

Energy Transfer - Calorimeter

ET-8499

Included components



1 Outer cup

Holds the inner cup and acts as an insulator. The mass of this cup does not need to be included in any calculations.

2 Inner cup

Holds the water and investigation samples. This cup's mass should be included in heat transfer equations. Made of aluminum.

⚠ IMPORTANT: Use distilled water *only*. Tap water will corrode the resistor.

3 Insulating lid

Features a hole for the heating resistor assembly or the one-hole stopper.

4 Insulating spacer

Aligns the inner and outer cup to create a small air space between the cups, which acts as an insulator. The spacer rests on the step inside the outer cup.

5 Heating resistor assembly

Heats the water in the inner cup when powered. Permanently mounted in a two-hole stopper, with the second hole providing access for a temperature probe, such as the Wireless Temperature Sensor (PS-3201).

6 One-hole stopper, #2 (not shown)

Insert into the insulating lid for experiments where you are not using the heating resistor assembly. Use the hole to insert a temperature probe or thermometer.

Equipment setup



⚠ CAUTION: Do NOT touch the resistor during or shortly after it is used for heating! Doing so may cause burns.

1. Place the spacer onto the lip inside the outer cup.
2. Place the inner cup into the outer cup through the hole in the spacer.
3. Fill the inner cup with water and a sample for your experiment, then place the lid on top of the inner cup.
4. Insert the heating resistor assembly through the hole in the lid, making sure the stopper fits snugly. (If the heating resistor is not being used in your experiment, insert the one-hole stopper instead.)
5. Connect the heating resistor assembly to a power supply.

⚠ IMPORTANT: To avoid damaging the product, only apply power to the resistor when it is immersed in water, and do not apply more than 10 V to the resistor at any time.

6. Insert a temperature probe or thermometer into the empty hole in the stopper.

Storage

Before storing the apparatus, remove all water and other components from the inner cup. In particular, make sure to remove the heating resistor assembly from the hole in the lid. Storing the product with the resistor assembly inside the cup will seal in any residual moisture, potentially corroding the resistor over time.

Experiment files

Download one of several student-ready activities from the PASCO Experiment Library. Experiments include editable student handouts and teacher notes. Visit [pasco.com/freelabs/ET-8499](https://www.pasco.com/freelabs/ET-8499).

Technical support

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-  Email support@pasco.com

Limited warranty

For a description of the product warranty, see the Warranty and Returns page at www.pasco.com/legal.

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