

Fuel Cap Opener – thick, 2 inch

Material: ABS

Print time = .1 hrs

Plastic cost = \$.05

Simplify3D slicer

1 Print Processes Total

The screenshot displays the Simplify3D software interface. On the left, there are several control panels:

- Show in Preview:** Includes checkboxes for 'Build table' (checked), 'Travel moves', 'Toolhead', and 'Retractions'. A 'Coloring' dropdown menu is set to 'Movement Speed'.
- Real-time Updates:** Includes a checkbox for 'Live preview tracking' and an 'Update interval' set to 5.0 seconds.
- Begin Printing over USB:** A button with a USB cable icon.
- Save Toolpaths to Disk:** A button with an SD card icon.
- Exit Preview Mode:** A button with a green arrow icon.

The main 3D view shows a grey fuel cap opener model on a grid. The toolpath is highlighted in cyan. Below the 3D view, the 'Toolhead Position' is displayed as X: 41.942, Y: 280.000, and Z: 24.485.

At the bottom, there are three control panels:

- Animation:** Includes a 'Play/Pause' button and a 'Speed' slider.
- Control Options:** Includes a 'Preview By' dropdown set to 'Layer', an 'Only show' checkbox, and a layer count dropdown set to '1'.
- Layer Range to Show:** Includes 'Min' and 'Max' sliders.

# Process 1

The image shows a screenshot of the 'FFF Settings' dialog box. At the top, the 'Process Name' is 'Process 1'. Below it, the 'Select Profile' is 'Default (modified)'. There are buttons for 'Update Profile', 'Save as New', and 'Remove'. The 'Auto-Configure for Material' is set to 'ABS' and 'Auto-Configure for Print Quality' is set to 'Fast'. Under 'General Settings', the 'Infill Percentage' is 100%, and there are checkboxes for 'Include Raft' and 'Generate Support'. A tabbed interface is visible with tabs for 'Extruder', 'Layer', 'Additions', 'Infill', 'Support', 'Temperature', 'Cooling', 'G-Code', 'Scripts', 'Speeds', 'Other', and 'Advanced'. The 'Extruder' tab is active, showing an 'Extruder List' with 'Primary Extruder' selected. The main area is titled 'Primary Extruder Toolhead' and has an 'Overview' section with settings for 'Extruder Toolhead Index' (Tool 0), 'Nozzle Diameter' (0.50 mm), 'Extrusion Multiplier' (1.00), and 'Extrusion Width' (Auto, 0.60 mm). The 'Ooze Control' section has checkboxes for 'Retraction', 'Coast at End', and 'Wipe Nozzle', with corresponding numerical values for distance and speed.

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for Print Quality:

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

Extruder | Layer | Additions | Infill | Support | Temperature | Cooling | G-Code | Scripts | Speeds | Other | Advanced

Extruder List (click item to edit settings)

Primary Extruder

### Primary Extruder Toolhead

Overview

Extruder Toolhead Index:

Nozzle Diameter:  mm

Extrusion Multiplier:

Extrusion Width:  Auto  Manual  mm

Ooze Control

Retraction

Retraction Distance:  mm

Extra Restart Distance:  mm

Retraction Vertical Lift:  mm

Retraction Speed:  mm/s

Coast at End

Coasting Distance:  mm

Wipe Nozzle

Wipe Distance:  mm

FFF Settings

? X

Process Name:

Select Profile:

Auto-Configure for Material

Auto-Configure for Print Quality

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

- Extruder
- Layer
- Additions
- Infill
- Support
- Temperature
- Cooling
- G-Code
- Scripts
- Speeds
- Other
- Advanced

Layer Settings

Primary Extruder:

Primary Layer Height:  mm

Top Solid Layers:

Bottom Solid Layers:

Outline/Perimeter Shells:

Outline Direction:  Inside-Out  Outside-In

Print islands sequentially without optimization

Single outline corkscrew printing mode (vase mode)

First Layer Settings

First Layer Height:  %

First Layer Width:  %

First Layer Speed:  %

Start Points

Use random start points for all perimeters

Optimize start points for fastest printing speed

Choose start point closest to specific location

X:  Y:  mm

FFF Settings

? X

Process Name:

Select Profile:

Auto-Configure for Material

Auto-Configure for Print Quality

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

- Extruder
- Layer
- Additions
- Infill
- Support
- Temperature
- Cooling
- G-Code
- Scripts
- Speeds
- Other
- Advanced

Use Skirt/Brim

Skirt Extruder:

Skirt Layers:

Skirt Offset from Part:  mm

Skirt Outlines:

Use Prime Pillar

Prime Pillar Extruder:

Pillar Width:  mm

Pillar Location:

Speed Multiplier:  %

Use Raft

Raft Extruder:

Raft Top Layers:

Raft Base Layers:

Raft Offset from Part:  mm

Separation Distance:  mm

Raft Top Infill:  %

Above Raft Speed:  %

Use Ooze Shield

Ooze Shield Extruder:

Offset from Part:  mm

Ooze Shield Outlines:

Sidewall Shape:

Sidewall Angle Change:  deg

Speed Multiplier:  %

FFF Settings
?
×

Process Name:

