**Standard Operating Procedure for Stereolithography (SLA) 3D printer with UV Curable Resin in [Department/Shop/Maker Space]**

***Instructions:*** *Update this template with details specific to the 3D printer(s) in your department/shop/maker space. Language that may apply to most situations is provided and should be changed as applicable.*

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| **TOPIC** | **PROCEDURES** |
| **1. Process** | Photosensitive resin is poured into a vat and UV light interacts with the resin to selectively polymerize. The light cures the resin layer by layer until the final object is complete. |
| **2. Equipment** | SLA printer and photosensitive liquid resin  *Add additional equipment for post-curing or washing as applicable.* |
| **3. Personal Protective Equipment (PPE)** | Safety glasses, cut and/or chemical resistant gloves, lab coat  *List additional required PPE based on the* [***Shop PPE Hazard Assessment***](https://www.ehs.washington.edu/resource/shop-personal-protective-equipment-ppe-hazard-assessment-guide-1334)*, which may include*   * *Face Shield* * *Goggles* * *Respirator* |
| **4. Environmental /**  **Ventilation controls** | Ensure the equipment is secure so it doesn’t move when in use.  *Document specific ventilation and environmental controls.*  ***Notes****:*   * *A dedicated ventilation system should be in place to capture the particulate emitted during the printing process. Another option is to use a room air cleaner equipped with a HEPA and activated carbon filter. The size, type, and number of printers will influence the adequacy of room ventilation. Please consult UW EH&S if multiple printers will be utilized in the same space.* * *Workstations should be away from printers.* |
| **5. Required training or approval** | *List required training:*  *List pre-use requirements:*   * All users are required to complete the required training prior to use. * Get approval from the Safety Coordinator before use. * Review and observe [general safety practices](https://www.ehs.washington.edu/system/files/resources/staying-safe-shops-poster.pdf). * Refer to the manufacturer’s operating manual for all operating procedures. * Refer to the operating manual for guidance on proper handling, storage, and recommended UV exposure duration for the specific type of resin. |
| **6. Inspection requirements before use** | * If applicable, make sure the printer is enclosed and has an interlock system. * Do not expose UV curable resin to heat, flames, sparks, or any source of ignition. * If the resin comes in a sealed cartridge, make sure to wear chemical resistant gloves when handling and loading. Do not use a damaged or leaking cartridge. * Use the manufacturer’s recommended UV curable resin when possible. Consult UW EH&S if you are using other resin material. * Ensure there is a Class ABC fire extinguisher nearby for electrical or resin fires. * Ensure that all body parts, loose clothing, jewelry, hair, and other objects are clear of printing area prior to turning on the equipment. * *Add additional requirements for pre-printing, printing, & post-printing as applicable* |
| **7. Safe operating procedures or precautions** | * Position workstations away from printers and limit your time working around printers while it is operational. * Maintain UV shielding during printing and post-curing. * **Never leave the 3D printer unattended** when it is on and do not look directly into the UV lamp. Consider using video monitoring or observation windows. * If any surface or tools are exposed to resin, clean with window cleaner or isopropyl alcohol, followed by soap and water. * Wear chemical resistant gloves when handling parts throughout the printing process, including washing parts using manufacturer recommended solvents before post-cure and handling other chemical solvents. Be cautious when dealing with alcohol and solvents because they are flammable. * Wear cut-resistant gloves and a respirator when sanding or post-finishing parts. *This should be included in the Shop PPE Hazard Assessment, update this language as appropriate.* * *Add additional requirements for pre-printing, printing, & post-printing as applicable* |
| **8. Waste cleanup** | Avoid waste material build up; clean up and properly dispose of waste and scraps.  Please consult material SDS and/or refer to the [Chemical Waste Disposal page](https://www.ehs.washington.edu/chemical/hazardous-chemical-waste-disposal) on the EH&S website for proper handling and labelling of hazardous waste.  Do not pour used, uncured resin into new resin bottles. |
| **9. Emergency response and accident reporting** | In case of fire or emergency, dial 9-1-1.  Report any accidents, injuries, or near miss events using [UW’s Online Accident Reporting System (OARS) at](https://oars.ehs.washington.edu/)oars.ehs.washington.edu. |

**Name**:       **Title**:

**Signature**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date**: