

➤ Material Safety Data Sheet: Ready-Mixed Concrete

1. APPLICATION

Fresh ready-mixed concrete is supplied in a moist or wet plastic state so that it is capable of being placed and moulded by the user into various shapes or forms prior to setting and hardening into a solid mass. Use of ready-mixed concrete should be in accordance with the relevant National/European Standards and Codes of Practice.

2. COMPOSITION

Ready-mixed concrete is typically a mixture of cement, natural aggregate and water. Most mixes also contain admixtures which are added to the fresh concrete to modify some properties of the fresh or hardened concrete (If other raw materials are used, any additional hazards associated with their use in concrete will be notified separately.)

3a. HAZARD IDENTIFICATION – FRESH CONCRETE

Fresh concrete contains cement and water with the result that an alkaline solution is produced. Prolonged skin contact with fresh concrete may cause cement burns. The abrasiveness of the constituents can aggravate the effect. Repeated skin contact with fresh concrete over a period may cause irritant contact dermatitis. The abrasiveness of the constituents can aggravate the effect. Some skins are more sensitive to fresh concrete, and to the small amounts of chromate which may be present, and may develop allergic contact dermatitis. However, this is rare.

Fresh concrete exerts pressure both horizontally and vertically. Movement/collapse of formwork/shuttering etc. is therefore possible if such formwork/shuttering etc. and any false-work or ancillary equipment associated with it, is not properly designed and erected. Fresh concrete which is not stiff in consistency can support very little weight. Submersion of persons in deep sections of fresh concrete is therefore possible.

3b. HAZARD IDENTIFICATION – HARDENED CONCRETE

Cutting, drilling, hammering and other such treatment of hardened concrete can create dust. If inhaled in excessive quantities over extended periods, respirable dust can constitute a long-term health hazard.

Cutting, drilling, hammering and other such treatment of hardened concrete, unless adequately controlled, can also project particles at high velocity with consequent risk of impact damage and/or injury particularly to eyes and other exposed areas of the body.

4. FIRST AID MEASURES

Eye Contact (Fresh concrete, dust or other particles): Immediately rinse under clean running water and seek medical advice.

Skin contact (Fresh concrete): Immediately rinse under clean running water.

Cuts/Abrasions: Clean and treat cuts/abrasions using normal First-Aid methods. Wounds must receive prompt medical attention.

In all cases of doubt or where symptoms persist medical advice must be obtained.

5. FIRE FIGHTING MEASURES

Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Follow the relevant instructions in Clauses 7 and 8. Prevent entry of fresh concrete into water courses, drains or other areas where it may cause ecological damage or where hardened concrete may cause problems. Take up concrete using

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appropriate equipment.

7a. HANDLING FRESH CONCRETE

Observe, and where necessary keep clear of, all vehicles/equipment involved in the delivery and placing of concrete. In particular, keep clear of fresh concrete while it is being discharged from delivery or placement vehicles/equipment.

- Avoid contact with eyes and skin.
- Wear protective clothing as detailed in Clause 8. Replace clothing if it becomes saturated.
- Before lifting, always size up the load.
- Always follow safe lifting and manual handling procedures.
- Ensure that all formwork/shuttering etc. and any false-work or ancillary equipment associated with it, is properly designed and erected to safely withstand the pressures exerted on it by fresh concrete.
- Ensure that unauthorised access to deep sections of fresh concrete which is not stiff in consistency is prohibited.

7b. HANDLING HARDENED CONCRETE

- Avoid inhalation of dust when cutting, drilling, hammering or otherwise treating hardened concrete.
- Wear protective clothing as detailed in Clause 8.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- Wear suitable protective gloves, overalls and safety helmets in all situations.
- Wear suitable knee high rubber boots, or similar, with protective toecaps when handling fresh concrete.
- Wear suitable safety footwear with protective toe-caps when cutting, drilling, hammering or otherwise treating hardened concrete. Wear suitable kneepads when kneeling on fresh concrete.
- Wear suitable goggles to prevent eye contact from splashing of fresh concrete or from dust and flying particles when cutting, drilling, hammering or otherwise treating hardened concrete.
- Wear suitable respiratory protection (such as dust masks) when cutting, drilling, hammering or otherwise treating hardened concrete.

9. PHYSICAL & CHEMICAL PROPERTIES

Fresh concrete is usually grey in colour and may vary from a moist stiffish consistency to a wet soft or free flowing consistency. It is abrasive. The combination of cement and water in fresh concrete results in an alkaline solution. The pH level of typical fresh concrete is approximately 12. Fresh concrete subsequently hardens due to a chemical reaction between the cement and the water. Hardened concrete is abrasive. The density of fresh concrete is typically 2.4 tonne per cubic metre (This can vary significantly if 'heavy-weight' or 'light-weight' concrete is used). The density of hardened concrete is similar to fresh concrete but the weight of an element of concrete in a structure may depend, in addition to the concrete density, on matters outside the control of the concrete supplier (e.g. steel reinforcement, other embedded metal.)

10. STABILITY & REACTIVITY

Not applicable

11. TOXICOLOGICAL INFORMATION

No risk on observance of safety instructions detailed in Clauses 6, 7 and 8.

12. ECOLOGICAL INFORMATION

Fresh concrete may result in changes in pH levels and may influence aquatic life forms. Hardened concrete has no

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ecological effects.

13. DISPOSAL CONSIDERATIONS

Hardened concrete may be recycled or placed in approved licensed landfill sites.

14. TRANSPORT INFORMATION

No risk on observance of safety instructions detailed in Clauses 6, 7 and 8.

15. REGULATORY INFORMATION

Not applicable.