

What's the best fuel?

Education in Chemistry

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This experiment accompanies the above article 'Taking care of the air'.

Fuels are burnt to produce power for a number of applications: from running cars and cooking food to powering industrial plants. There are many fuel materials to choose from and people consider which fuel is best for their application depending on:

- The energy content of the fuel
- How easily the fuel can be used
- How the fuel is stored
- How much the fuel costs
- How much pollution the fuel produces
- Any chemical hazards associated with the fuel

In this experiment we will be comparing different solid fuels. Solid fuels are easily stored and they are easy to handle. We will compare the other factors to come to a conclusion about which fuel is best.

Fuel substance

- One quarter of a firelighter
- Two long wooden splints, broken into small pieces
- One quarter of an A4 piece of scrap paper
- A pinch of wax beads

Apparatus

- Metal dish
- Heatproof mat
- Bunsen burner
- Access to a top pan balance
- Timer

Method

1. Put the metal dish on top of the heatproof mat.
2. Weigh the substance and then place it into the metal dish.
3. Light the fuel using a Bunsen burner and start the timer.
4. Stop the timer when the fuel is completely consumed and the flame goes out.

Results table

Fuel	Mass of fuel (g)	Ease of lighting	Smokiness	Burn time
Fire lighter				
Wood				
Paper				
Wax				

Which is the best fuel?

Give reasons for your answer

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Why is burn time alone not an accurate measure of how good the fuel is?

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