COMMON REACTIONS

With Water to Form Bases and Hydrogen Gas

Example: $Mg(s) + 2H_2O(l) \longrightarrow Mg(OH)_2(aq) + H_2(g)$

Ca, Sr, and Ba also follow this pattern.

With Acids to Form Salts and Hydrogen Gas

Example: $Mg(s) + 2HCl(aq) \longrightarrow MgCl_2(aq) + H_2(g)$

Be, Ca, Sr, and Ba also follow this pattern.

With Halogens to Form Salts

Example: $Mg(s) + F_2(g) \longrightarrow MgF_2(s)$

Ca, Sr, and Ba also follow this pattern in reacting with F_2, Cl_2, Br_2, and I_2.

Calcium reacts with water to form hydrogen gas.

With Oxygen to Form Oxides or Peroxides

Magnesium forms an oxide.

$2Mg(s) + O_2(g) \longrightarrow 2MgO(s)$

Be and Ca also follow this pattern.

Strontium also forms a peroxide.

$Sr(s) + O_2(g) \longrightarrow SrO_2(s)$

Ba also reacts in this way.

With Hydrogen to Form Hydrides

Example: $Mg(s) + H_2(g) \longrightarrow MgH_2(s)$

Ca, Sr, and Ba also follow this pattern.

With Nitrogen to Form Nitrides

Example: $3Mg(s) + N_2(g) \longrightarrow Mg_3N_2(s)$

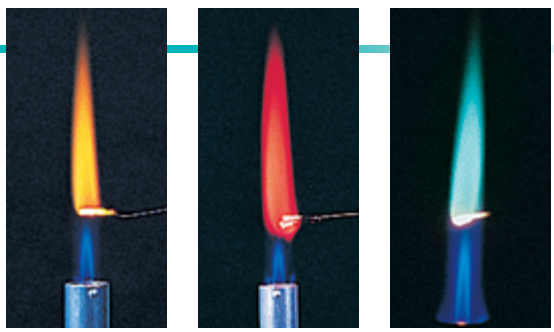
Be and Ca also follow this pattern.

Magnesium burns in air to form MgO and Mg_3N_2.

Magnesium reacts with HCl to produce $MgCl_2$(aq).

ANALYTICAL TEST

Flame tests can be used to identify three of the alkaline earth elements. The colors of both calcium and strontium can be masked by the presence of barium, which produces a green flame.



Calcium *Strontium* *Barium*