

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.

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

Need more help? Our knowledgeable and friendly Technical Support staff is ready to answer your questions or walk you through any issues.

-  Chat [pasco.com](https://www.pasco.com)
-  Phone 1-800-772-8700 x1004 (USA)
+1 916 462 8384 (outside USA)
-  Email support@pasco.com

Limited warranty

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

Copyright

This document is copyrighted with all rights reserved. Permission is granted to non-profit educational institutions for reproduction of any part of this manual, providing the reproductions are used only in their laboratories and classrooms, and are not sold for profit. Reproduction under any other circumstances, without the written consent of PASCO scientific, is prohibited.

Trademarks

PASCO and PASCO scientific are trademarks or registered trademarks of PASCO scientific, in the United States and in other countries. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of, their respective owners. For more information visit www.pasco.com/legal.

Product end-of-life disposal



This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle or disposal service, or the place where you purchased the product. The European Union WEEE (Waste Electronic and Electrical Equipment) symbol on the product or its packaging indicates that this product must not be disposed of in a standard waste container.