded with slow-release diatomaceous earth (silicon dioxide) and built for safe, chemical-free pest control. When printed, it acts as a micro-abrasive that physically damages insect exoskeletons upon contact.

No poison. No smell. Just mechanical insect control.

How it works:

Humidity-activated release combined with rough surfaces deliver a continuous anti-insect effect.

Kills roaches, fleas, ants, bedbugs, silverfish—and keeps working for weeks.

Core Material:

- Diatomaceous Earth: 35% – Sharp, fine particles destroy insect shells
- Hydrophilic Matrix: 65% – Activates in moist environments for better coverage

Where to use it:

- Indoor pest control – Line baseboards, under sinks, behind fridges
- Garden bug shields – Safe for organic gardening (OMRI listed)
- Pet-safe zones – Create custom traps or feeders



How to print with TimeMass Bug Killer?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Bug Killer**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Bug Attractor



Designed for controlled bug attraction, this filament is infused with maltodextrin, sugars, milk proteins, and yeast extract. Ideal for DIY insect farms, traps, or study tools—it draws in scavengers, flyers, and larvae-feeders.

From ant trails to fly swarms, this filament brings the bugs to you.

How it works:

Water-activated compounds release food-scent molecules gradually, maintaining consistent attraction without spoilage.

Insects love it. You control the design.

Core Attractants:

- Glucose + Fructose + Maltodextrin – Sweet lures for cockroaches, ants, and flies
- Milk Proteins + Yeast Extract – Attract egg-laying insects and larval feeders

Where to use it:

- Insect farming – Feed black soldier flies, ants, beetles
- Bug behavior studies – Controlled environments for research
- Custom traps – Build your own lure stations
- Garden insect monitoring

How to print with TimeMass Bug Attractor?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Bug Killer**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass Toilet Color.

A disinfecting, water-tinting filament built to clean and color your toilet bowl from inside the tank. Formulated with borax and chlorine-based disinfectants, it releases slowly, turning water blue (or other colors) while actively sanitizing.

Looks clean. Is clean.

How it works:

Moisture triggers gradual leaching of color and cleaning agents over 2–4 weeks.

Core Composition:

- Borax + Chloride Compounds – Kill bacteria and neutralize odors
- Color Agents – Tints water for visual hygiene cue

Where to use it:

- Toilet tank discs – Replace commercial drop-ins with your own design
- Travel toilets or portables – Custom color + clean units
- Bathroom branding – Hotels, restaurants, or creative use



How to print with TimeMass Toilet Color?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Toilet Color**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	
		Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-



TimeMass:

Fish Bait

Water soluble, fish-attracting filament built to dissolve after one hour in water. Packed with worm, shrimp, squid, and fish meal, it tempts fish while reducing waste in the water. Ideal for recreational fishing or custom bait design.

Print. Cast. Catch. No mess left behind.

How it works:

Water exposure activates flavor molecules and starts softening the bait. Time-controlled dissolution ensures no environmental-impact disposal.

Bait it your way.

Core Ingredients:

- Fish + Shrimp Meal: 15 g
- Squid Powder + Worm Extract: 3 g
- Marine-safe Binder: 25 g

Where to use it:

- Fishing bait prototypes – Shape-specific lures
- Retail baits – Sell your own 3D-printed bait line
- Sustainable fishing – No plastic trash in rivers or lakes

How to print with TimeMass Fish Bait?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Fish Bait**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	
		Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Vinegar



A humidity-activated filament loaded with vinegar for natural cleaning and disinfection. Releases over time to maintain localized acidity and remove odors or biofilm.

Clean with nature's oldest solvent.

How it works:

Moisture triggers acid release in a controlled manner, useful for deodorizing or sanitizing small spaces.

Where to use it:

- Deodorizing plugs – Trash cans, lockers, shoe cabinets
- Natural cleaning pads – Kitchen and bath tools
- Pet-safe disinfecting tools

How to print with TimeMass Vinegar?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Vinegar**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm.	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass Sugar.

A water-activated, sweet-loaded filament ideal for biochemical triggers, insect farming, or experimental food-based prints. Releases glucose and sucrose in trace amounts over time.

Sweet science.

