



Determination of the ignition point of titanium and zirconium powders

Basic principle

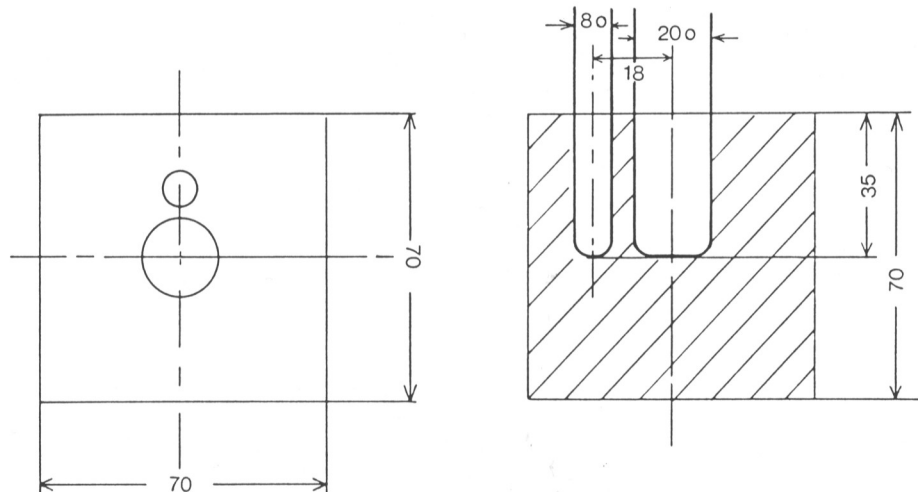
The metal powder or hydride to be tested is placed in a preheated ignition block and the temperature at which self-ignition occurs is noted.

Procedure

The ignition block consists of an iron cube of 70 mm side length, with holes drilled for the material to be analyzed and a thermocouple. After inserting a thermometer or thermocouple, the block is pre-heated with a blower heater to a temperature just below the anticipated self-ignition point. A small quantity of the sample is then placed in the hole intended for the test material, and the block is heated further with the full blower flame until the powder self-ignites. The corresponding temperature is defined as the ignition point.

To ensure correct determination of the ignition point it is crucial to determine an approximate ignition temperature in preliminary experiments (e.g. app. 150°C for Zr metal powder and app. 200°C for Zr hydride). For the actual measurement, the sample must be added about 10 °C below the predicted ignition point, or else a definite self-ignition will fail to take place.

Apparatus



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