Select Profile:  Update Profile Save as New Remove

Auto-Configure for Material

+ -

Auto-Configure for Print Quality

+ -

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

Extruder
Layer
Additions
Infill
Support
Temperature
Cooling
G-Code
Scripts
Speeds
Other
Advanced

General

Infill Extruder

Internal Fill Pattern

External Fill Pattern

Interior Fill Percentage  %

Outline Overlap  %

Infill Extrusion Width  %

Minimum Infill Length  mm

Combine Infill Every  layers

Include solid diaphragm every  layers

Internal Infill Angle Offsets

0	deg	45
		-45

Add Angle

Remove Angle

Print every infill angle on each layer

External Infill Angle Offsets

0	deg	45
		-45

Add Angle

Remove Angle

Hide Advanced
Select Models
OK
Cancel

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for Print Quality:

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

Extruder | Layer | Additions | Infill | **Support** | Temperature | Cooling | G-Code | Scripts | Speeds | Other | Advanced

**Support Material Generation**

Generate Support Material

Support Extruder:

Support Infill Percentage:  %

Extra Inflation Distance:  mm

Support Base Layers:

Combine Support Every:  layers

**Dense Support**

Dense Support Extruder:

Dense Support Layers:

Dense Infill Percentage:  %

**Automatic Placement**

*Only used if manual support is not defined*

Support Type:

Support Pillar Resolution:  mm

Max Overhang Angle:  deg

**Separation From Part**

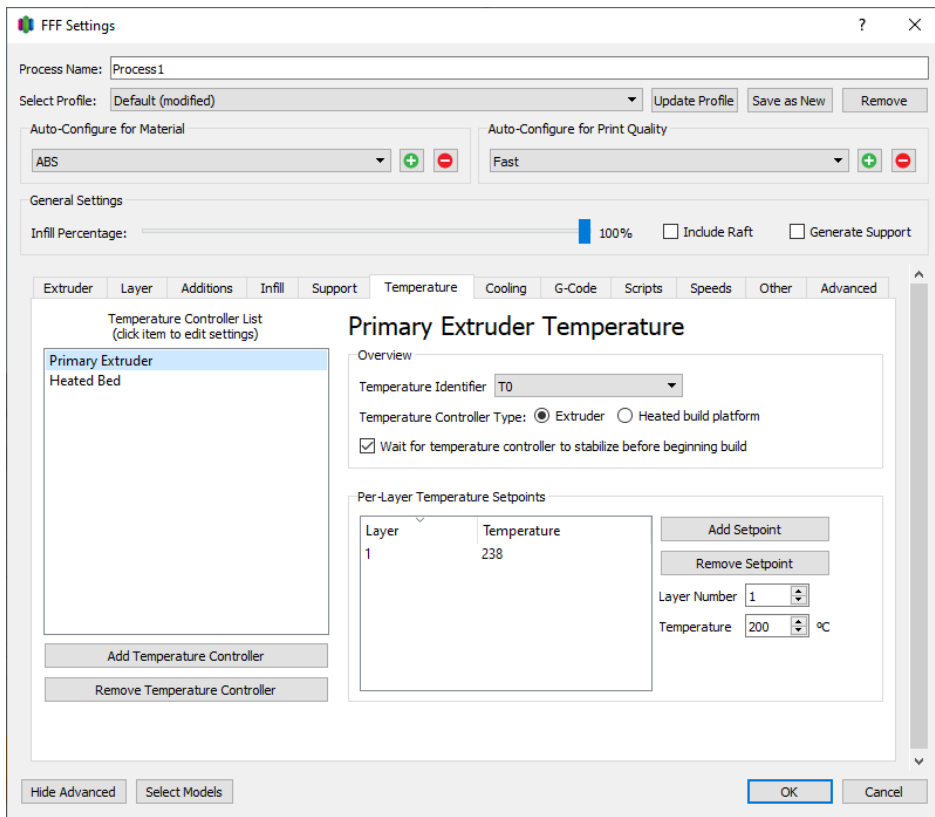
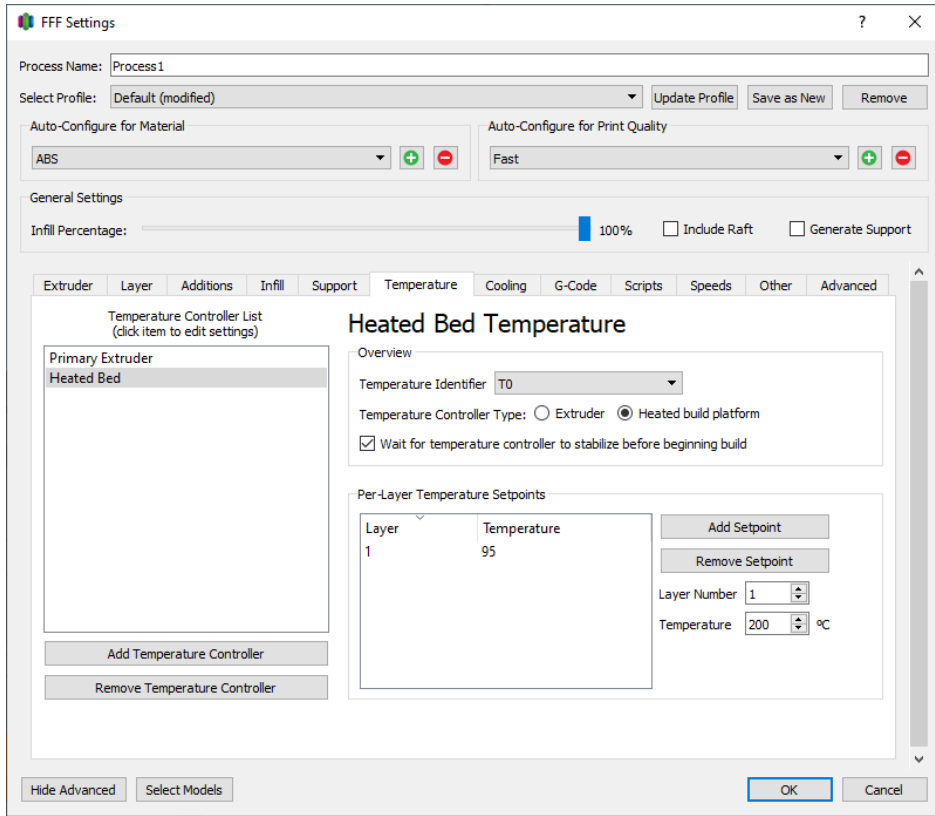
Horizontal Offset From Part:  mm