Where to use it:

- Insect traps and feeders
- Microbial growth experiments
- Edutainment or biochemical test kits



How to print with TimeMass Sugar?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Sugar**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass **Fungi Food.**

Optimized for mushroom growing, this filament contains gypsum (calcium sulfate) to provide vital minerals while managing pH. Includes slow-release hydration tech for sustained mycelium support.

Grow your mycelial empire—one layer at a time.

Where to use it:

- DIY mushroom blocks
- Humidity-retaining plugs
- Spore carriers for inoculation kits



How to print with TimeMass Fungi Food?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Fungi Food**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: UV Reveal

A stealthy, light-shifting filament that looks neutral in daylight—but under UV or blacklight? It glows a vivid, electric purple. Engineered with photo-reactive dyes, it's perfect for hidden messages, party prints, or security-related applications.

Plain by day. Purple by blacklight.

How it works:

UV-reactive compounds stay invisible in visible light, but emit bright fluorescence under ultraviolet light sources.

No batteries. No electronics. Just physics and photochemistry.

Core Composition:

- UV-reactive Fluorophores: 18% – Designed for high-contrast glow
- Neutral Carrier Polymer: 82% – Maintains daylight camouflage

Where to use it:

- Secret messages & codes – Hide visual data in plain sight
- Escape rooms & puzzles – Reveal clues only under UV
- Event décor – Prints that transform under party lighting
- Counterfeit deterrents – Secure packaging and labels



How to print with TimeMass UV Reveal?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **UV Reveal**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-



TimeMass:

Thermochromatic

A filament that changes color in response to heat or moisture. It starts translucent, then shifts to a blue toned color as conditions change—ideal for smart indicators, ambient sensors, or artistic storytelling.

Color = condition. Let your prints communicate.

How it works:

Thermochromic and hydrochromic agents embedded in the matrix shift molecular structure when exposed to heat or water, altering the way they absorb and reflect light.

Thickness = trigger point. Tailor your print for precision.

Core Material:

- Dual-responsive Pigments: 25% – Colorless-to-blue shift
- Responsive Polymer Matrix: 75% – Flexible under change

Where to use it:

- Moisture or heat sensors – Visual indication of environmental conditions
- Smart packaging – Let your prints warn or alert
- Mood products – Interactive, dynamic results
- Educational models – Demonstrate thermodynamics or hygrometry

How to print with TimeMass Thermochromatic?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Thermochromatic**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Passive Cooling



A water-loaded filament that acts like a printed chemical radiator. Once hydrated, it cools its surroundings through controlled evapotranspiration, using environmental heat as activation energy to release water vapor removing heat in the process, just like a radiator cools.

No fans. No circuits. Just dip in water and get chemical-powered cooling.

How it works:

The high water content stores thermal energy, while evaporation pulls heat from the air—reducing surrounding temperature by several degrees in small spaces where print sizes and its locations are purposefully designed.

Recharge weekly. Repeat endlessly.

Core Composition:

- Water Content after hydration: 85% – Primary cooling medium
- Porous Matrix: 15% – Facilitates slow, even evaporation

Where to use it:

- Passive cooling tiles – Attach to walls, planters, or cases
- Enclosures for electronics – Keep components cooler
- Greenhouse regulators – Evaporative microclimate creation
- Desktop science experiments – Visualize energy exchange

How to print with TimeMass Passive Cooling?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **Passive Cooling**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Active as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzle**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	
		Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

