

	MRAT 173	<h2 style="text-align: center;">Using cement and lime mortar and concrete</h2>	Applicable to: constructing walls, paths use bricks, blocks and similar, filling cracks etc using Polyfilla, etc.	See also: 172 174 175 189 190
Process(es) covered:		Mixing cement, sand and water to produce cement mortar. Mixing lime putty, sand and water to produce lime mortar. Using mortar for bricklaying and similar processes. Mixing cement with aggregate (ballast) to form concrete. Using concrete to form foundations, footings, etc. Cleaning concrete from brick walls, etc. Using plaster-based fillers such as Polyfilla		

Control Measures

- Avoid raising dust when opening bags, removing cement from the bag, mixing it or cleaning up spills.
- Take special care on windy days if working outdoors.
- Wear eye protection, protective gloves (or barrier creams), protective overalls and protective footwear.
- Do not use samples beyond their stated shelf life.

Immediate Remedial Measures:

Dust or wet cement or brick cleaner swallowed	Give the casualty clean drinking water. Tell them to rinse around the mouth, but NOT to swallow, and then to spit out the washings. Do NOT induce vomiting. Call 111 and seek medical advice.
Dust or brick cleaner is inhaled	The casualty should be taken to fresh air. If the nose or airways become inflamed, Call 111 and seek medical advice.
Dust or wet cement or brick cleaner in the eyes	Irrigate immediately with water, holding eyelids apart and continue irrigation until the patient reaches hospital.
Dust or wet cement or brick cleaner on the skin	Immediately remove by wiping with a disposable paper towel. Then wash with warm, soapy water.

Storage	Store in dry conditions.
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Disposal	<p>Empty bags can be disposed of via the normal refuse but beware of raising dust from residual amounts of cement in the bag.</p> <p>Cement and concrete which have set are low hazard (but may be heavy) and small amounts could be disposed in the normal refuse but larger amounts should be sent for re-cycling.</p> <p>Waste or surplus dry cement is subject to the <i>Hazardous Waste Regulations</i>. It should be collected for proper disposal. Schools and colleges must check that any waste disposal contractor whom they use has a licence (or is exempt) (see PS5 (or GL5) <i>Waste Disposal Contractors</i>).</p> <p>Alternatively, surplus cement can be mixed with water, taking all precautions as detailed in the <i>Control Measures</i>, allowed to set and then disposed as above.</p>
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Risk Assessment

Hazards:

Irritant Allergy Corrosive	<p>(Portland) cement, mortar which contains it and concrete are all strongly alkaline (pH 12 – 13) and irritating to the eyes and respiratory system (R37/38). There is a risk of severe eye damage (R41) and may cause sensitisation by skin contact (R43). The LTEL(8 hrs) for Portland cement is 10 mg m⁻³ for inhalable dust, 4 mg m⁻³ for respirable dust. (Inhalable dust is the fraction that enters the nose and mouth, respirable dust is the fraction that penetrates to the lungs).</p> <p>Lime putty and mortar which contains it are strongly alkaline (pH 12 – 13) and irritating to the eyes and skin. There is a risk of severe eye damage and skin contact may cause a mild burning sensation. The LTEL (8hrs) for calcium hydroxide (in lime putty) is 5 mg m⁻³.</p> <p>Fillers such as Polyfilla contain up to 25% cement and present a risk of eye damage.</p> <p>Plasticisers added to improve the workability of mortar contain sodium alkyl benzene sulphonate (10 – 30%) which is irritating to the skin and there is a risk of severe eye damage.</p> <p>Colorants added to mortar or concrete are generally low hazard iron oxides.</p> <p>Cement may contain chromium(VI) compounds which may produce an allergic reaction.</p> <p>Brick and patio cleaners, used to remove concrete spatter from walls, generally contain concentrated hydrochloric acid which causes burns and is irritating to the respiratory system.</p>
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Risks:

Irritant	<p>Handling cement or mixing it outdoors can easily result in dust in the eye, especially if carried out outdoors on a windy day.</p> <p>Because strong alkaline solutions tend to damage nerve endings before damaging skin, prolonged contact with wet cement, mortar or concrete may result in chemical burns without any pain being felt.</p> <p>A combination of the wetness, alkalinity and abrasiveness of the sand or aggregate used may cause contact dermatitis.</p> <p>The presence of plasticisers may exacerbate these effects.</p>
Allergenic	<p>Brief exposure to small amounts of the powder or wet mix should not cause significant effects. However, prolonged contact may cause allergic dermatitis, especially if old samples are used (outside the stated shelf-life) because low hazard chromium(III) compounds may have re-oxidised to hazardous chromium(VI).</p>
Corrosive	<p>Splashing when diluting down the Brick Cleaner concentrate presents a significant risk.</p>

Further Information:

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