

# NASA TECH BRIEF

## *Manned Spacecraft Center*



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### Improved Biomedical Electrode

#### The problem:

The difficulty in preparing, applying and caring for the recording electrodes used in acquiring physiological signals restricts them to a laboratory environment. These electrodes supply signals for the electroencephalogram (EEG), the electro-oculogram (EOG) and the electrocardiogram (EKG).

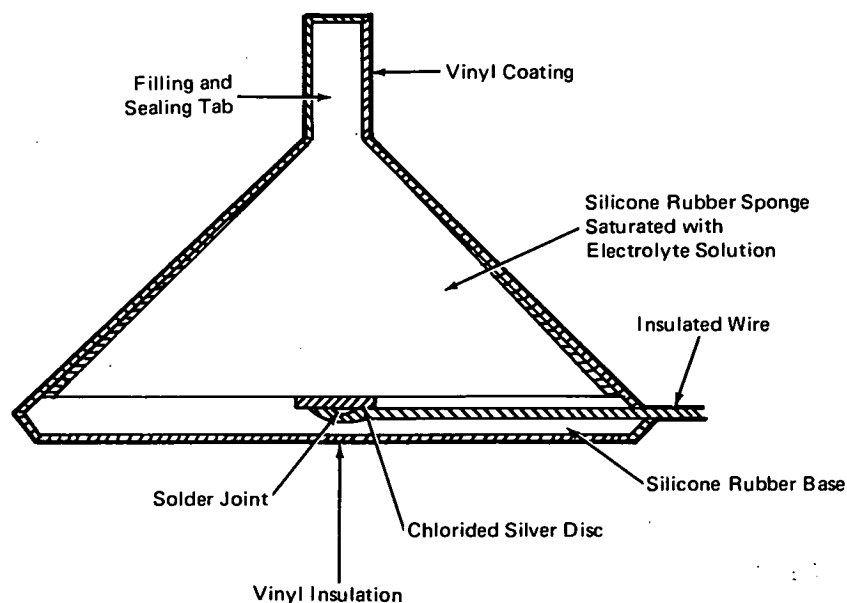
#### The solution:

A newly designed electrode is a prefilled, disposable, electrolyte-saturated sponge. The new design permits long periods of storage without deterioration, and readiness in a matter of seconds. Because the electrodes are disposable, they eliminate the problems of refilling and cleaning. Also, the electrode can be incorporated into an elastic cap assembly for acquisition of scalp EEG and EOG activity.

#### How it's done:

As indicated in the illustration, the sponge electrode consists of three principal parts: a conical molded silicone rubber sponge, a chlorided silver disc, and a flexible, wafer-like, silicone rubber base. The apex of the silicone rubber sponge terminates in a small cylindrical filling and sealing tab. The silver disc terminates in an insulated wire which extends through the silicone rubber base. A thin, flexible, insulating and moisture resistant vinyl coating covers the complete electrode.

In use, the light pressure of a suitable retaining structure holds the exposed tip of the electrode against the skin. The light pressure results in the ejection of a small amount of electrolyte solution onto the area of skin contact. The electrolyte solution provides an ohmic contact between the skin and the electrode.



(continued overleaf)

**Note:**

Requests for further information may be directed to:  
Technology Utilization Officer  
Manned Spacecraft Center  
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Houston, Texas 77058  
Reference: B72-10642

**Patent status:**

This invention has been patented by NASA (U.S. Patent No. 3,669,110). Inquiries concerning nonexclusive or exclusive license for its commercial development should be addressed to:

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