








# Magnesium and calcium salts

Substance	Hazard	Comment
Magnesium chloride	Currently not classified as hazardous	It is an approved food additive, E511.
Calcium chloride <i>Anhydrous / hydrated solid &amp; concentrated solution (if 0.9M or more)</i>	 IRRITANT	WARNING: causes skin and serious eye irritation and may cause respiratory irritation. Anhydrous calcium chloride can cause water to boil; often used as a drying agent. Approved food additive E509.
Calcium chloride <i>Dilute solution (if less than 0.9 M)</i>		–
Magnesium sulfate(VI) <i>Hydrated and anhydrous</i>		Hydrated magnesium sulfate, known as Epsom salts, is used as a medicine (a purgative). It is a cause of permanently hard water.
Calcium sulfate(VI) (CaSO <sub>4</sub> ·0.5H <sub>2</sub> O, plaster of Paris) (CaSO <sub>4</sub> ·2H <sub>2</sub> O, gypsum)	Currently not classified as hazardous	Plaster of Paris used for setting broken bones: CaSO <sub>4</sub> ·0.5H <sub>2</sub> O absorbs water, becomes hot and expands slightly forming CaSO <sub>4</sub> ·2H <sub>2</sub> O (gypsum). It is not safe to attempt to make a cast of the whole hand or encase any other part of the body. Unlike magnesium sulfate(VI), calcium sulfate(VI) is only sparingly soluble. It is commonly used as blackboard chalk. It is a cause of permanently hard water. It is an approved food additive, E516.
Magnesium nitrate <i>Solid</i>	  OXIDISING IRRITANT	DANGER: may intensify fire; causes skin and serious eye irritation and may cause respiratory irritation.
Magnesium nitrate <i>Most solutions (if 0.5M or more)</i>	 IRRITANT	WARNING: irritating to eyes and skin.
Magnesium nitrate <i>Dilute solutions (if less than 0.5M)</i>	Currently not classified as hazardous	–
Calcium nitrate <i>Solid and most solutions (if 0.15M or more)</i>	  OXIDISING CORROSIVE	DANGER: the solid may intensify fire; solid and solutions cause serious eye damage.
Calcium nitrate <i>Dilute solutions (if less than 0.15M but 0.05M or more)</i>	 IRRITANT	WARNING: irritating to eyes.
Calcium nitrate <i>Very dilute solution (if less than 0.05M)</i>	Currently not classified as hazardous	–
Calcium (and magnesium) carbonate and hydrogencarbonate		See <i>CLEAPSS Student Safety Sheet 33</i>
Calcium oxalate (ethanedioate)		See <i>CLEAPSS Student Safety Sheet 25</i>

## Typical control measures to reduce risk

- Wear eye protection.
- Avoid raising dust.

## 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 specks of solid transferred into the eye by rubbing with a contaminated finger.*
- 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 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.
- Spilt on the skin or clothing Brush solid off contaminated clothing. Irrigate the affected area with gently-running tap water for at least 20 minutes as appropriate. Call 999/111 as appropriate. Rinse clothing.
- Spilt on the floor, bench, etc Brush up solid spills, trying to avoid raising dust, then wipe with a damp cloth. Wipe up solution spills with a cloth and rinse it well.