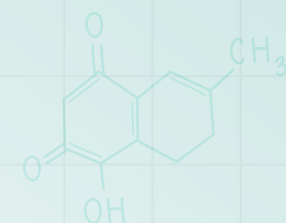


Last Moment Exam Cheat Sheet

Composition And Water Treatment

- Hard water does not form **lather easily** with soap.
- **Ca²⁺, Mg²⁺ and Fe²⁺** ions cause hardness of water.
- **Chlorides, bicarbonates and sulphates** are responsible for hardness.
- Soaps are sodium or potassium salts of **stearic or palmitic acid**.
- Hard water reacts with soap to form white precipitate of **calcium or magnesium stearate/palmitate**.
- Temporary hardness is due to **bicarbonates of Ca²⁺ and Mg²⁺** and carbonates of Fe²⁺.
- Temporary hardness can be removed by **boiling**.
- Permanent hardness is due to **chlorides and sulphates** of Ca²⁺, Mg²⁺ and Fe²⁺.
- Permanent hardness **cannot be removed by boiling**.
- Clark's method uses **slaked lime, Ca(OH)₂**.
- Calgon is **sodium hexametaphosphate, Na₆P₆O₁₈**.
- Zeolite is **sodium aluminium orthosilicate**.
- Ion-exchange resin removes **Ca²⁺ and Mg²⁺ ions**.
- Cement was invented by **Joseph Aspdin**.





- Portland cement contains **tricalcium silicate, dicalcium silicate, tricalcium aluminate and tetracalcium aluminoferrite.**
- Glass mainly contains **silica, soda, lime and potash.**
- Pyrex is **borosilicate glass.**
- Soap is prepared by **saponification** of oil or fat with NaOH or KOH.
- Soap molecule has **hydrophilic head** and **hydrophobic tail.**
- Detergents are **amphipathic molecules** and surfactants.
- CMC means **Critical Micelle Concentration.**
- Gunpowder is a homogeneous mixture of **potassium nitrate, charcoal and sulphur.**
- **Potassium nitrate** supplies oxygen in gunpowder.
- Sulphur lowers **ignition temperature.**
- Safety match head contains **antimony sulphide, KClO_3 and sulphur or charcoal.**
- Striking surface contains **red phosphorus.**
- Paper is made from **cellulose or wood pulp.**
- Ignition temperature is the **minimum temperature required to start combustion.**
- **Hydrogen** is the lightest element and burns with a **pale blue flame.**
- Green hydrogen is made by **electrolysis using renewable energy.**
- Oxygen supports combustion and acts as a **strong oxidising agent.**
- Dioxygen is **O_2** and ozone is **O_3 .**




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