TECHNICAL DATA

Thermal conductivity of metals

Article no: P2350201

Principle

The thermal conductivity of copper and aluminium is determined in a constant temperature gradient from the calorimetrically measured heat flow.

Benefits

- Easy to set temperature gradient
- Compact, easily transportable setup

Tasks

1. Determine the heat capacity of the calorimeter in a mixture experiment as a preliminary test. Measure the calefaction of water at a temperature of 0 °C in a calorimeter due to the action of the ambient temperature as a function of time.
2. To begin with, establish a constant temperature gradient in a metal rod with the use of two heat reservoirs (boiling water and ice water). After removing the pieces of ice, measure the calefaction of the cold water as a function of time

   and determine the thermal conductivity of the metal rod.

Learning objectives

- Thermal conductivity
- Diffusion
- Temperature gradient
- Heat transport
- Specific heat

PHYWE Systeme GmbH & Co. KG
Robert-Bosch-Breite 10 – 37079 Göttingen – Germany
www.phywe.com

Scope of delivery

Calorimeter vessel, 500 ml	04401-10	1
Calor.vessel w.heat conduct.conn.	04518-10	1
Heat conductivity rod, Cu	04518-11	1
Heat conductivity rod, Al	04518-12	1
Magnetic stirrer without heating, 3 ltr., 230 V	35761-99	1

PHYWE Systeme GmbH & Co. KG
Robert-Bosch-Breite 10 – 37079 Göttingen – Germany
www.phywe.com

Heat conductive paste, 60 g	03747-00	1
Gauze bag	04408-10	1
Immers.heater,300W,220-250VDC/AC	05947-93	1
Immersion probe NiCr-Ni, steel, -50...400 °C	13615-03	1
Surface probe NiCr-Ni -50...300°C	13615-04	2
Digital stopwatch, 24 h, 1/100 s and 1 s	24025-00	1
Tripod base PHYWE	02002-55	2
Support rod, stainless steel, different lenghts	02033-00	1
Support rod, stainless steel, different lenghts	02034-00	1
Universal clamp	37715-01	4
Right angle clamp expert with fulcrum screw	02054-00	6
Beaker, boro, low-form	46055-00	1
Portable Balance, OHAUS CX2200	48921-00	1
Magnetic stirring bar 30 mm, cylindrical	46299-02	1
Temperature meter digital, 4-2	13618-00	1
Universal power supply, 600mA 3/4.5/5/6/7.5/9/12V, incl. 9 adaptors	11078-99	1