



## READY-MIX DELIVERY

Numerous safety hazards are present during the movement of ready-mix trucks, and discharging concrete, grout, or shotcrete from them. It is dangerous enough to successfully excavate drilled shafts, tieback anchors, micro piles or spray shotcrete, so to avoid accidents and injuries during ready-mix delivery, pouring and pumping, follow these basic safety rules:

1. To prevent confusion and conflicting signals, only designated employee(s) should act as a signalperson to receive the ready-mix truck entering the project from the street, and then directing the safe movement of ready-mix trucks while onsite. The signalperson has the following responsibilities:
  - A. Instruct ready-mix truck drivers to act on signals given by the signalperson only.
  - B. Instruct drivers to travel at reduced speeds, and to move only when and where the signalperson directs them.
  - C. Instruct drivers not to back up unless the truck is equipped with a working back-up alarm, and are signaled that it is safe to do so.
  - D. Select truck travel routes to avoid collision with other vehicles, equipment, or persons, and to avoid unstable surfaces, which can cause the truck to become stuck or worse, overturning, of the truck. Signal the driver to stop before these conditions are encountered.
  - E. Be sure the signal person is not between the ready-mix truck and an obstruction such as a casing, tool, pump, or some equipment where they could be crushed.
  - F. Place chocks under the wheels of trucks parked on inclined surfaces to prevent run-away of the truck.
  - G. Do not permit trucks to travel with discharge chutes that are extended or unsecured.
2. No person, other than the driver, is permitted to ride on / in a ready-mix truck.
3. Persons handling discharge chutes on ready-mix trucks should be alert for pinch points between folding sections, and keep fingers and hands clear to prevent crushing and / or amputation.
4. Persons discharging concrete from chutes must wear eye protection or full face shields, work gloves, and long sleeve shirts with sleeves down and buttoned to prevent injury from splashing concrete.
5. Persons exposed to falls greater than 6 feet (for example at the edge of an open shaft) at the point where concrete is discharged, must use fall protection.

6. If pumping grout, concrete or shotcrete – ensure the pump and supply hoses are clean, inspected, and the clamp connections are protected with safety pins / wire and whip checks. Follow your company's procedures regarding pumping of concrete, grout, or shotcrete.

The effects of fresh concrete, shotcrete, or grout on the skin are:

- Portland cement is alkaline in nature, so wet concrete and other cement mixtures are strongly basic (pH of 12 to 13). Strong bases-like strong acids-are harmful, or caustic to skin.
- Portland cement is hygroscopic-meaning it absorbs water. In fact, Portland cement needs water to harden. It will draw water away from any material it contacts-including your skin.
- Sand contained in fresh concrete, grout, or shotcrete is abrasive to bare skin. Do not allow it to get inside of your glove cuff or boots as the sand will abrade your skin and cause serious injuries to you skin.
- Clothing worn as protection should not be allowed to become saturated with moisture from fresh concrete, because saturated clothing can transfer the alkaline or hygroscopic effects to the skin.
- Waterproof gloves, a long-sleeved shirt, and long pants should be worn. If you must stand in fresh concrete while it is being placed, wear rubber boots high enough to prevent concrete from getting into them.
- The best way to avoid skin irritation is to wash frequently with pH neutral soap and clean water or eyewash solution if it gets into your eyes.
- Ensure you have and adequate supply of eye wash solution on hand at all times. Keep the solution in a clean, well accessible area and protect it from freezing.

Once the eyes or areas of the skin have been directly exposed to wet concrete, immediate steps should be followed to slow the burning process:

- Remove any contaminated clothing, being careful not to touch unexposed areas.
- Promptly rinse clothes in clean water.
- Gently brush any dry chemicals off the skin and flush the affected area with clean running water for at least 20 minutes. To help neutralize the alkalinity, add vinegar, citrus or a buffer to the water.
- If the eyes are involved, rinse eyes with clean water or eye wash solution for 20 minutes. Seek professional medical attention without delay. Provide the medical personnel with a product Safety Data Sheet (SDS) so the treating medical personnel understand what chemical they are dealing with for injury care.