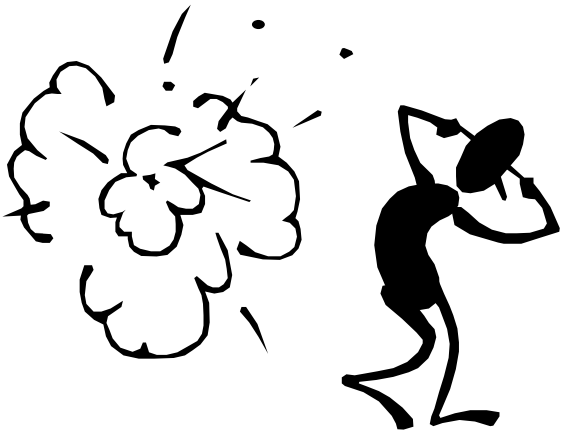
Chemical Demonstrations



Methane Tin

This reaction can be applied to curriculum for excellence.

SCN 3-19a

Through experimentation, I can identify indicators of chemical reactions having occurred ...

National 4 – Chemical Change & Structure

Energy changes of chemical reactions

Introduction

A large coffee tin has a hole punched in the lid and another hole punched in the base. The gas is lit at the hole in the lid, burns down and eventually explodes inside the tin, blowing the lid off.

What you will need

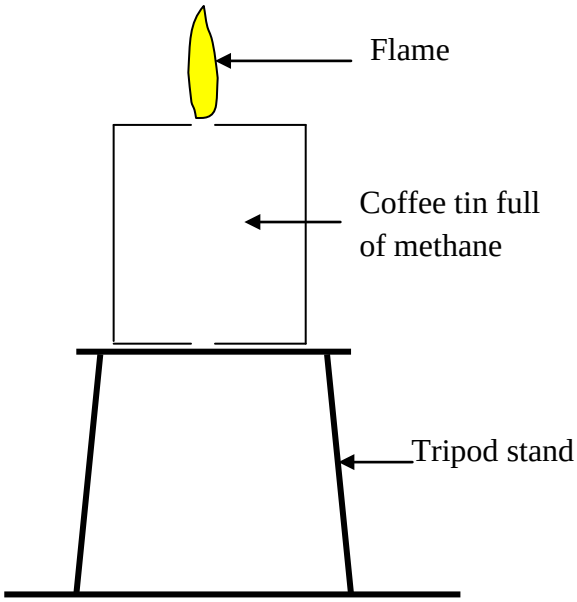
- One 500g or 750g catering size coffee tin with press on metal lid
- A length of rubber tube to reach from the gas tap to the apparatus
- Safety screen
- Methane (natural gas) from the gas tap

What you do

Before the demonstration.

1. Make a hole about 1cm in diameter in the base of the coffee tin.

2. Make a larger hole in the lid of the tin.



The demonstration

1. Place the tin on a tripod stand as in the diagram.

2. Place a safety screen close to the tin, between the tin and the audience.

3. Using a length of rubber tube attached to the gas tap and placed through the hole in the base of the tin, ill the tin with methane gas.

4. Allow at least a minute to ensure that all the air is swept out of the apparatus – otherwise it may explode on lighting.

5. Remove the rubber tube and turn off the gas.

6. Light the gas at the hole in the lid. It will initially burn with a yellow luminous flame.

7. Eventually the flame will descend into the tin.

8. After a few minutes, the gas in the tin explodes and the lid is blown off.

Safety

Wear eye protection. 

Care when igniting methane – flammable/explosive mixture of gases is formed. 

Use a safety screen

It is not recommended to attempt this experiment with hydrogen: the combustion is rapid and the explosion is violent.

It is the responsibility of teachers doing this demonstration to carry out an appropriate risk assessment.