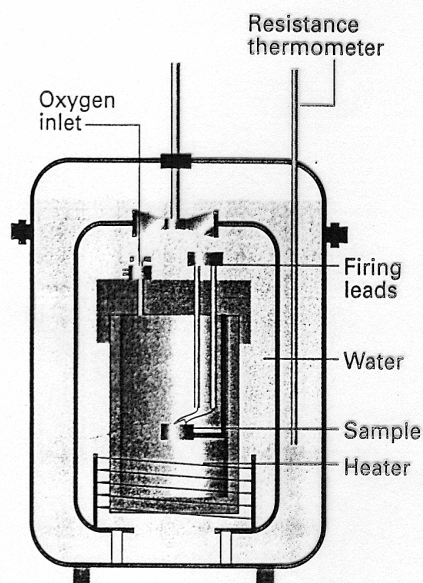
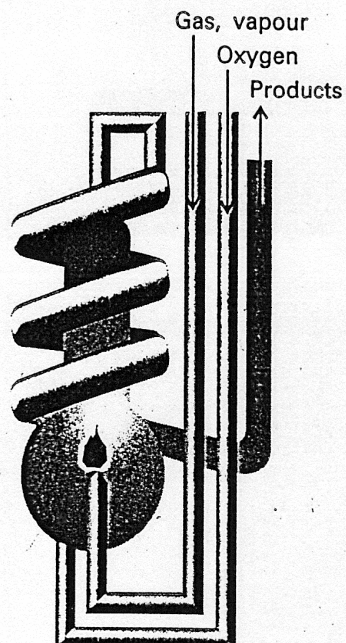


Kalorimetrie - Messung von ΔU und ΔH

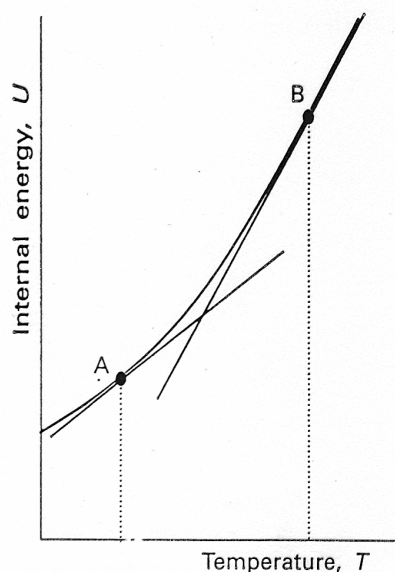


2.10 A constant-volume bomb calorimeter. The 'bomb' is the central vessel, which is massive enough to withstand high pressures. The calorimeter (for which the heat capacity must be known) is the entire assembly shown here. To ensure adiabaticity, the calorimeter is immersed in a water bath with a temperature continuously readjusted to that of the calorimeter at each stage of the combustion.

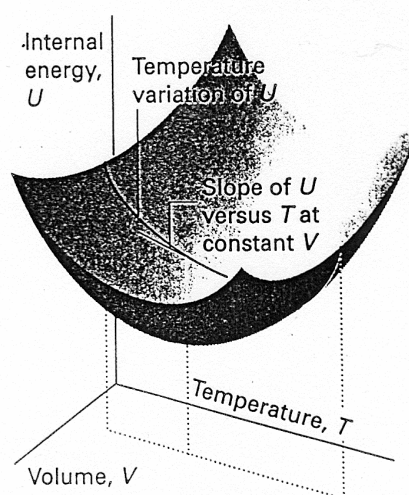


2.14 A constant-pressure flame calorimeter consists of this element immersed in a stirred water bath. Combustion occurs as a known amount of reactant is passed through to fuel the flame, and the rise in temperature is monitored.

Wärmekapazität : $c_v = \left(\frac{\partial U}{\partial T}\right)_V$



2.11 The internal energy of a system increases as the temperature is raised; this graph shows its variation as the system is heated at constant volume. The slope of the graph at any temperature (as shown by the tangents at A and B) is the heat capacity at constant volume at that temperature. Note that, for the system illustrated, the heat capacity is greater at B than at A.



2.12 The internal energy of a system varies with volume and temperature, perhaps as shown here by the surface. The variation of the internal energy with temperature at one particular constant volume is illustrated by the curve drawn parallel to T . The slope of this curve at any point is the partial derivative $(\partial U / \partial T)_V$.