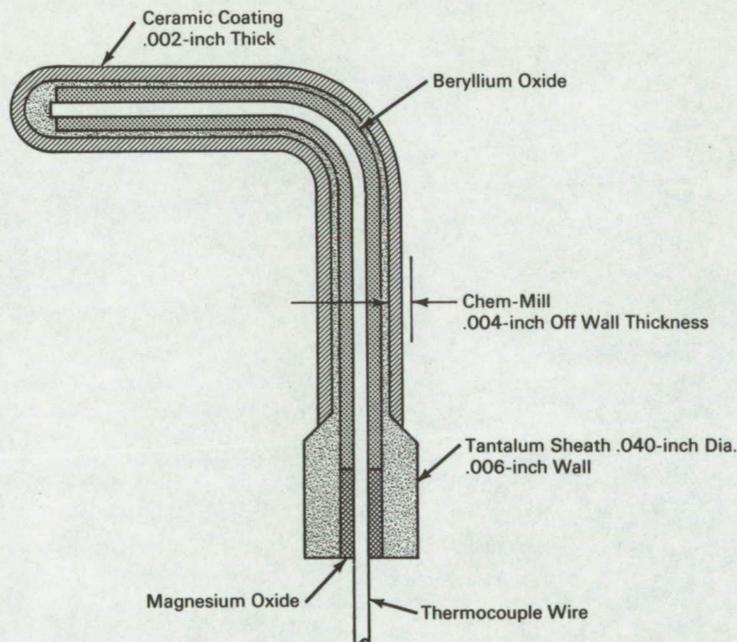


NASA TECH BRIEF



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Modified Thermocouple Is Effective From -250° to 5000° F



The problem:

To develop a thermocouple capable of continuous measurement in the range of -250° to 5000° F. It was necessary to measure the temperature of a spacecraft heat shield, and no commercially available thermocouple was satisfactory.

The solution:

A modified, commercially available thermocouple that has been made more sensitive, but will not disintegrate at the desired temperature.

How it's done:

Modify a commercially available thermocouple as follows:

- (1) Chem-mil 0.004 inch off the tantalum sheath to make the thermocouple more sensitive.
- (2) Coat the thermocouple with a thermally conductive ceramic coating that prevents disintegration at the desired temperature, but still permits the thermocouple to produce an output signal.

After modification, bend the thermocouple as required and fasten to the equipment under test.

(continued overleaf)

Notes:

1. There are many commercially available thermocouples that can easily be modified for use.
2. The modified thermocouples may be used inside metal treating furnaces, in high temperature technology, and in certain corrosive environments.
3. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
Houston, Texas 77058
Reference: B66-10461

Patent status:

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

Source: W. K. Moen
of North American Aviation, Inc.
under contract to
Manned Spacecraft Center
(MSC-420)