SIEMENS

ADVIA® 1800
ADVIA® 2400
Chemistry Systems

Siemens Healthcare Diagnostics Inc.

Operator's Guide Addendum: ISE Electrodes

In an ongoing effort to keep our customers informed, Siemens Healthcare Diagnostics is providing this information as a supplement to the *Replacing ISE electrodes* section in the *ADVIA® 1800 Chemistry System Operator's Guide* and *ADVIA® 2400 Chemistry System Operator's Guide*.

Ensure all operators review and understand the information presented in this document. If you have any questions or concerns regarding the addendum, contact your local technical support provider or distributor.

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BIOHAZARD
Wear personal protective equipment. Use universal precautions. See the recommended safety information section in the operator's guide when working with biohazardous materials.

Removing Electrodes

1. At the Menu Panel, select **Maint.**, then select **ISE Operation**.
2. In the Period. wash area, select **OFF**, then select **Set**.
3. On the message box, select **YES** to set periodic washing off.
4. Using a Phillips screwdriver, remove the screws that secure the DPP shield on the ADVIA 1800 analyzer panel (see Figure 1 on page 2).
5. Push the DPP shield to the right and slowly lift the DPP shield until it reaches approximately a 90° angle, then gently lift the tab of the DPP shield and remove.

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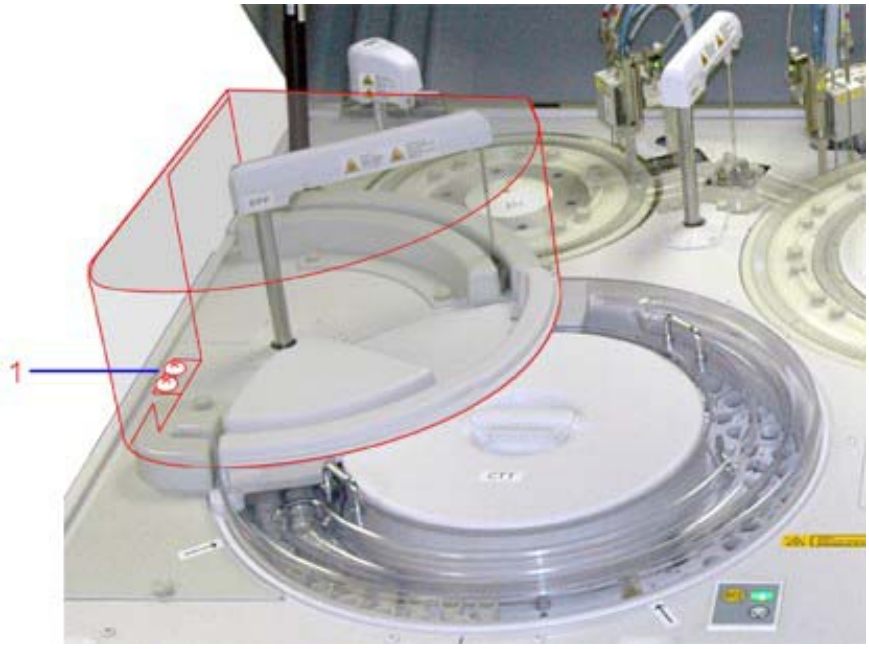
Figure 1. Location of DPP shield screw for the ADVIA 1800



1	Screws securing the DPP shield

6. Remove the 2 thumbscrews that secure the ISE panel and remove the ISE cover.
7. Disconnect the electrode connectors.
8. Remove the thumbscrew (see Figure 2) to release the plate that secures the electrodes and the block containing the electrode.

Figure 2. ISE electrode plate thumbscrew

1	Thumbscrew

9. Remove the electrode(s) to replace.

NOTE: See *Storing ISE Electrodes Temporarily Removed from the ISE Module* on page 3.

Storing ISE Electrodes Temporarily Removed from the ISE Module

1. Remove the electrodes from the ISE module.
2. Rinse the electrodes with deionized water.
3. Place them into a previously saved, clean ISE container.
4. Cover the electrodes with fresh ISE Buffer.
5. Cover the container and store at room temperature.
6. When ready to use, rinse the electrodes with deionized water and dry them thoroughly with a lint-free towel before installing them back on the ISE module.
7. Follow the instructions *Installing Electrodes* on page 4.

