# Heat of Combustion of Paraffin Wax

**Introduction**

* to calculate the heat of combustion of a candle (paraffin wax)
* to compare this quantity with the known value.

**BCE for the combustion of paraffin (C25H52):**

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**Materials:**

|  |  |
| --- | --- |
| * Candle and holder
 | * Matches
 |
| * Ring stand
 | * Stirring rod
 |
| * Beaker
 | * 100 mL gc
 |
| * Thermometer
 | * Balance
 |
| * Ring clamp
 | * Wire gauze
 |
| * Room temperature water
 |  |

**Procedure:**

\_\_\_1. Determine the combined mass of the candle and holder.

\_\_\_2. Carefully measure out 100.0 mL of RT water into the beaker.

\_\_\_3. Adjust the beaker so that the top of the candlewick is about 2 cm from the bottom of the beaker.

\_\_\_4. Measure the water temperature to the nearest 0.1 °C.

\_\_\_5. Place the candle under the beaker of water. Light the candle. As the water heats, stir it gently.

\_\_\_6. As the candle burns and becomes shorter, you may need to lower the beaker so the flame remains just below the bottom of the can.

\_\_\_7. Continue heating until the temperature increases by at least 25ºC.

\_\_\_8. When the desired temperature is reached, extinguish the candle flame.

 Continue stirring the water until its temperature stops rising.

 Record the highest temperature reached.

\_\_\_9. Determine the mass of the cooled candle and holder.

**Observations:**

**Questions & Calculations:**

**1.** Qwater

**2.** Qparaffin

**3.** Moles of paraffin

**4.** ∆Hcomb paraffin

**5.** Percent Error

**Conclusion:**

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**http://www.arps.org/users/hs/thompsom/chemcom/unit\_3/labs/Burning\_Candle\_Lab.pdf**