PEGDA PhotoInk™ Usage Guide

Purpose

The purpose of this guide is to show first time users how to print with Volumetric's PEGDA PhotoInk™. The instructions are written for use with the Lumen X bioprinter and assumes the user has the system and accessories.

Storage

- Recommended storage temperature: 4 °C
- Do NOT freeze the PhotoInk™.
- Keep in a dry, dark location when not in use.
- Protect from free radical initiators and sources of heat.

Typical Parameters

Power (mW/cm^2)	20	
Layer Height (µm)	100	50
Exposure Time (s)	18	10
1^{st} Layer Time Scale Factor	4x	4x

Supplies Needed

- 1x Syringe, 1 to 5 mL, depending on the volume required
- 1x Conical nozzle, 22 Ga or 0.400 mm or larger recommended OR for greater precision
- 1x Micropipette, 1000 mL recommended
- 1x Box of tips

- 1x Plastic Razor Blade
- 1x Container, 250 mL or larger, filled with either:
    - DI water
    - PBS, when printing with cells
- 1x Syringe, optional for clearing channels

- 1x Needle, optional for clearing channels

Before Printing

1. Allow PhotoInk™ to reach room temperature by warming in hand.
2. Prepare STL file for printing by progressing through the File, Prepare, and Print tabs.
3. Dispense the volume of PhotoInk displayed by LightField. Return the remaining PhotoInk to a dark place close-by if more prints will be conducted or to 4 °C for storage.
4. Tap Start.

After Printing

1. Remove the build platform from the Lumen X.
2. Use the plastic razor blade to gently remove the printed part.
3. Place the print in the container of PBS or water to wash the bulk material off.
4. If there are channels, a syringe and needle can be used to perfuse the wash solution and remove uncured material.
5. If no cells are present, the PBS should be replaced at least three times within 24 hours such that the dye washes away within a day.
6. The construct can be sterilized after soaking in ethanol 5 min, followed by soaking in PBS to ensure the ethanol is washed away.