

3.3.01-01 Heat capacity of metals



What you can learn about ...

- Mixture temperature
- Boiling point
- Dulong Petit's law
- Lattice vibration
- Internal energy
- Debye temperature

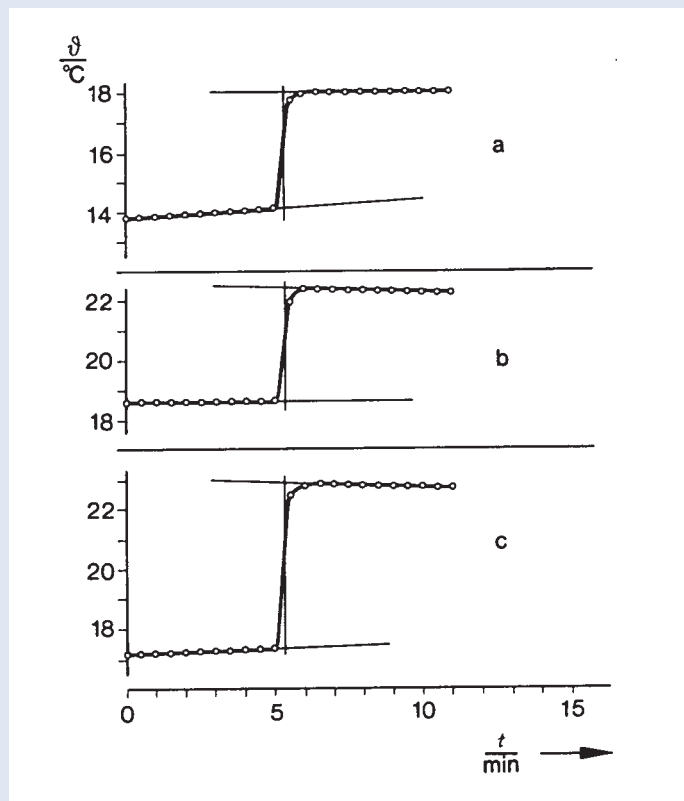
Principle:

Heated specimens are placed in a calorimeter filled with water at low temperature. The heat capacity of the specimen is determined from the rise in the temperature of the water.

What you need:

Calorimeter, 500 ml	04401.00	1
Metal bodies, set of 3	04406.00	4
Steel pot, 1 l	05933.00	1
Butane burner Labogaz 206	32178.00	1
Butane cartridge C 206 without valve	47535.00	1
Aneroid barometer	03097.00	1
Precision mercury thermometers, -10...+ 50°C	38033.00	1
Stopwatch, digital, 1/100 s	03071.01	1
Portable Balance, OHAUS JR300	48891.00	1
Fishing line on spool, $d = 0,5 \text{ mm}$, $l = 100 \text{ mm}$	02090.00	1
Wire triangle (clay triangle), $l = 60 \text{ mm}$	33278.00	1
Tripod, ring $d = 140 \text{ mm}$, $h = 240 \text{ mm}$	33302.00	1
Beaker, DURAN®, short form, 250 ml	36013.00	1
Beaker, DURAN®, short form, 600 ml	36015.00	1
Glass beads, 850 pieces, $d = 6 \text{ mm}$	36756.25	1

Complete Equipment Set, Manual on CD-ROM included
Heat capacity of metals P2330101



Temperature as a function of time in the method of mixtures experiment
a) steel, b) brass, c) aluminium.

Tasks:

1. To determine the heat capacity of the calorimeter by filling it with hot water and determining the rise in temperature.
2. To determine the specific heat capacity of aluminium, iron and brass.
3. To verify Dulong Petit's law with the results of these experiments.