

D5: Cannon Fire

- Preparation time within 30 minutes
- Demonstration time less than 5 minutes







Important note

This is NOT covered by the model (general) risk assessments adopted by most education employers. Before conducting this experiment you should go through whatever procedure your employer has laid down for obtaining a special risk assessment.

Requirements

heat-proof surface	hydrogen peroxide, H ₂ O ₂ , 20 vol
large evaporating basin	0.5 g potassium manganate(VII), KMnO ₄
safety screens	Remove concentrated sulphuric acid from the lab when KMnO₄ is used.
taper or splint (for lighting mixture)	20 cm ³ ethanol
pipette (or similar) for dispensing 20-30 cm ³	eye protection

Method

1. Place the evaporating basin on the heat-proof surface.
2.  
Add 30 cm³ hydrogen peroxide (20 vol) and 20 cm³ ethanol.
3.  
Arrange the dish between safety screens arranged to protect both pupils and teacher. Light the mixture with a taper. The ethanol will burn invisibly.
4.  
Sprinkle about 0.5 g of potassium manganate(VII) into the dish. Avoid inhaling any of the vapour produced.

Chemical background

The potassium manganate(VII) reacts with the hydrogen peroxide and releases oxygen gas making a series of loud bangs in the process.



see important note at start



eye protection must be worn



IRRITANT

hydrogen peroxide



HIGHLY FLAMMABLE
ethanol



OXIDISING
potassium manganate(VII)



HARMFUL
potassium manganate(VII)



remove concentrated sulphuric acid from the lab when potassium manganate(VII) is used