

Fuel energies



In our everyday life we either directly burn fuels, e.g. petrol or diesel in our cars, or indirectly when we use electricity (initially this energy usually comes from burning fossil fuels).

Q. Can you name 2 common sources of fossil fuels used in power stations?

In this experiment we will try to find out if all fuels release the same amount of energy or if each has its own value.

If we are to have a fair test, we must either get the same quantity of fuel to test and burn it completely or to burn the fuel for a set period of time. We will be heating a small amount of water and measuring the temperature increase over this time.

Method.

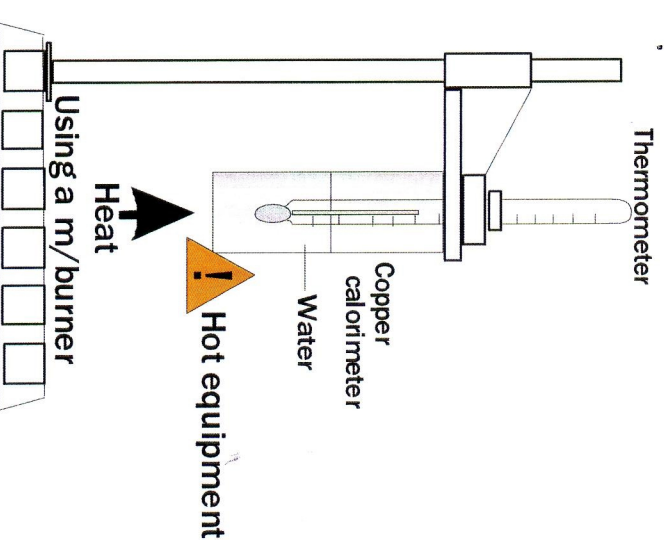
1. Set up the equipment as shown in the diagram opposite. Place the stand in F.1.
2. Fill the copper vessel (calorimeter) with exactly 20.0 ml of water using a measuring cylinder.
3. Attach this to the plastic head which is attached to the stand.
4. Fill the microburner with the chosen fuel, e.g. ethanol  (FLAMMABLE)
5. Take the original temperature of the water and note this down.
6. Place microburner in well F4 and light the burner.
7. Swivel the calorimeter over the flame and at the same time start the stopwatch.
8. Continue to heat the water for a set amount of time (you decide approx 50 secs) but it must not boil.
9. Once the time has elapsed stop heating and take the final temperature, noting this down.
10. Calculate the overall temperature rise (final temp. - original temp. = temp. rise)
11.  Allow to cool, then discard the warm water and refill the calorimeter with 20.0ml of water.
12. Repeat steps 3 - 11 until all the fuels have been tested.



Eye protection must be worn



Hot equipment & naked flames



Fuel energies



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