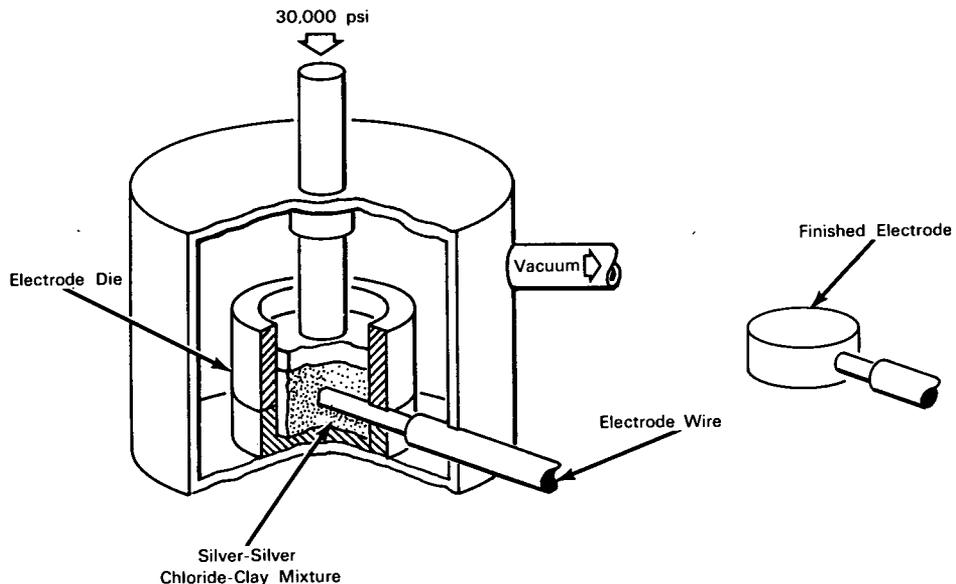


NASA TECH BRIEF



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Rugged Pressed Disk Electrode Has Low Contact Potential



The problem: To produce a biopotential electrode for monitoring physiological processes that exhibits low contact potential and resistance. The device must be sufficiently rugged to have long operating life even when used on a subject doing hard physical work.

The solution: A pressed-disk electrode of silver and silver chloride combined with bentonitic clay has a very low contact potential. The bentonitic clay affords a surface that permits use over extended periods without contact deterioration.

How it's done: The electrodes are prepared by combining 90 parts by weight of powdered silver with 10 parts of silver chloride. This mixture is then combined with bentonitic clay in a ratio of 95 parts Ag-

AgCl to 5 parts clay. The mixture is placed in a specially constructed die in which the electrode lead wire has been properly positioned. The die is placed in a vacuum chamber and the mixture is subjected to a compressive force of 30,000 psi for a period of 30 to 60 seconds. The vacuum removes air and moisture that would react with the polymers to form oxidized compounds in the form of hard gels that adversely affect electrode potentials.

Notes:

1. The disks produced by this method are uniformly porous and permeable; they exhibit contact potentials of about -5.7 microvolts and are impervious to bacteria or protein molecules.

(continued overleaf)

2. A related innovation is described in NASA Tech Brief 64-10025, May 1964. Inquiries may also be directed to:

Technology Utilization Officer
Manned Spacecraft Center
P.O. Box 1537
Houston, Texas, 77001
Reference: B65-10320

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

Source: J. L. Day, NASA and
Institute of Research and Instrumentation
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