Preparing the Electrodes for Installation

1. Condition K and Na electrodes by following the instructions in *Conditioning the ISE K and Na Electrodes*.

   NOTE: The K and Na electrodes are packed dry.

2. Rinse the Cl and Ref electrodes thoroughly with deionized water and dry thoroughly with a lint-free towel.

   NOTE: The Cl and Ref electrodes are packed in a high-concentrated salt water solution to maintain electrode performance.

Conditioning the ISE K and Na Electrodes

1. Prepare a 1:4 dilution of pooled serum using ISE buffer solution.
2. Locate the new electrode and remove it from its case.

   NOTE: The ion electrode contains an inner solution, which can be confirmed by shaking the electrode. This solution decreases little by little with time. If there is no solution during shaking, measure the ion electrode's weight. Do not use the electrode if the weight is less than 9 grams.

3. Remove the sponge from the bottom of the electrode case and place the electrode to be conditioned back into the case.
4. Add 0.5 mL of the 1:4 dilution of pooled serum through the flow path of the electrode using a dropper or pipette.
5. Apply the pooled serum thoroughly.
6. Cover the entire electrode with ISE buffer and condition for at least 30 minutes.

   NOTE: Be sure that the electrode is at room temperature. Calibrating and running electrodes that are not at room temperature can lead to ISE drift.

7. When conditioning is complete, remove the electrode, wash it with deionized water, and dry it thoroughly with a lint-free cloth.

NOTE: Rinse the cases with deionized water and dry them thoroughly. Save the cases to use for storage if you need to remove the electrodes from the system when performing ISE maintenance.

8. Replace the electrodes on the instrument with the newly conditioned ones.

   NOTE: This procedure is the preferred procedure for conditioning new electrodes. In an emergency, performing a CV check 20 times on QC material or a pooled serum sample is sufficient to condition a new electrode. Do this only in exceptional cases, when there is not enough time to follow the standard procedure.

Installing Electrodes

Make sure the K and Na electrodes are conditioned. The Cl and Reference electrodes are wet when removed from packaging. Rinse the Cl and Reference electrodes thoroughly with deionized water and thoroughly dry with a lint-free cloth.

NOTE: Any small amounts of concentrated salt solution that remain on the electrode connector can cause rust on the electrode connector, affecting the performance of the electrode.

1. Assemble the new electrodes in the correct order.
2. Set the new electrodes in place, paying careful attention not to leave a space between them.
3. Make sure an O-ring is between each electrode and that the ridges on the side of each electrode fits into the depressions on the side of the electrode next to it.

> ⚠ **CAUTION**
> Do not force the electrode. If a space exists between the electrode connections, the plate retaining the electrodes cannot close. If you cannot close it, move each electrode left and right little-by-little. Fasten the thumbscrew tightly. If the retaining plate loosens during measurement, liquid could leak, causing a problem with the ISE module.

4. Swing the electrode retaining bracket up against the electrodes.
5. Replace and tighten the thumbscrew (see Figure 2 on page 2) while holding down each electrode with the retaining plate.
6. Insert the electrode connectors, matching the correct connector with the correct electrode.
7. Perform an ISE Buffer prime 1 or 2 times. Verify that no leaks are observed between the electrodes. (Refer to *Priming the ISEs* in the operator's guide.)
8. Perform an ISE Buffer prime 10 times to sufficiently prime the lines.
9. Verify that all ISE leads are connected to the correct electrodes.

NOTE: ISE ground and ISE temperature thermistor leads may come loose when electrodes are replaced or ISE maintenance is performed. Verify that these leads are connected to the ground and temperature thermistor.

10. Replace the ISE cover and DPP shield cover.

Turning the Periodic Wash On

1. At the Menu Panel, select **Maint.**, then select **ISE Operation**.
2. In the Period. wash area, select **ON**, then select **Set**.
3. On the message box, select **YES** to set periodic washing on.

Calibrating the ISE Electrodes

1. Calibrate the ISE electrodes. If calibration fails, calibrate again. (Refer to *Calibrating the ISEs* in the operator's guide.)
2. If calibration fails again, perform a CV check 10 times, using a high- or low-serum control material.
3. Verify that precision and mean recovery meet the lab's acceptance limits.
4. Run the lab's high and low serum and urine controls followed by patient samples.

   NOTE: Siemens recommends running the lab's low and high ISE controls immediately before and after any patient sample runs.

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