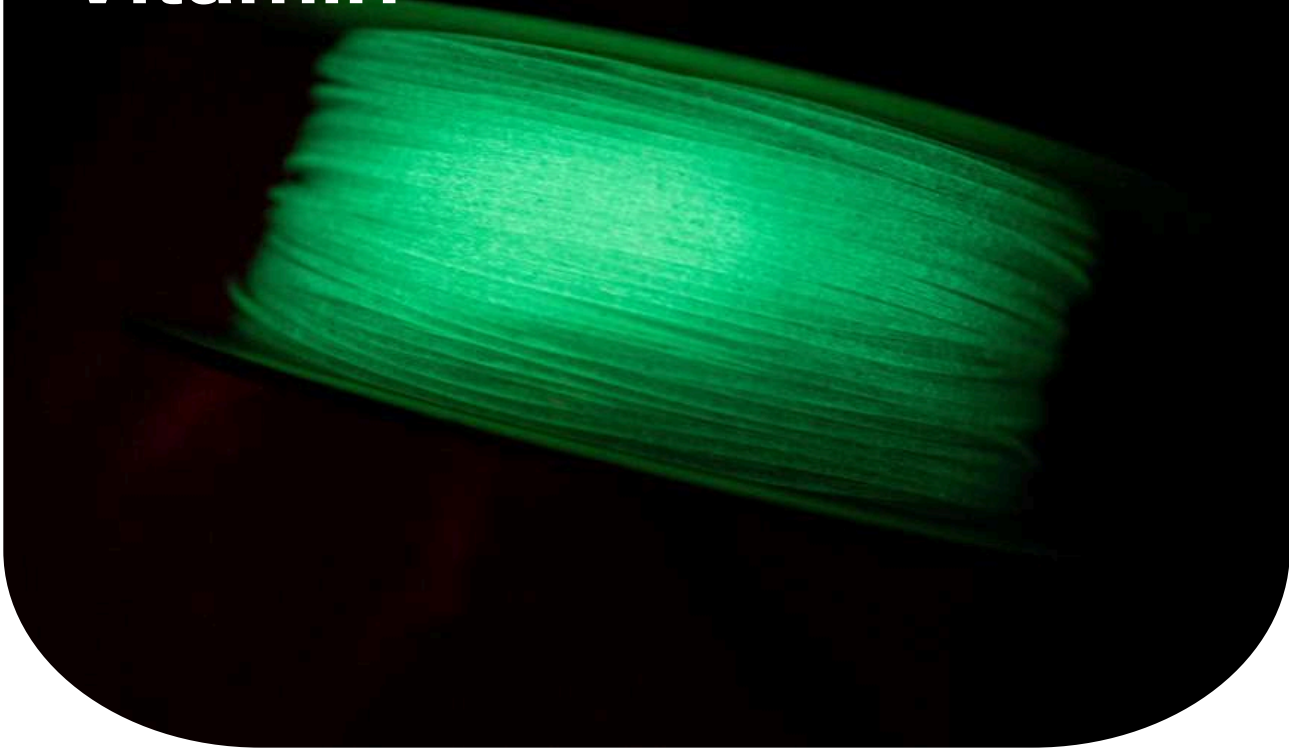
G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Glowing Plant Vitamin



Bring your garden — and your imagination — to life, even in total darkness!

For Subscribers only.

Timeplast – TimeMass Glowing Plant Vitamin Filament is a specialized polymer reel formulated with plant-derived additives. Designed for manufacturing consumer and industrial products, it dissolves in water over time to release plant-supportive nutrients while maintaining structural integrity. Crafted with **non-toxic strontium aluminate** and our exclusive **plant vitamin formula**, this unique filament lets you 3D print glowing seed pods that nourish and support plant growth.

Highlights:

- **Glow-in-the-dark magic:** Create luminous seed pods or garden markers for easy nighttime identification.
- **Functional & decorative:** Print indoor planters that glow softly to light up your space at night.
- **Educational fun:** A hands-on way to teach kids about plant biology, growth, and phosphorescence.

Perfect for gardeners, educators, and makers who want to combine sustainability with creativity.

How to print with TimeMass: Glowing Plant Vitamin?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Glowing Plant Vitamin**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Plant Vitamin, as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzles**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

TimeMass: Cinnamon Soap

The world's first 3D-printable foaming soap filament — now with a spicy twist!

For Subscribers only!

Timeplast — TimeMass Cinnamon Soap Filament is a polymer additive reel designed for use in consumer goods manufacturing. Built on our Gen 5 soap technology, this filament lasts up to 10× longer than a regular store bar. Infused with real cinnamon oil and spice, your prints become functional, aromatic, and antimicrobial.

