

TIP No. 37-108-0722

Disposition of Single Use Silver/Silver Chloride Patient Electrodes

This paper is based on Federal criteria. State criteria may be more stringent.

1. BACKGROUND

Silver/silver chloride electrodes are used to obtain electroencephalograph (ECG) and electrocardiograph (EKG) readings on patients. The electrodes consist of a foam disk with adhesive, a small post in the center of the back of the disk for the attachment of the electrical lead, and a small sponge like area in the center of the adhesive side of the disk that contains the silver/silver chloride electrode gel. The silver/silver chloride gel increases the conductivity between the electrode and the skin.

Because of the presence of silver, the disposition of these types of electrodes has generated some confusion. The Defense Reutilization and Recovery Service (DRMS) has determined that there is not enough silver present to warrant reclamation. A waste with a silver concentration of 5.0 mg/L (or greater) as determined by the Toxic Characteristic Leaching Procedure (TCLP) is regulated by the Environmental Protection Agency (EPA) as hazardous waste. Two types of electrodes were tested to determine if they were a hazardous waste.

2. TESTING

The U.S. Army Public Health Center tested three 100 g samples using the TCLP test, One sample consisted of 25-30 OFFSET® DX ECG electrodes manufactured by Medi-Trace.

The two other samples were of 25-30 adult ECG electrodes each. These were manufactured by the CONMED Corp. The detection limit for all three samples was set at 0.5 mg/L, which is an order of magnitude lower than the regulatory limit of 5.0 mg/L. No silver was detected in any of the samples in a concentration that exceeded the detection limit (<0.5mg/L).

3. CONCLUSION

Significant variations are not likely in the manufacture and level of silver/silver chloride among different manufacturers. Based on this and the analytical evidence, it is the Center's recommendation that the silver/silver chloride ECG and EKG electrodes be treated as solid waste suitable for either incineration or sanitary landfill disposal.

4. POINT OF CONTACT

Please contact the Environmental Health Sciences Division, Waste Management Branch at 410-436-3651 or DSN 584-3651 for additional information.

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