Upper Vertical Separation Layers:

Lower Vertical Separation Layers:

**Support Infill Angles**

deg



FFF Settings

? X

Process Name:

Select Profile:

Auto-Configure for Material

Auto-Configure for Print Quality

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

- Extruder
- Layer
- Additions
- Infill
- Support
- Temperature
- Cooling
- G-Code
- Scripts
- Speeds
- Other
- Advanced

Per-Layer Fan Controls

Layer	Fan Speed
1	0

Layer Number   
Fan Speed  %

Fan Options

Blip fan to full power when increasing from idle

Fan Overrides

Increase fan speed for layers below  sec  
Maximum cooling fan speed  %  
 Bridging fan speed override  %



FFF Settings

? X

Process Name:

Select Profile:

Auto-Configure for Material

Auto-Configure for Print Quality

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

- Extruder
- Layer
- Additions
- Infill
- Support
- Temperature
- Cooling
- G-Code
- Scripts
- Speeds
- Other
- Advanced

Speeds

Default Printing Speed  mm/s  
Outline Underspeed  %  
Solid Infill Underspeed  %  
Support Structure Underspeed  %  
X/Y Axis Movement Speed  mm/s  
Z Axis Movement Speed  mm/s

Speed Overrides

Adjust printing speed for layers below  sec  
Allow speed reductions down to  %

FFF Settings
?
×

Process Name:

Select Profile: Default (modified) ▼ Update Profile Save as New Remove

Auto-Configure for Material

ABS ▼ + -

Auto-Configure for Print Quality

Fast ▼ + -

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

Extruder Layer Additions Infill Support Temperature Cooling G-Code Scripts Speeds Other Advanced

**Bridging**

Unsupported area threshold  sq mm

Extra inflation distance  mm

Bridging extrusion multiplier  %

Bridging speed multiplier  %

Use fixed bridging infill angle  deg

Apply bridging settings to perimeters

**Filament Properties**

Filament Toolhead Index Tool 0 ▼

Filament diameter  mm

Filament price  price/kg

Filament density  grams/cm<sup>3</sup>

**Tool Change Retraction**

Tool change retraction distance  mm

Tool change extra restart distance  mm

Tool change retraction speed  mm/s

**Dimensional Adjustments**

Horizontal size compensation  mm

Hide Advanced
Select Models
OK
Cancel

FFF Settings
? ×

Process Name:

Select Profile: Default (modified) ▾ Update Profile Save as New Remove

Auto-Configure for Material

ABS ▾ + -

Auto-Configure for Print Quality

Fast ▾ + -

General Settings

Infill Percentage:  100%  Include Raft  Generate Support

Extruder Layer Additions Infill Support Temperature Cooling G-Code Scripts Speeds Other Advanced

Layer Modifications

Start printing at height  mm

Stop printing at height  mm

Thin Wall Behavior

External Thin Wall Type: Perimeters only ▾

Internal Thin Wall Type: Allow single extrusion fill ▾

Allowed perimeter overlap:  %

Ooze Control Behavior

Only retract when crossing open spaces

Force retraction between layers

Minimum travel for retraction  mm

Perform retraction during wipe movement

Only wipe extruder for outer-most perimeters

Movement Behavior

Avoid crossing outline for travel movements

Maximum allowed detour factor:

Single Extrusions

Minimum Extrusion Length:  mm

Minimum Printing Width:  %

Maximum Printing Width:  %

Endpoint Extension Distance:  mm

Slicing Behavior

Non-manifold segments:  Discard  Heal

Merge all outlines into a single solid model

Hide Advanced Select Models OK Cancel