Highlights:

- Cleans & protects: Prints foam in water while releasing cinnamon's natural antimicrobial benefits.
- Long-lasting aroma: Thanks to micro-encapsulation, each piece slowly releases a warm cinnamon scent for up to 6 months.
- Bug-repelling power: Cinnamon doubles as a natural insect repellent — perfect for outdoor soaps, camping gear, or patio decor.
- Exclusive release: A subscriber-first formula not yet available in our store!

A powerful blend of cleaning, fragrance, and function — designed for makers who love practical creativity.



How to print with TimeMass: Cinnamon Soap?

These parameters are designed to help avoid printing issues; however, temperatures and speed timings can be adjusted based on your specific goals. For example, if you prefer a less rigid result, we recommend using a lower temperature. If you're aiming for a stiffer print, a slightly higher temperature may be more suitable. This section outlines a complete slicing and printing profile for **TimeMass Cinnamon Soap**, tailored for printers with a 0.8 mm nozzle.

This is the printing reference for TimeMass Plant Vitamin, as tested on the Bambu Labs AI printer, optimized for **0.8 mm nozzles**. Each setting includes rationale based on the filament's **rheological behavior, thermal performance, moisture sensitivity, and mechanical response**. Where settings remain consistent across nozzle sizes, this is also noted. If the print is not successful, please lower the nozzle temperature by 10°C and restart the process until an optimal print is achieved.

Temperature Settings

Parameter Value		Rationale
Nozzle Temp	230°C	Optimal for flowability while avoiding decomposition (starts ~250°C) if it oozes too much, lower this temps by 10C up until optimal extrusion is achieved.
Bed Temp	75°C	Ensures first-layer adhesion and combats moisture bubbling
Nozzle Temp Range	230–245°C	Timeplast melts at ~165°C, but prints best at 240°C for viscosity control

Cooling Settings

Parameter	Value	Rationale
No Cooling First Layers	3	Prevents shrinkage from rapid cooling on moisture-rich filament
Fan Min Speed	0% @ 100s	Allows heat retention during low-layer times
Fan Max Speed	15% @ 8s.	Avoids over-cooling that causes layer warping
Keep Fan Always On	OFF	Allows vapor to escape and avoids internal fogging
Slow Down for Cooling	ON	Enhances surface finish with controlled cooling
Force Cooling for Overhangs	OFF	Over-cooling Timeplast can cause deformation on bridges
Fan for Overhangs	15%	Minimal fan for critical sections only
Pre-Start Fan Time	2s	Ensures minimal pressure differential on first layer

Volumetric Flow

Parameter	Value	Rationale
Max Volumetric Speed	12 mm³/s	Based on MFI ~15 g/10min — allows high-speed flow
Ramming Speed	3 mm³/s	Prevents bubbles/pop caused by internal pressure spikes

Retraction & Flow

Parameter	Value	Rationale
Retraction Distance	0.4 mm.	Soft filaments need minimal retraction to avoid stringing
Retraction Speed	15 mm/s.	Slow enough to avoid stretching molten plastic
Pressure Advance	0.05	Compensates for nozzle lag at high flow
Flow Ratio	92%	Slight under-extrusion prevents swelling and zits

Precision Settings

Parameter	Value	Rationale
Gap Closing Radius	0.1 mm.	Slightly larger for gap tolerance in thick walls
Arc Fitting	ON	Reduces gcode size and smooths flex curves
Elephant Foot Comp	0.1 mm	Offsets first-layer squish with large bead size

Walls & Shells

Parameter	Value	Rationale
Wall Loops	2	Minimum needed for strength with 0.8 mm nozzle
Detect Thin Wall	ON	Ensures nothing gets skipped in tight geometry
Top/Bottom Shell		Sufficient coverage; increase for watertight prints
Layers	3	0.8 mm × 1.5 for solid capping strength
Top/Bottom Thickness	1.2 mm	
Top/Bottom Pattern	Monotonic	Clean finish, even tension distribution

Geometry & Movement

Parameter	Value	Rationale
Wall Order	Inner > Outer	Cleaner outer walls and better pressure handling
Infill First	OFF	Preserves dimensional accuracy
Smooth Speed Transition	ON	Prevents ringing from speed shifts
Smooth Coefficient	80	Standard damping for soft materials
Avoid Crossing Wall	ON	Prevents string marks on part walls
Max Detour for Crossing	10 mm or 5%	Balance between travel avoidance and time

