

Salts: Properties and Uses



Here is a detailed table of common salt, bleaching powder, baking soda, washing soda, and plaster of paris based on the provided PDF "acid base salt.pdf":

Substance	Chemical Name	Formula	Preparation	Uses
Common Salt	Sodium Chloride	NaCl	Obtained by evaporation of seawater or mining of rock salt deposits. Seawater contains many dissolved salts, and sodium chloride is separated from these.	Used as table salt, in the preparation of NaOH and Na ₂ CO ₃ , and various industrial uses.
Bleaching Powder	Calcium Oxychloride	Ca(OCl) ₂	Produced by passing chlorine gas through dry slaked lime (calcium hydroxide): Ca(OH) ₂ + Cl ₂ → Ca(OCl) ₂ + H ₂ O	Used for bleaching in the textile industry, disinfecting drinking water, and as an oxidizer.
Baking Soda	Sodium Bicarbonate	NaHCO ₃	Prepared by saturating a solution of sodium carbonate with carbon dioxide: Na ₂ CO ₃ + CO ₂ + H ₂ O → 2 NaHCO ₃	Used in baking, as a mild antiseptic, and in fire extinguishers.
Washing Soda	Sodium Carbonate Decahydrate	Na ₂ CO ₃ ·10H ₂ O	Obtained by heating baking soda: 2 NaHCO ₃ → Na ₂ CO ₃ + CO ₂ + H ₂ O. Recrystallization of sodium carbonate gives washing soda: Na ₂ CO ₃ + 10 H ₂ O → Na ₂ CO ₃ ·10H ₂ O	Used in glass, soap, and paper industries, for cleaning, and in water treatment.
Plaster of Paris	Calcium Sulphate Hemihydrate	CaSO ₄ ·½ H ₂ O	Produced by heating gypsum to 373 K: 2 CaSO ₄ ·2H ₂ O → 2 CaSO ₄ ·½ H ₂ O + 3 H ₂ O	Used in building, for immobilizing fractures, in dentistry, and for making statues.

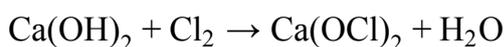
Detailed Description:

1. Common Salt (Sodium Chloride, NaCl):

- **Preparation:** Common salt is isolated by evaporation from seawater which contains 2.7 to 2.9% by mass of sodium chloride. Rock salt deposits are mined like coal.
- **Uses:** It is used as a table salt, in the preparation of sodium hydroxide, sodium carbonate, and many other industrial processes.

2. Bleaching Powder (Calcium Oxychloride, Ca(OCl)₂):

- **Preparation:** It is produced by passing chlorine gas through dry slaked lime (calcium hydroxide):



- **Uses:** Used for bleaching cotton and linen in the textile industry, bleaching wood pulp, disinfecting drinking water, and as an oxidizing agent in chemical industries.

3. Baking Soda (Sodium Bicarbonate, NaHCO₃):

- **Preparation:** It is prepared by saturating a solution of sodium carbonate with carbon dioxide:



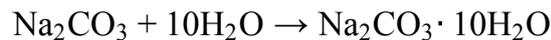
- **Uses:** Commonly used in baking as a leavening agent, as a mild antiseptic, and in soda-acid fire extinguishers.

4. Washing Soda (Sodium Carbonate Decahydrate, Na₂CO₃·10H₂O):

- **Preparation:** It is obtained by heating baking soda:



Recrystallization of sodium carbonate gives washing soda:



- **Uses:** Used in the glass, soap, and paper industries, as a cleaning agent, and for removing permanent hardness of water.

5. Plaster of Paris (Calcium Sulphate Hemihydrate, CaSO₄·½ H₂O):

- **Preparation:** Produced by heating gypsum to 373 K:



- **Uses:** Used in the building industry, for immobilizing fractures, in dentistry, and for making decorative items and casts.