

A STATIC-BOMB COMBUSTION CALORIMETER

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Abstract: An important characteristic of a bomb calorimeter is the design of the calorimetric shell. The paper presents the characteristics of calorimeters with a jacket without a control action which does not require a thermostat, heater, or refrigerator. A specific feature of such a calorimeter is the dependence of the measurement result on the duration of the main period of the experiment and the need to correct the magnitude of the temperature rise in the experiment depending on the measurement temperature. The errors of thermostating of isothermal jacket, the terminology of calorimetry used in metrological documents, and the choice of temperature to which the calorimetric experiment relates are discussed.

Keywords: bomb calorimeter; thermal equivalent method; energy equivalent; isothermal jacket; static shell

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Figure Captions

Figure 1 Dependence of the energy equivalent of a calorimeter on the duration of the main period of the experiment: 1 — with static shell; and 2 — with isothermal shell

Figure 2 Variation of the surface temperature of the isothermal shell wall

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