

Study of the First Element - Hydrogen

Chapter 6: Study of the First Element - Hydrogen · Topic 1

Key Concept

Hydrogen is colourless, odourless, highly flammable, and the lightest known element, existing as a diatomic molecule (H_2).

In the laboratory, hydrogen is prepared by reacting a metal like zinc with a dilute acid, like hydrochloric acid, releasing hydrogen gas.

Hydrogen gas is tested using the 'pop test' - a burning splint held near hydrogen produces a characteristic popping sound.

Hydrogen has various uses, including manufacturing ammonia (for fertilisers), hydrogenating vegetable oils, and as a potential clean fuel.

Quick Revision Notes

- Hydrogen is the lightest element.
- It's colourless, odourless, highly flammable.
- It exists as H_2 (diatomic molecule).
- Lab preparation: zinc + dilute acid.
- This releases hydrogen gas.
- The 'pop test' identifies hydrogen gas.
- A burning splint makes a popping sound.
- Uses: ammonia manufacturing, oil hydrogenation, clean fuel.

Practice Questions

- 1 Research hydrogen's properties.
- 2 Discuss how hydrogen is prepared using zinc and acid.
- 3 Explain the pop test for hydrogen.
- 4 Research a use of hydrogen in industry.
- 5 Discuss why hydrogen might be a clean fuel.
- 6 Research hydrogen fuel cells.