MATERIAL SAFETY DATA SHEET

READY-MIXED CONCRETE

It is important that your or any person working for/with you, or to whom you have supplied ready-mixed concrete are aware and familiar with the information given on this datasheet before handling, using or disposing of the product.

Revision date: February 2009

Hazard Information

1. Composition/information on ingredients

Concrete

Mixture of natural aggregates, cement and water. Other ingredients may include admixtures, Fly Ash and Ground Granulated Blast-furnace Slag (GGBS). Such additions are made to alter/improve the working characteristics of the material or to affect/enhance its properties once hardened.

1.2 Hazardous ingredients:

a. The lime, calcium silicates and alkalis within the cement are partially soluble and when mixed with water will give rise to a potentially hazardous alkaline solution.

b. Hexavalent chromium salts in the cement are soluble and when mixed with water will give rise to a potentially hazardous solution.

c. Salts of organic acid within the air entraining agents are soluble and when mixed with water will contribute to the alkalinity of the solution.

d. Airborne dust from the natural aggregates in dry concrete mixed may contain respirable silica. Long-term prolonged exposure to high levels of respirable crystalline silica which can arise from a failure to implement adequate control measures can lead to silicosis and ultimately an increased risk of developing lung cancer.

2. Hazards identification

2.1 Wet concrete, is a strong alkali. If this comes into contact with the eyes or skin it may cause serious burns and ulceration. The eyes are particularly vulnerable and damage will increase with contact time. Strong alkaline solutions in contact with the skin tend to damage the nerve endings first before damaging the skin, therefore chemical burns can develop without pain being felt at the time.

2.2 Concrete mixes may, until set, cause both irritant and allergic contact dermatitis:

- Irritant contact dermatitis is due to a combination of the wetness, alkalinity and abrasiveness of the constituent materials.

- Allergic contact dermatitis is caused mainly by the sensitivity of an individual's skin to hexavalent chromium salts.

2.3 Concrete Dust

Inhalation of silica particles in dust created by dry-mix bagged products, cutting set concrete or surface treatment of hardened concrete containing high silica aggregates may cause respiratory damage. Long-term prolonged exposure to high levels of respirable crystalline silica, which can arise from a failure to implement adequate control measures or wear the correct respiratory protection, can lead to silicosis and ultimately an increased risk of developing lung cancer.

Emergency Action

3. First aid measures

Wet concrete

3.1 Eye contact:
Irrigate immediately with copious amounts of clean water. Seek immediate medical attention.

3.2 Skin contact:
Immediately wash with copious amounts of clean water. Clothing contaminated by wet cement or concrete should be removed and washed thoroughly before use.

3.3 Ingestion:
Wash out mouth and drink plenty of water. Do not induce vomiting. Seek medical advice if large amount is swallowed.

Concrete Dust

3.3 Eye contact:
Irrigate immediately with copious amounts of clean water. Seek immediate medical attention.

3.4 Skin contact:
Wash the affected area thoroughly with soap and water before continuing. If irritation, pain or other skin conditions occur, seek medical advice.

3.5 Ingestion:
Do not induce vomiting. Wash out mouth with water and give patient plenty of water to drink.

3.6 Inhalation:
If irritation occurs, move to fresh air. If nose or airways become inflamed seek medical advice.

WARNING

WET CEMENTITIOUS PRODUCTS such as concrete MAY CAUSE SERIOUS BURNS in contact with eyes or skin.
You MUST wear the appropriate protective clothing at all times.

4. Accidental release measures

4.1 Personal Precautions (see 5.2)

4.2 Cleaning Up:
Recover bulk spillage without delay and, for wet mixes, while material is still in non-hardened (plastic) state, using suction system or mechanical shovel. The product can be slurried by the addition of water but will subsequently set as a hard material. Keep children away from clean up operation.

4.3 Environmental Measures:
Prevent from entering drains, sewers or water courses.

5. Exposure controls/personal protection

5.1 Engineering Measures:
Where reasonably practicable dust exposure should be controlled by engineering methods such as local exhaust ventilation.

5.2 Personal Protective Equipment:

- **Respiratory Protection** – suitable respiratory protection (HSE approved standard) should be worn to ensure that personal exposure is less than the workplace exposure limit values.
- **Hand and Skin Protection** – Protective clothing should be worn which ensures that concrete does not come into contact with the skin. In some circumstances such as when laying concrete, waterproof gloves, waterproof trousers and boots may be necessary, also knee pads if kneeling down to finish a surface. Particular care should be taken to ensure that wet concrete does not enter the boots and persons do not kneel on the wet concrete so as to bring the wet concrete into contact with unprotected skin. Should wet concrete get inside boots, gloves or other protective clothing then this protective clothing should be immediately removed and the skin thoroughly washed as well as the protective clothing/footwear.
- **Eye Protection** – Dust-proof goggles (HSE approved standard) should be worn whenever there is a risk of cement powder or any cement/water mixture entering the eye. Suitable protection is advisable where there is a risk of material splashing.

6. Stability and Reactivity

Reacts with moisture to become alkaline.

7. Toxicological Information

7.1 Short Term Effects:

- **Eye Contact –** Mild exposure can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye.
- **Skin –** (Short- term exposure) May cause alkali burns, may cause acute allergic dermatitis in people sensitised to chromium compounds. (Chronic long-term exposure) May cause irritant contact dermatitis, may lead to sensitisation of the skin to chromium compounds.
- **Ingestion –** The swallowing of small amounts of any cement/water mixtures is unlikely to cause significant reaction. Large doses may result in irritation to the gastro intestinal tract.

7.1 Short Term Effects: (continued.)

- **Inhalation –** Cement powder may cause inflammation of mucous membranes. Inhalation of large quantities of dust or dust containing respirable silica (generated by cutting, drilling etc.) may cause progressive lung damage, leading to permanent disability and, in extreme cases, premature death.

7.2 Chronic Effects:

Skin exposure has been linked to allergic (chromium) dermatitis. Allergic dermatitis more commonly arises through contact with cement/water mixtures than dry cement or dry pre-mixed concrete or mortars. Long term exposure to silica dust may cause silicosis and lead to an increased risk of developing lung cancer.