CALORIMETER BLOCKS
075

CENTRE FOR MICROCOMPUTER APPLICATIONS

https://cma-science.nl

Short description

The CMA Calorimeter blocks 075 are four cylindrical metal blocks made from aluminium, brass, copper and steel. The metal blocks are drilled with two holes. The larger hole in the middle is meant for the CMA Immersion heater 019 to heat a metal block. The smaller hole is meant for a temperature sensor (or thermometer) to monitor block's temperature.
Blocks have different sizes but the same mass.

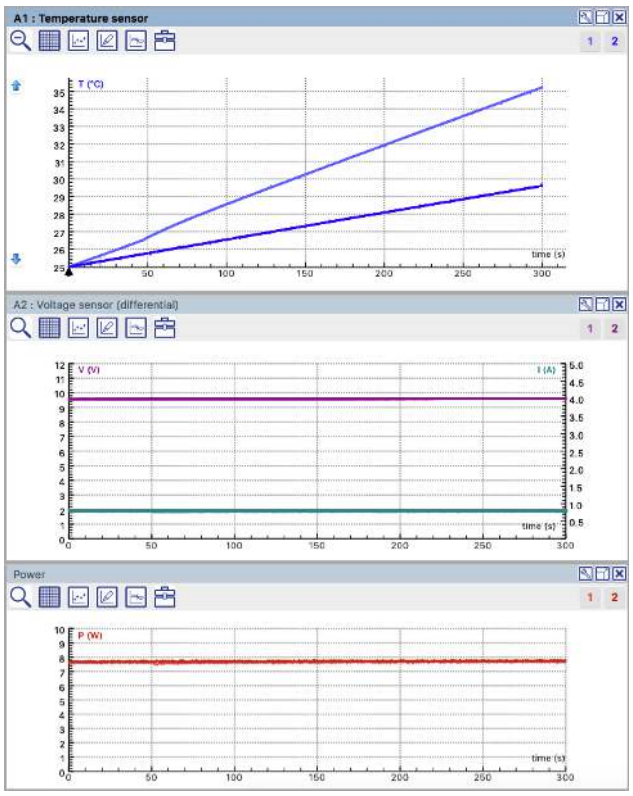
Block material	Diameter (mm)	Height (mm)	Mass(g)
Aluminum	50.00	97.70	500
Brass	35.00	67.75	500
Copper	35.10	64.40	500
Steel	35.15	72.75	500

The calorimeter blocks, together with an immersion heater, a temperature sensor and a power supply (not provided with the set), can be used to determine the specific heat capacity of aluminium, brass, copper and steel.

Insert the immersion heater and the temperature sensor into the appropriate hole as deep as possible. To prevent the heat loss, place the calorimeter block on a heat proof mat surrounded by thermal insulation.

The graphs show an example of measurement results for the copper and aluminium blocks. Blocks were heated by the CMA Immersion heater 019 connected to a control output of the CoachLab II+ interface).

1. The upper graph shows the temperature changes, the copper block warms up faster then the aluminium block.
2. The middle graph shows the measured current and voltage supplied to the heater.
3. The lower graph shows the calculated power, which allows calculating the energy supplied to the blocks.



Check the Teaching Resources provided on the CMA website (https://cma-science.nl) to find the ready-to-go activity for determining specific heat capacities of metals.