

## Electrode care and cleaning

### A. Five Rules of thumb:

1. Clean with water

Clean electrodes softly immediately after use (when the gel is still soft) by hand with warm water.

2. Dry with paper towel; store away from direct sunlight.

Dry the electrodes softly, with hand towels. Store the electrodes in a dark dry place.

3. No soap; avoid contact with metals.

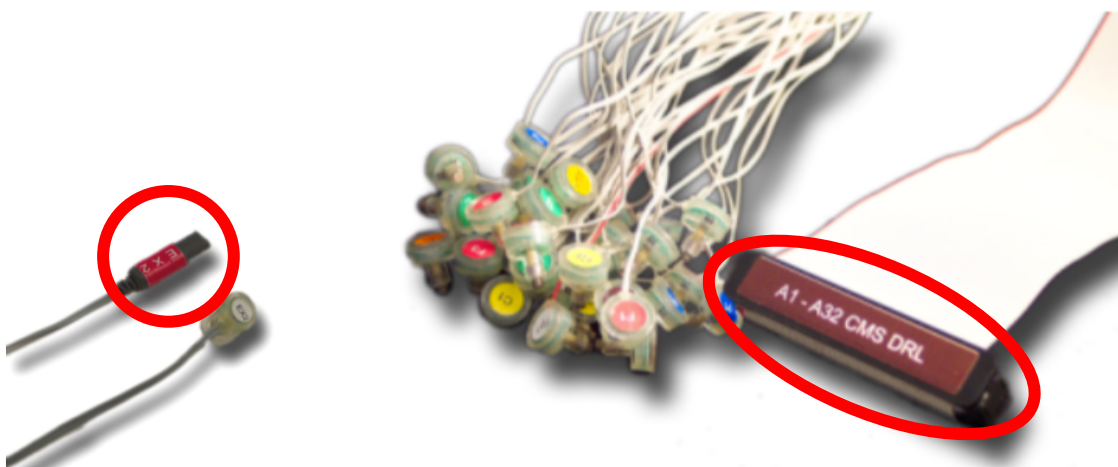
Do not use aggressive soaps etc. Do not let the pellets touch any kind of metals.

4. Remove from cap gently

**Do not pull-out the electrodes at the flat cable (grab the electrodes at the casing).**

5. Keep connector dry

**Do not let water or gel enter the connectors.**



### B. Handling

1. Remove electrodes from cap and connector from amplifier box gently

Do not use force on the cable or pull the electrodes at the ribbon cable when removing the electrode out of the head cap or the connector out of the A/D box.

2. Remove from cap gently

Grab the electrodes at the casing, and then pull them softly out of the head-cap.

3. Connector ejectors

The A/D box has ejectors on the top for easy removal of the connector. Always make sure to use them.

#### 4. Keep connector clean and dry

Keep the connector clear of water/gel. When a connector is polluted with gel or salt water, it should be rinsed with distilled water, followed by a rinse with alcohol (ethanol) and finally the connector should be allowed to dry completely before putting into operation again.

#### 5. Minimizing electrode drift

After applying the electrodes, it takes some time before the chemical reactions in the electrode-gel-skin interface reach a stable equilibrium. It will typically take approximately 5 minutes before baseline drift and noise have settled completely. Quicker settling of the electrode noise to a low level can be achieved by placing the electrodes in water approximately 5-10 minutes before the measurement is started. During these 5-10 minutes, the salt water will be absorbed in the Ag/AgCl pellet, enabling the pellet to make better chemical contact with the gel. Please note that the longer the electrodes are placed in water, the longer it will take the water to evaporate and this will accelerate the corrosion process of the Ag/AgCl pellet.

### **C. Cleaning**

The silver/silver-chloride (Ag/AgCl) sintered electrodes behave like sponges, they absorb water and electrode gel. The deeper the water/gel has penetrated the electrode, the longer it will take afterwards for the water to vaporize. As long as your electrodes are 'wet', corrosion processes will take place. This corrosion process will in the long run make your electrodes noisier. That is why it is important to clean the electrodes immediately after use and dry them immediately to eliminate the opportunity for corrosion to develop.

#### 1. Use warm tapwater

Use warm tap water to rinse off the gel from the electrodes (make sure to keep the connector dry). Warm water (up to 50 degrees Celsius) will dissolve the gel quicker.

#### 2. Soft brush if necessary

Use a soft brush for removing gel residues from the electrodes only if absolutely necessary.

#### 3. Dry with paper towel, and air dry fully.

Softly dry the electrodes with hand paper. Let them hang out to dry.

#### 4. No soap

Only use soap if water does not seem to clean the electrodes properly, never use solvents (e.g. acetone), acids or alkaline.

#### 5. Clean before allowing to dry

Do not let the electrodes dry without being cleaned first. When the electrodes dry up covered with gel/salt/minerals, the cleaning process will be harder and takes more time, making your electrodes become polluted and/or corroded sooner.

### **D. Storage/Modifications/Splitting of the flat cable**

#### 1. Avoid contact with metal

Do not store the electrodes in a metal box. In general, prevent the electrode tips from touching any metal objects, because this causes pollution of the Ag/AgCl pellets with "strange" metal particles (increasing noise).

#### 2. Avoid light

Exposure of the Ag/AgCl electrode tip to light also causes deterioration. Keep out of direct sunlight or other bright sources of light when the electrodes are not being used.

### 3. Avoid airtight storage containers

Do not store the electrodes in an airtight container. Best storage method is to wrap the electrodes in a paper towel and place them in a cardboard box or to hang them freely in a dark place.

### 4. Do not split cables

The electrodes are not intended to be modified by the customer. Especially "splitting" the flat-cable further may lead to a non-repairable malfunction and void your warranty! If you have a request for different splitting of an electrode set contact BioSemi (or its local representative)

## ALC Lab Cleaning Procedure:

1. Place cap and face electrodes in bath of water
  - a. Be careful to keep other end of cables far away from water
  - b. Be careful not to touch electrodes with any metal (e.g., metal sink)
2. Wash gel from face electrodes
  - a. Remove stickers, pulling from plastic connectors (not the wire)
  - b. Run under high pressure water
  - c. Use Q-tips to clean out any remaining gel
  - d. Dry with paper towels
  - e. Spray electrodes with hydrogen peroxide solution
3. Wash gel from cap electrodes
  - a. Carefully remove electrodes from cap by pulling from the plastic connectors (not the wire)
  - b. Shake gel from off in water bath
  - c. Run under water to remove any excess gel
  - d. Visually inspect electrodes
  - e. Dry with paper towels
  - f. Spray with hydrogen peroxide
4. Wash cap
  - a. Turn cap inside-out
  - b. Run high pressure water through each hole
  - c. Visually inspect each hole to remove gel
  - d. Turn cap back around
  - e. Insert Q-tips into each hole to remove any remaining gel
  - f. Turn cap inside-out and spray with hydrogen peroxide
  - g. Hang cap on wig hanger for drying