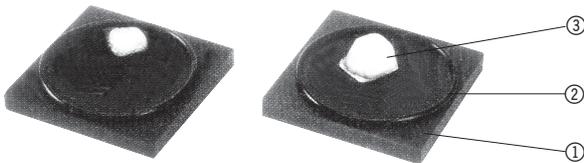


U45055 Thermal Conductivity Equipment Kit

Instruction Sheet

8/03 ALF



- ① Plastic plate
- ② Rubber ring
- ③ Ice cube

Experiment set for the qualitative inquiry into the heat conductivity of different materials.

1. Description, technical data

The Thermal Conductivity Equipment Kit consists of two plates of nearly the same

Appearance. One made from aluminum with very high thermal conductivity, the other made from rigid plastic foam with a very low thermal conductivity.

Even at room temperature the material temperatures seem different to the touch. In the experiment ice cubes are placed on the plates. The ice cube on the seemingly colder aluminum plate melts much more quickly (approx. 1-2 minutes), while there seems to be no melting at all of the ice cube on the seemingly warmer plastic plate.

Two rubber rings placed on the plates prevent the ice cubes from slipping off the plates.

Plate dimensions: 95 mm x 95 mm x 13 mm

1.1 Scope of delivery

- 1 Aluminum plate
- 1 Plastic plate
- 2 Rubber rings

2. Operating principle

Despite the same temperature materials can feel differently warm. The reason is they have different thermal

conductivities e.g. aluminium has a very high heat conductivity while plastic a very low one. At room temperature the aluminium plate feels cold to the touch because heat is very quickly conducted from your hand into the aluminium. By contrast the plastic plate acts as an insulator to heat so that heat is conducted very slowly. This makes it feel comparatively warm.

The principle is accordingly when melting the ice cubes. The heat necessary for melting is conducted much faster by aluminium than by the foamed plastic.

3. Operation

- Hand the plate to your students with the question which one is warmer and which one is colder.
- Raise the question on which plate an ice cube would melt faster.
- Place both plates on a table and put the rubber rings on top of them.
- Put an ice cube on each plate and observe the melting process.
- Wipe the plates and measure the their temperatures to confirm that both plates have the same temperature.