• Alkaline metals react with water to form alkaline solutions of the metal hydroxide
• Alkali + Acid → Salt + Water (This is a neutralisation reaction)

**What was alkalis used for:**

• To neutralise acid soils
• To convert fats and oils to soaps
• To make glass
• To make chemicals that bind natural dyes to cloth

\[ \text{Nitric acids produces nitrate salts} \]
\[ \text{Sulfuric acid produces sulfate salts} \]
\[ \text{Hydrochloric acid produces chloride salts} \]
\[ \text{Phosphoric acid produces phosphate salts} \]

*Remember an alkali can be a metal carbonate, metal oxide or metal hydroxide*

**METAL CARBONATE + ACID → SALT + CARBON DIOXIDE + WATER**

**METAL OXIDE + ACID → SALT + WATER**

**METAL HYDROXIDE + ACID → SALT + WATER**

**Electrolysis**

*Splitting up chemicals into its elements by passing an electronic current through it*

**Chemicals from salt solution**

‘Electrolysis’ can cause chemical change. The word ‘electrolysis’, means using electricity to split something up. ‘Brine’ is a salt and water solution: NaCl (aq), Brine contains sodium, chloride, oxygen and hydrogen. Electrolysing brine makes: H₂ Gas, Cl₂ Gas and NaOH (aq) alkali.

**Ions:** An electrically charged atom

**Electrode:** A conductor made of metal or graphite through which a current enters or leaves a chemical during electrolysis. Electrons flow into a negative electrode (cathode) and out of a positive electrode (anode).

**Uses of chemicals from salt**

<table>
<thead>
<tr>
<th>Chlorine</th>
<th>Sodium hydroxide</th>
<th>Hydrogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>To treat drinking water and waste water</td>
<td>To make bleach</td>
<td>To make hydrochloric acid</td>
</tr>
<tr>
<td>To make bleach</td>
<td>To make soap and water</td>
<td>As a fuel to produce steam</td>
</tr>
<tr>
<td>To make hydrochloric acid</td>
<td>To process food products</td>
<td></td>
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</tbody>
</table>