

JOB SAFETY ANALYSIS

Safety Information for the University of California, Berkeley

DEPARTMENT OF MECHANICAL ENGINEERING

OPERATING A STRATASYS F170 3D PRINTER

TASK	HAZARDS	CONTROLS
1. Assess work area; is it clear of obstructions and slip/trip/fall hazards?	<ul style="list-style-type: none">Slip, trip, or fall	<ul style="list-style-type: none">Clear work area of any obstructions or slip/trip/fall hazards
2. Operation of equipment. Reaching into the 3D printer to remove parts and perform maintenance	<ul style="list-style-type: none">Components within equipment enclosure can be hot, may cause burns to skinMachine will emit thermoplastic odors when in operationPinch hazards for hands/fingers	<ul style="list-style-type: none">Wear leather gloves if necessary when reaching into printer enclosure. Always allow extruder nozzles to cool before opening and/or reaching into the enclosure. Never reach inside the machine while in operation.Ensure machine is operating in a well ventilated area. Consult with Stratasys or an authorized dealer for service. Do not use materials not approved by Stratasys for use with the F170 machine.Keep hands and fingers clear of pinch points; particularly the belts and pulleys of the machine. Never reach inside the machine while in operation.
3. Removing parts from the printer build tray	<ul style="list-style-type: none">Parts may shatter or dislodge rapidly causing injury to user (cuts, bruises, eye injury from dislodged debris)	<ul style="list-style-type: none">Always wear safety glasses when operating equipment and when removing parts from the build tray. Wear leather gloves if necessary.

	4. Removing soluble support material from produced parts using the alkaline detergent tank	<ul style="list-style-type: none"> Alkaline detergent tank contains sodium hydroxide in water solution. Inhalation of aerosols may cause severe irritation of the respiratory tract Eye contact can cause severe irritation and permanent damage Skin contact can cause severe burns when combined with moisture Ingestion can cause severe burns of the mouth, throat and esophagus 	<ul style="list-style-type: none"> Wear splash resistant safety glasses, face shield, neoprene gloves and apron when handling solution. Use tongs to remove parts from alkaline detergent tank. Do not cause solution to become aerosolized.
	5. Cleaning of Alkaline Detergent tank	<ul style="list-style-type: none"> Alkaline Detergent tank contains Sodium Hydroxide in water solution. Inhalation of aerosols may cause severe irritation of the respiratory tract Eye contact can cause severe irritation and permanent damage Skin contact can cause severe burns when combined with moisture Ingestion can cause severe burns of the mouth, throat and esophagus 	<ul style="list-style-type: none"> See JSA for 3D printer dissolve tank for cleaning and servicing
	<p>Required Training:</p> <p>Student Shop Safety Training Program</p> <p>Must complete additional training under guidance of a qualified Student Shop Laboratory Mechanician</p> <p>Review SOP on operation of Stratasys F170 3D Printers located in laboratory safety manual.</p>	<p>Required Personal Protective Equipment (PPE)</p> <p>Leather gloves, Neoprene gloves, safety glasses, splash resistant eyewear, face shield, Neoprene apron</p>	
	<p>Other Information: Stratasys F123 Series User Guide, ABS M30 Materials Data Sheet, 3D Printer Dissolve Tank JSA</p> <p>Contributors: Scott McCormick; R&D Engineering Manager, Alex Jordan; Principal Lab. Mech., Jacob Gallego; Principal Lab. Mech.</p> <p>Created: Jan. 2010</p> <p>Updated: July 2020</p> <p>JSA Library Number: (EH&S will insert number here, if applicable)</p> <p>For more information about this JSA, contact the <i>Office of Environment, Health and Safety</i> at UC Berkeley, 317 University Hall #1150, Berkeley, CA 94720-1150 (510) 642-3073 • http://www.ehs.berkeley.edu</p>		