Magnesium hydroxide can be precipitated by the metathesis reaction between magnesium salts and sodium, potassium, or ammonium hydroxide:

$$Mg^{2^+}{}_{(aq)} + 2~OH^-{}_{(aq)} \longrightarrow Mg(OH)_{2~(s)}$$

Natural magnesium hydroxide exists in the form of brucite and this is used commercially as a fire retardant. However, most industrially used magnesium hydroxide is chemically produced from sea water or brine. Magnesium chloride in the sea water is reacted with lime or dolomitic lime to form a precipitated magnesium hydroxide.