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NASA TECH BRIEF



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Improved Electrode Paste Provides Reliable Measurement of Galvanic Skin Response

The problem:

To develop an improved electrode paste for use in obtaining accurate skin resistance or skin potential measurements. Commonly used electrode pastes with ionic concentrations appreciably different from those of perspiration cause a concentration potential and gradient to be set up. Pastes with high salt content will traumatize the skin as well and cause deterioration of the electrodes.

The solution:

A high-conductivity electrode paste that will not alter skin characteristics. The paste is isotonic to perspiration, is nonirritating and nonsensitizing, and has an extended shelf life.

How it's done:

The electrode paste is prepared by blending 1 gram of methyl-p-hydroxybenzoate and 1 gram of propyl-p-hydroxybenzoate in 1 liter of deionized water, dissolving 5.8 grams of sodium chloride in this blend, and then slowly adding and thoroughly mixing in 60 grams of hydroxyethylcellulose. The pH of the resultant paste is adjusted to 7.0 ± 0.1 , using 6N sodium hydroxide or hydrochloric acid. The proportions given yield approximately one liter of paste. Plastic-coated beaters and containers should be used for preparing the paste.

Notes:

1. This paste is suitable for work in which the baseline membrane potential or membrane permeability is being measured for use as a reference to determine emotional response or level of alertness and should be of interest to clinical or research groups measuring psychophysiological reactions.
2. Related innovations are described in NASA Tech Briefs 64-10025, May 1964 and 65-10015, January 1965. Inquiries may also be directed to:
Technology Utilization Officer
Manned Spacecraft Center
P.O. Box 1537
Houston, Texas, 77001
Reference: B66-10049

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code AGP, Washington, D.C., 20546.

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Category 04