# TABLE OF CONTENTS

1.0 INTRODUCTION ........................................................................................................... 3  
1.1 SCOPE OF WORK ..................................................................................................... 3  
1.2 DESCRIPTION ......................................................................................................... 3  
1.3 SAFETY ...................................................................................................................... 3  

2.0 REQUIREMENTS AND RESTRICTIONS ......................................................... 3  
2.1 SYSTEM REQUIREMENTS/RESTRICTIONS ..................................................... 3  

3.0 OPERATING PROCEDURES ................................................................................ 4  
3.1 BAKE PLATE PREHEATING ............................................................................... 4  

4.0 UV CURE PROCESSING ..................................................................................... 5  
4.1 UV CURING A SAMPLE .................................................................................... 5  

5.0 UVITRON UVA LAMP SPECTRUM ANALYSIS ........................................ 9  

1.0 Introduction

1.1 Scope of Work

These procedures apply to the Uvitron UV curing system. All maintenance should follow the procedures set forth in the manufacturer’s maintenance and operations manuals. This document is for reference only. Users must be trained by Nanofab staff before operating this system.

1.2 Description

The Uvitron UV Curing System uses a high powered UV lamp capable of two power levels, 300W (switch set for Standby), or 600W (switch set for Full). The system can cure resist coated wafers up to 6” diameter, glass slides and small samples. An integrated bake plate allows substrate heating up to 150°C while curing and a digital display shows bake plate temperature.

1.3 Safety

1.3.1 This system is connected to AC voltage, be careful and aware of electrical hazards.

1.3.2 This machine has the capability to heat samples to high temperatures (> 150°C). Make sure you use tweezers to remove your samples from the heater when it is being operated at elevated temperatures.

1.3.3 This system uses high intensity UV light while processing. DO NOT operate this machine with any component enclosures/panels open.

2.0 Requirements and Restrictions

2.1 System Requirements/Restrictions

2.1.1 You must be a qualified user on the Uvitron UV curing system.

2.1.2 Samples up to 6 inches in diameter may be used.

2.1.3 System may only be used for UV curing. All resist baking must be done on photo bay bake plates.
3.0 Operating Procedures

3.1 Bake Plate Preheating

3.1.1 The UV cure system heater is shut off when processing is completed. If you will be operating the heater at temperatures above 100 degrees then it is a good idea to begin warming the bake plate up at least 30 minutes before you plan to run a UV cure process.

3.1.2 To turn ON the heater rotate the front panel heater set point knob (Fig. 1) clockwise to the desired temperature, NOTE - the knob will not rotate above 150°C this is the maximum temperature you may select. Do NOT try to force the knob to rotate clockwise further than the 150 degree Celsius hard stop or you will damage the system.

3.1.3 You may monitor the actual heater temperature by watching the digital meter mounted on the rear the right hand side (Fig. 2) of the UV cure system. If the heater was at room temperature you should see the temperature begin to increase within a minute of setting your desired operating temperature. If the temperature does not begin to increase within a couple of minutes then notify a Nanofab staff member of the issue.
3.1.4 Allow the system to maintain the desired temperature for at least 5 minutes to minimize temperature deviations while processing.

4.0 UV Cure Processing

4.1 UV Curing a Sample

4.1.1 Set the front panel LAMP POWER SWITCH to the “STANDBY” position (Fig. 3).

(Fig. 3)

4.1.2 Turn ON the UV lamp main power by pressing the MAIN POWER ROCKER SWITCH located on the rear left corner (Fig. 4) of the UV lamp housing.

(Fig. 4)
4.1.3  The only way to tell if the UV curing lamp main power is **ON** is by looking at the **LAMP HOURS** indicator (Fig. 5) on the front panel. If it is blank (no numbers present) then the power is still **OFF**, try moving the rear panel switch in step 4.1.2 to the other position. If the Lamp Hours are showing then you may proceed to the next step.

(Fig. 5)

4.1.4  Allow the UV lamp to warm up in **STANDBY** mode for 5 minutes before proceeding.

4.1.5  After the UV lamp has warmed up sufficiently lift the cover over the heater table (Fig. 6) and load your sample onto the heater.

(Fig. 6)
4.1.6 You may now lower the heater table cover. If you are performing a sample preheat before the UV cure then you will begin the timer now for that operation.

4.1.7 Ensure that the front panel UV lamp power switch is set for the desired power for curing i.e. **Standby (300 watts)** or **Full (600 Watts)**.

**Note** – Many UV processes will begin processing at a lower UV lamp power and then step up to high UV lamp power. In this instance you will initially have the UV lamp power switch set for “Standby” (300 Watts) and then switch it to “Full” (600 Watts) when needed.

4.1.8 **Important Safety Tip** – Always leave the heater table cover down when moving the lamp housing forward & rearward, this will block any reflected UV light from striking the user. When you are ready to begin the UV cure process roll the lamp housing assembly forward (Fig. 7). You may do this quickly, but slow the movement down in the last two inches of travel so you do not slam the UV lamp housing assembly into the front hard stop or the impact may irreversibly damage the UV lamp.
4.1.9 Once the required UV cure time has been met lower the **HEATER TABLE COVER** and immediately roll the **UV LAMP HOUSING** rearward being careful to not slam the housing into the rear hard stops. Ensure the heater table cover remains down during the entire UV lamp housing travel distance.

4.1.10 You may now set the UV cure lamp front panel switch to “**Standby**” (See Fig. 3).

4.1.11 Raise the heater table cover and remove your UV cured sample.

4.1.12 If you have additional samples to process you may return to step 4.1.5 and begin again.

4.1.13 Once you are done with the UV cure system turn **OFF** the UV curing lamp main power, (See Step 4.1.2). Once the main AC power is **OFF** the **LAMP HOURS** indicator (See step 4.1.3) should have no numeric display.

4.1.14 Rotate the front panel **HEATER SETPOINT** knob counter clockwise until the pointer is pointing downward (Fig. 8). The heater is now **OFF** and the system is secured.

(Fig. 8)

The **LAMP POWER** and **HEATER** must both be **OFF** when you are finished with the system.
5.0  Uvitron UVA Lamp Spectrum Analysis