






Magnesium and Calcium salts

Substance	Hazard	Comment
Magnesium chloride	LOW HAZARD	It is an approved food additive, E511.
Calcium chloride <i>Anhydrous / hydrated solid & conc. 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>	LOW HAZARD	-
Magnesium sulfate(VI) <i>Hydrated and anhydrous</i>	LOW HAZARD	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 ₄ · ½H ₂ O, plaster of Paris CaSO ₄ · 2H ₂ O, gypsum	LOW HAZARD	Plaster of Paris used for setting broken bones: CaSO ₄ · ½H ₂ O absorbs water, becomes hot and expands slightly forming CaSO ₄ · 2H ₂ 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>	 OXID. IRRIT.	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>	LOW HAZARD	-
Calcium nitrate <i>Solid and most solutions (if 0.15M or more)</i>	 OXID. CORROS.	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>	LOW HAZARD	-
Calcium (and magnesium) carbonate and hydrogencarbonate		See CLEAPSS Student Safety Sheet 33
Calcium oxalate (ethanedioate)		See CLEAPSS Student Safety Sheet 25

Typical control measures to reduce risk

- Wear eye protection when handling hazardous solids and solutions.
- 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 the eye** Flood the eye with gently-running tap water for 10 minutes. Consult a medic if pain persists.
- **Swallowed** Do no more than wash out the mouth with drinking water. Do **not** induce vomiting. Consult a medic.
- **Spilt on the skin or clothing** Brush solid off contaminated clothing. Rinse clothing or skin as necessary.
- **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.