

Collection and purification of gases

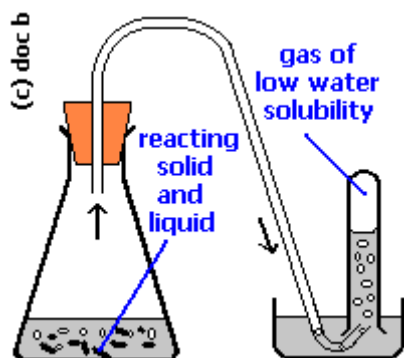
Factors that affect the choice of method for collection of gas

- Solubility in water
- Density compared to that of air

Methods of Collecting Gases

Displacement of Water

- Used when gas is insoluble in water
- Also used when soluble gas needs to be separated from insoluble gas, and insoluble gas needs to be collected.



Downward Delivery

- Used when gas collected is more dense than air.
- Usually used only when gas is soluble in water, and displacement of water cannot be used.

Upward Delivery

- Used when gas collected is less dense than air.
- Usually used only when gas is soluble in water, and displacement of water cannot be used.

Drying Agents

- Usually gas produced is contaminated with water vapour.

Identification of Gases

Chlorine Gas - Cl₂

- Pale green/yellow gas
- Blue litmus paper turns red and then bleaches white.

Hydrogen Gas – H₂

- Colorless gas
- Effervescence observed
- Gas extinguishes the lighted splint with a “pop” sound

Oxygen – O₂

- Colorless Gas
- Effervescence observed
- Gas reignites the glowing splint

Sulfur Dioxide – SO₂

- Colorless and choking gas
- Purple potassium manganite (VII) becomes colorless

Carbon Dioxide – CO₂

- Effervescence observed
- Colorless Gas evolved.
- A white precipitate (calcium carbonate) is formed in limewater

Ammonia – NH₃

- Colorless and Pungent Gas
- Moist red litmus turned blue