Calcium hydroxide and oxide

including Slaked lime, Quick Lime *and* Limewater

Substance	Hazard	Comment
Calcium oxide *Solid* **Quick lime** *Solid* (Old samples of calcium oxide are mostly calcium hydroxide.)	 CORROSIVE  IRRITANT	DANGER: Causes serious eye damage and skin irritation. Reacts violently with water, becoming very hot - dust particles may shoot out. For a 15-minute exposure, the concentration of the powder in the atmosphere should not exceed 6 mg m^{-3}. Used in making mortar, cement and concrete – careless handling of these has caused injuries in the building industry. Added to soil to neutralise the acidity.
Calcium hydroxide *Solid* **Slaked lime, garden lime**	 CORROSIVE  IRRITANT	DANGER: Causes serious eye damage and skin irritation. For a 15-minute exposure, the concentration of the powder in the atmosphere should not exceed 15 mg m^{-3}. Used in making mortar, cement and concrete – careless handling of these has caused injuries in the building industry. Added to soil to neutralise the acidity.
Calcium hydroxide *Solution* **Limewater** Limewater is a saturated solution of calcium hydroxide, less than 0.02 M.	 IRRITANT	Even a saturated solution of calcium hydroxide is so dilute that it is not classed as IRRITANT, despite pH = 12.4. However, limewater is usually made in schools by adding excess solid calcium hydroxide (or oxide) to water. Undissolved solid will remain and that is irritating to the eyes and skin (but any solid present might well be calcium carbonate, LOW HAZARD).

Typical control measures to reduce risk

- Wear eye protection when handling solids.
- Eye protection is advisable when using limewater, especially if blowing into it.

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, solid particles spitting when adding water, dust blowing around or liquid splashing into the eye when blowing into limewater.
- ***How serious would it be if something did go wrong?***
  NB Alkali in the eye causes more damage than acid of equivalent concentration.
- ***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 at least 20 minutes. Consult a medic. If it is necessary to go to hospital, continue washing the eye during the journey in an ambulance. Limewater is unlikely to cause serious problems; flood the eye with gently-running tap water for at least 10 minutes. Consult a medic if there are any concerns.
- **Swallowed** — Do no more than wash out the mouth with drinking water. Do **not** induce vomiting.. Limewater is unlikely to cause serious problems. Wash out the mouth. Consult a medic if there are any concerns.
- **Spilt on the skin or clothing** — Brush off the solid. Remove contaminated clothing. Drench the skin with plenty of water. If a large area is affected or blistering occurs, consult a medic. For limewater, wash with water.
- **Spilt on the floor, bench, etc** — Wipe up limewater or small amounts of solid with a damp cloth and rinse it well. For larger amounts of solid, scoop into a bucket, add water to the area followed by mineral absorbent (eg, cat litter).

