

**FORENSIC TOXICOLOGY LABORATORY  
OFFICE OF CHIEF MEDICAL EXAMINER  
NEW YORK CITY**

**UV-Visible Spectrophotometer Agilent 8453  
ROUTINE MAINTENANCE**

**CLEANING THE INSTRUMENT**

The spectrophotometer case and sample compartment should be kept clean. Cleaning should be done with a soft cloth slightly dampened with water or a solution of water and a mild detergent. Do not use an excessively damp cloth that liquid can drip into the spectrophotometer.

**Materials**

Soft lint-free cloth, Water, Mild detergent

**Procedure**

1. Turn off instrument.
2. Clean instrument case and sample compartment with a soft cloth slightly dampened with water or a solution of water and a mild detergent.

**EXCHANGING THE DEUTERIUM OR TUNGSTEN LAMP**

You exchange the deuterium or the tungsten lamp when the intensity test, which is executed through your computer software, falls below the specified level or when one of the lamps no longer ignites.

**Materials**

Deuterium or tungsten Lamp, Pozidriv screwdriver, optical tissue, isopropanol

**Procedure**

1. Turn off the spectrophotometer and disconnect the power cord. If you have been using the spectrophotometer, wait at least five minutes for the lamps to cool down.
2. Open the plastic lamp door at the right side of the instrument.
3. Open the metal door behind the plastic door by sliding the lock mechanism down and simultaneously pull the door out. Slide the metal door out to have access to the lamps.
4. Disconnect the lamp cables by pressing the plug which connects the lamps to the printed circuit together on both sides and lift it up.

5. Use a Pozidriv screwdriver to open the two screws that hold together each lamp and take it out holding it at the lamp ring. Never touch the quartz envelope of the deuterium lamp with your fingers. If this happens, use isopropanol to wipe the fingerprint off.
6. Place the lamp(s) on a clean optical tissue or another place where it cannot collect dust.
7. Holding the lamp(s) at the lamp ring, carefully slide it into the lamp housing. The tungsten lamp ring has a flat part which has to show towards the deuterium lamp location. The deuterium lamp has a recessment for a location pin on the lamp housing.
8. Take a pozidriv screwdriver and fix the two screws which fix each lamp.
9. Connect the plug(s) of the lamp(s) to the electronic board. There is only one way to get the plug(s) in.
10. Slide in the metal door and close so that it is locked. Close the plastic door.
11. Reconnect the power line and turn on the instrument. Initiate a self-test from the computer software. Make sure the spectrophotometer passes its self-test, this means that the green light on the front panel comes on and that the instrument is ready for a measurement.
12. Record this maintenance on the UV-Visible maintenance log. If self-test fails after all of the above steps have been taken, then consult technical support.

## **CLEANING THE LENSES**

Cleaning the lenses which are accessible from the sample compartment is recommended at one-year intervals or more frequently when you operate the spectrophotometer in a particularly dirty environment. An indication of a dirty lens is when after exchanging the lamps the intensity test executed by the operating software still falls below the specified level.

### **Materials**

Lint-free cotton swab, Isopropanol, Oil-free air canister

### **Procedure**

1. The source lens is a lens system which has one optical surface accessible from inside the lamp housing. The other optical surface is behind the shutter, thus accessible from the sample compartment.
2. Turn-off the spectrophotometer and disconnect the power cord.
3. Remove any cuvette holder from the sample compartment.
4. Dampen a lint-free cotton swab with isopropanol and gently swab the surface of the source lens. Repeat as needed using new lint-free cotton swab each time for each lens.
5. Use an oil-free air canister to further clean the source and spectrograph lenses.
6. Reconnect the power line and turn on the instrument. Initiate a self-test from the computer software. Make sure the spectrophotometer passes its self-test, this means that the green light on the front panel comes on and that the instrument is ready for a measurement.

7. Record this maintenance on the UV-Visible maintenance log. If self-test fails after all of the above steps have been taken, then consult technical support.

## **REFERENCES**

Agilent 8453 UV-Visible Spectroscopy System, Service Manual

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