Specific Heat Capacity of a Liquid

The apparatus is set up as shown. The rheostat should be adjusted to give a suitable current through the heating coil. The inner calorimeter contains a known mass *of* the liquid under test. The temperature *of* the liquid is recorded. The switch is closed and the heater current and PD are recorded. The liquid is stirred continuously and its temperature is measured at one-minute intervals. Heating is continued until the temperature has risen by about 50°C. The current and PD change slightly due to the increased resistance *of* the heating coil at higher temperatures, and their values should be recorded immediately before switching *off* the heater. The heater is switched off and the temperature is recorded

If the specific heat capacity *of* the liquid and the heat capacity *of* the inner calorimeter are c and C respectively then

$$VIt = (mc+C)\,\Delta\Theta$$

where *V* and I are the *average* heater PD and current and *t* is the time for which heating is carried out; hence c.