Layer & Width

Parameter	Value	Rationale
Layer Height	0.3 mm	Sweet spot for strength and quality on 0.8 mm nozzle
Initial Layer Height	0.35 mm	Slight squish for bed adhesion
Line Widths (all)	0.8 mm.	Matches nozzle diameter for volumetric precision

Seam Settings

Parameter	Value	Rationale
Seam Position	Aligned or Back	Aligned for consistency, Back for visual quality
Smart Scarf Seam	ON	Dynamically places seam to reduce artifacts
Seam Angle	155°	Standard angle handling for joints
Seam Steps	10	Smooths transition path

Infill Settings

Parameter	Value	Rationale
Wall/Infill Overlap	10%	Prevents wall deformation on soft materials
Infill Combination	ON	Consolidates paths for speed and flow consistency
Detect Floating Shells	ON	Ensures unsupported verticals are printed reliably
Sparse Infill Density	20–25%	Balanced rigidity and material use
Sparse Pattern	Grid	Stable and quick for elastic geometry

Speed Settings

Feature	Value	Rationale
Travel	160 mm/s	Fast enough without backlash risk
Initial Layer	15 mm/s	Prevents nozzle skimming, improves adhesion
Outer Wall	60 mm/s	Surface detail and pressure-controlled
Inner Wall	90 mm/s	Slightly faster, still controlled
Small Perimeter	35 mm/s	Slows for fine shapes
Top Surface	40 mm/s	Smooths final visible layers
Infill	100–120 mm/s	Leverages high flowability

Acceleration

Type	Value	Rationale
Normal Print	2000 mm/s ²	Prevents ringing on soft filament
Travel	4000 mm/s ²	Quick but not harsh for travel hops
Initial Layer	300 mm/s ²	Gentle motion to prevent lift
Outer Wall	1500 mm/s ²	Clean surface definition
Inner Wall	2000 mm/s ²	Balanced structure acceleration
Top Surface	1500 mm/s ²	Smooth detailing speed

Adhesion & Brims

Setting	Value	Rationale
Skirt Loops	2	Clears nozzle & primes without oozing
Brim Width	6 mm	Helps hold soft cornered parts down
Brim Gap	0.15 mm	Easy removal with good base tension

Prime Tower & Flush

Feature	Value	Rationale
Prime Tower	ON	Useful even on single material to purge early water vapor
Tower Width	40 mm	Prevents tower instability from heat stress
Brim Width (Tower)	4 mm	Adds anchor to purge base
Flush Into Support	ON	Safely discards initial steam-expelled material

G-code Start Script

M900 K0.05 ; Pressure Advance
M106 S0 ; Fan off
G92 E0
G1 E15 F300 ; purge line
G92 E0

Additional Notes

- Dry filament at **155 F for 2 hours** before use
 - Store with desiccant Keep extruder door open
 - to release vapor Avoid long nozzle dwell at
 - high temps
-

Printing Tips and Recommendations.

General Tips:

- **Printing recommendations:** For reliable prints, please always use a 0.8mm nozzle. A texture plate and a printing adhesive. So that first layer will adhere.
- For all of the other parameters, please use our specialized GPT [here](#).
- **Filament Sensitivity:** Time-Mass filaments are sensitive to speed and temperature settings. Adjust these parameters carefully to avoid printing issues.
- **Storage:** Store filaments in a cool, dry environment to prevent moisture absorption. Use a filament dryer set to 55°C (e.g., Fixdry) and dry the filament for 24-48 hours. or **155F** for at least two hours before use.

Printing and dissolution times:

- Active: Each 0.3mm layer dissolves in 5 minutes.
- Delayed: 1.8x slower than Active.
- Passive: 3.5x slower than Delayed.

Drying the filaments before use is essential, as it significantly improves the quality of the print.





TimeMass.

Timeplast filaments provide excellent printing results when used with the correct settings and handling procedures. Fine-tuning these settings based on your specific environment and printer can enhance stability and reduce fluctuations. Always ensure proper ventilation and monitor the filament for any issues during printing. For more detailed information and troubleshooting, contact Timeplast support.

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