

Which Calorimeter Is the Best?

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Calorimetry is used to measure four properties; the enthalpy change, the heat capacity, the equilibrium constant, and the kinetics of reactions. There are only three ways to measure heat; by temperature rise, heat conduction, and power compensation calorimetry, and two ways to control the surroundings; isothermal and adiabatic. Beyond those, characteristics of the calorimeter; the temperature range, sample size, sample phase (i.e. solid, liquid, gas), the total heat effect, and the rate of heat production must be considered when deciding which calorimeter is best for a particular application. Because workers rarely build their own calorimeter anymore, this paper will consider the capabilities of existing commercially available calorimeters. Examples of applications to various calorimetric measurements will be used to illustrate how to select a calorimeter that will be best for a given task.