

Group 2 metals  
magnesium and calcium

Substance	Hazard	Comment
<p><b>Magnesium (metal)</b> Solid (powder, turnings, ribbon)</p>	 <b>FLAMMABLE</b>	<p>DANGER: (powder, turnings) flammable solid, self-heating in large (kilogram) quantities; may catch fire; contact with water releases flammable gases. Ribbon – classification varies – may be as powder/turnings or may be <i>Currently not classified as hazardous</i>.</p> <p>It is moderately difficult to ignite but, once burning, it does so very vigorously and is difficult to extinguish. Ordinary fire-fighting methods are not suitable, but dry sand may be used. The flame is very bright and may damage eyesight. View through shade 9 welding filter <b>only</b>.</p> <p>It reacts readily with acids to produce hydrogen, an extremely flammable gas (see <i>CLEAPSS Student Safety Sheet 50</i>).</p>
<p><b>Calcium (metal)</b> solid</p>	 <b>HIGHLY FLAMMABLE</b>	<p>DANGER: In contact with water releases flammable gases.</p> <p>It reacts readily with water (or acids) to produce hydrogen, an extremely flammable gas (see <i>CLEAPSS Student Safety Sheet 50</i>).</p> <p>Contact with moisture forms calcium oxide or hydroxide which are <b>CORROSIVE</b> to eyes <b>IRRITANT</b> to skin (see <i>CLEAPSS Student Safety Sheet 32</i>).</p> <p>It is difficult to ignite but, once burning, does so vigorously.</p>

**Typical control measures to reduce risk**

- Conduct all experiments on a small scale.
- Keep careful control of stocks to prevent theft.
- Wear eye protection.
- NEVER look directly at magnesium when it is burning: view through a passive welding filter lens, shade 9

**Assessing the risks**

- What are the details of the activity to be undertaken? What are the hazards?
- What is the chance of something going wrong?  
*eg is there the possibility of theft or foolish behaviour?*
- How serious would it be if something did go wrong?
- How can the risk(s) be controlled for this activity?  
*eg can it be done safely? Does the procedure need to be altered? Should goggles or safety spectacles be worn?*

**Emergency action**

In all emergency situations, alert the responsible adult immediately. Be aware that actions may include the following:

- In the eye                      If magnesium powder or calcium contaminates the eyes, irrigate the eye with gently-running tap water for at least 20 minutes. Call 999/111.
- In the mouth/swallowed      Do no more than rinse and spit with drinking water. Do not induce vomiting. Call 999/111.
- Skin burnt by burning metal or by moist calcium      Remove any pieces of solid with forceps. Irrigate the affected skin area with gently-running tap water for at least 20 minutes. If a large area is affected or symptoms occur, call 999/111.
- Metal catches fire              Smother with clean, dry sand. Have a container of this sand to hand.
- Spilt on the floor, bench, etc      Scoop up as much metal as possible into a dry container. Wipe the area with a damp cloth which (for calcium) should then be placed in a bucket of water.