HeartSine®
Inventor. Innovator. Lifesaver.

TechNote

Electrodes

Why Electrode Choice Is Important

As we know, electrodes are the not only the primary point of contact between the patient and the defibrillator, but in many ways they form the critical link between the AED and its ability to deliver life-saving energy to the patient.

HeartSine Electrodes

HeartSine electrode technology uses a patented construction method to provide a four-year shelf life without significant increase in cost.

This same technology provides superior electrical performance, rapid recovery time (reducing the time between shock and CPR) and greatly reduced noise.

HeartSine electrodes are large and have very low impedance. Pad size and low impedance are critical to successful defibrillation.[1, 2, 3]

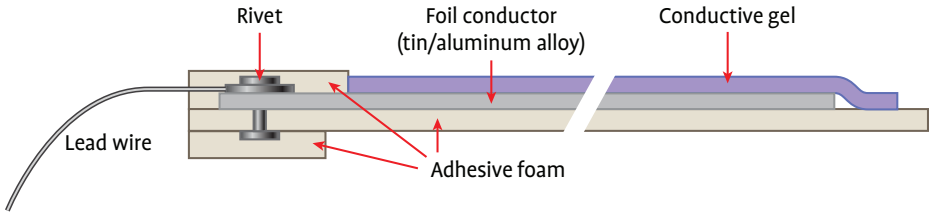
The HeartSine electrode technology also enables the ICG based CPR Advisor.

How It Works

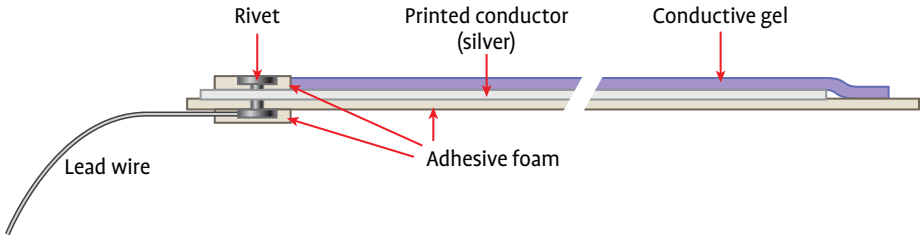
Traditional electrodes use a tin/aluminum alloy conductor with a front hydrochloride gel layer. The aging mechanism involves a chemical reaction between the chloride and the aluminium, which usually limits the useful life of the electrode to 2 – 2.5 years.

The HeartSine electrode technology is an entirely different structure. The HeartSine electrodes are formed by printing a thick silver layer onto a substrate. The addition of a hydrochloride gel layer instigates a chemical reaction with the silver during the manufacturing process. After approximately one week, this reaction has formed a thin layer of silver chloride, creating a stable and self-limiting layer.

This technology effectively creates a defibillation electrode that will be stable for more than five years. In addition, the silver/chloride interface exhibits very low offset potentials and fast recovery characteristics, providing superior noise and recovery performance.



Traditional electrode

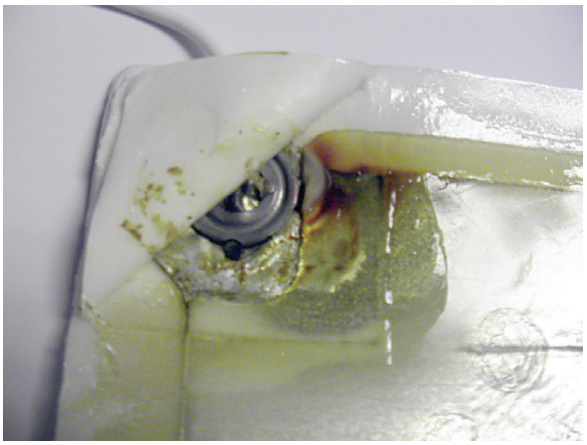


HeartSine electrode

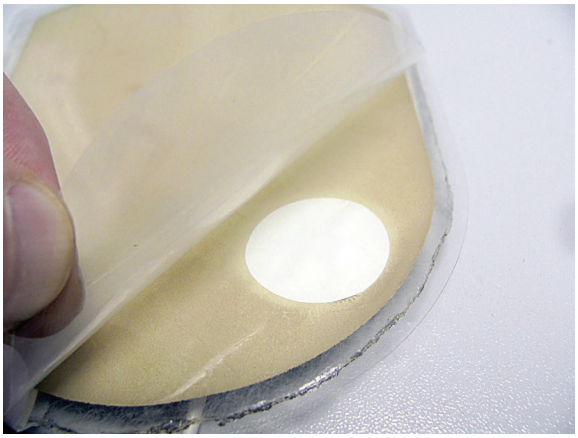
Lifesaving, **Pure and Simple**

HeartSine Comparison

The photograph below shows typical corrosion characteristics of a traditionally manufactured defibrillation electrode after four years:



And below is a similarly aged HeartSine electrode:



Other defibrillation electrodes that claim similair long-life characteristics use a particularly expensive manufacturing process using sacrificial components to “redirect” the corrosion from the primary conductive foil. This sacrificial component adds cost and bulk to the resulting electrode and reduces the area available area for effective conduction.

HeartSine Technology Advantage

Innovation in technology drives HeartSine in the design, development, and manufacture of Automated External Defibrillators (AED).

The company’s pedigree dates back over 50 years to the development of the world’s first out-of-hospital defibrillator in the 1960s. Since then, HeartSine technologists have been at the forefront of placing life-saving technology in the hands of users of all skill levels.

At HeartSine our technology changes lives. And saves lives.

It’s Lifesaving, Pure and Simple.

References

1. Electrode pad size, transthoracic impedance and success of external ventricular defibrillation. Dalzell GW, Cunningham SR, Anderson J, Adgey AA. Regional Medical Cardiology Center, Royal Victoria Hospital, Belfast, Northern Ireland.
2. Predicted Trans-Thoracic Impedance and ECG-defibrillator Electrode Pad Size in Patients with Ventricular Fibrillation and Ventricular Tachycardia. G Dalzell, J Anderson, H Magee, J Adgey. Pacing and Clinical Electrophysiology 10, p874-878, 1987.
3. Transthoracic Impedance in Cardiac Arrest. J Anderson, G Dalzell, H Magee, J Adgey. European Heart Journal 8, Supplement 2, p58-62, 1987

US/Americas

HeartSine Technologies, Inc.
121 Friends Lane, Suite 400
Newtown, PA. 18940
Toll Free: (866) 478 7463
Tel: (215) 860 8100
Fax: (215) 860 8192
info@heartsine.com

EMEA/ASP

HeartSine Technologies, Inc.
203 Airport Road West
Belfast, Northern Ireland BT3 9ED
Tel: +44 (0) 28 9093 9400
Fax:+44 (0) 28 9093 9401
info@heartsine.co.uk

CE 0120

The products described in this brochure all meet the applicable European Medical Directive requirements.

© 2011 HeartSine Technologies, Inc.
All rights reserved.

H009-020-002-0

CAUTION:
U.S. Federal law restricts this device to sale by or on the order of a licensed practitioner.

HeartSine®
Inventor. Innovator. Lifesaver.

www.heartsine.com