

## miniDiSC application note #7: Cleaning the corona wire

When the corona high voltage reaches about 5kV, the miniDiSC will display an error message ("corona voltage out of range"), and if you check the corona voltage, you will see that it is something like 5000V or higher. In this case, you should clean the corona wire. The pictures below show you how to do this. If you feel uncomfortable about this procedure, return the instrument to the manufacturer for servicing.

<p>Remove the 3 hex screws in the backplane of the miniDiSC and lift off the backplane. Your miniDiSC should look like the picture on the right. The charger is located at the top-left in the picture.</p>	 A photograph of the miniDiSC instrument with its backplane removed. The backplane is a white plastic cover that has been lifted off and is placed to the left of the main instrument. The instrument's internal components, including a green PCB, a white cylindrical component, and various wires, are visible. A yellow cable is connected to the top of the instrument.
<p>Now remove the 4 hex screws holding the counterelectrode in place; lift off the counterelectrode and optionally disconnect it from the yellow cable, to get it out of the way.</p>	 A photograph of the miniDiSC instrument with the counterelectrode removed. The counterelectrode is a white plastic component that has been lifted off and is placed to the left of the main instrument. The instrument's internal components are visible, and the yellow cable is now disconnected from the top of the instrument.
<p>Remove the two black hex screws holding the wire-mesh screen in place and GENTLY remove the wire mesh screen. Be careful not to bend the wire mesh, this would affect the calibration!</p>	 A photograph of the miniDiSC instrument with the wire-mesh screen removed. The wire-mesh screen is a green mesh component that has been lifted off and is placed to the left of the main instrument. The instrument's internal components are visible, and the yellow cable is now disconnected from the top of the instrument.

Once you reach the last stage above, you should see a white deposit on the wire. Take a fine artist's paintbrush and wipe the corona wire VERY GENTLY with it. The wire is very thin and if mechanically stressed, it will break. Reassemble the instrument in reverse order. When reinstalling the counterelectrode, check that the o-Ring is placed nicely in its groove.

You must make a "sanity check" of your instrument after cleaning. If you own another particle counting instrument (CPC), we recommend that you compare your miniDiSC against the CPC before and after cleaning. If you have no reference, we recommend that you measure the particle number in your lab/office before cleaning the wire, and after. For normal labs/offices, particle numbers will not change (at least not much) during the wire cleaning. You should also test whether the instrument still seals: while the instrument is running, block the inlet with a finger briefly and verify that the pump gets louder, and that you feel a small vacuum when removing your finger. If you own a flowmeter, verify that the inlet flow is approximately 1 l/min. Finally, verify that the corona voltage has dropped back to approximately 3.5kV.