

Introduction

Every year hundreds of millions of cubic yards of cement are poured in the United States without injury. However, there are also dozens of cases annually of painful, debilitating chemical burns from exposure to cement. Construction employees, plasterers, concretes, brick layers, and anyone who uses cement (or anything containing cement, such as mortar, plaster, and concrete) or is responsible for managing the use of cement should be aware that it presents hazards to health.

According to the Bureau of Labor Statistics, the data for Texas for 2008 show that of the total cases involving wet cement that required days away from work, 66 percent were due to chemical burns. The median days away from work for cases involving wet cement was five.

Health Hazards

Cement's health hazards can include:

- skin contact,
- inhalation of dust, and
- manual handling.

Skin contact

Contact with wet cement can cause both dermatitis and burns.

Dermatitis

Skin affected by dermatitis feels itchy and sore, and looks red, scaly, and cracked. Cement can cause two types of dermatitis - irritant and allergic.

Irritant dermatitis is caused by the physical properties of cement that irritate the skin. The fine particles of cement, often mixed with sand or other aggregates to make mortar or concrete, can chafe the skin. With treatment, irritant dermatitis will usually clear up. But if exposure continues over a longer period the condition will get worse and the individual will become more susceptible to allergic dermatitis.

Allergic dermatitis is caused by being sensitive to hexavalent chromium (chromate) that is present in cement. Hexavalent chromium is known to be the most common cause of allergic dermatitis in people. Once someone has become sensitive to chromate, any future exposure may trigger dermatitis. Some employees have been forced to change their trade because of this sensitivity. The longer the skin is in contact with chromate, the more it will penetrate the skin, and the greater the risk will become. If cement is left on the skin throughout the working day, rather than being washed off at regular intervals, the risk increases. Therefore, employees should examine their own skin. Both irritant and allergic dermatitis can affect a person at the same time.

Cement burns

Wet cement can cause burns. The principal cause is thought to be the alkaline content of wet cement. If wet cement becomes trapped against the skin, for example by kneeling in it or if cement falls into a boot or glove, a serious burn or ulcer can rapidly develop.

Cement burns often take months to heal, and in extreme cases, the victim may need skin grafts or amputation. Serious chemical burns to the eyes can be caused by a splash of cement.

Employees with a cement burn should seek treatment immediately at the emergency room or burn hospital.

Inhalation of dust

High levels of dust can be produced when cement is handled, for example when emptying or disposing of bags. In the short term, exposure to high levels of cement dust can irritate the nose and throat. Concrete cutting can also produce high levels of dust, which contains silica.

Manual handling

Working with cement also poses risks such as sprains and strains, particularly to the back, arms, and shoulders from lifting and carrying cement bags, mixing mortar, etc.

Manual handling of heavy loads can cause more serious damage to the back of an employee who continually lifts heavy weights.

Prevention

Controlling Skin Contact

Employers should consider eliminating or controlling contact with cement to prevent employee injuries or illness; establish control measures to minimize skin contact either directly or indirectly from contaminated surfaces in the working environment; and supply employees with running water, soap, and towels in the event of contamination. An important way of controlling cement dermatitis is by washing the skin with warm water and soap, or other skin cleanser, and drying the skin afterwards. If sinks are available they should be large enough to wash the forearms and have both hot and cold (or warm) running water.

Appropriate gloves help to protect skin from cement, but they may not be suitable for other aspects of construction work sites. Caution is advised when using gloves as cement trapped against the skin inside the glove can cause a cement burn. You should provide protective clothing, including overalls with long sleeved shirts and/or long trousers.

Employees should follow safety practices to prevent cement burns.

- Wear suitable personal protective equipment like overalls, protective footwear, gloves, and eye protection to protect the skin.
- In the event of skin contact and trapping, immediately clean the contaminated skin and protective clothing with large amounts of clean water. If clean running water is not available, have a cloth soaked in vinegar to wash the contaminated area.
- Remove wet cement immediately when it gets on clothing.
- Wear kneepads or use knee-boards when kneeling on wet cement.
- Wear eye protection when opening cement sacks and during mixing when splashing could occur.

Employees also need to take care when washing contaminated work clothes.

- Wash clothes as soon as possible after contamination has occurred.
- Wash contaminated clothing separately — do not wash clothes with the rest of the family's laundry.
- When washing contaminated clothing, wear rubber gloves and do not let the contaminated clothing come in contact with skin. If it does, wash the area thoroughly with soap and water.
- Wash clothes in hot water.
- Wash clothes in the longest normal wash cycle.
- Use 1.5 the times of detergent used on a normal load.
- Decontaminate the washing machine by running an empty cycle with hot water and detergent before using the washer for normal laundry.

Preventing Inhalation of Dust

Exposure to cement dust should be eliminated - where possible, for example, by purchasing ready mixed concrete. Where this is not possible, the employer should assess and establish appropriate control measures. Use appropriate respirators and safety goggles.

Avoiding Injuries from Heavy Lifting

Cement should be supplied in 40 pound bags or ordered in bulk supply. Where manual handling does take place, the supervisor should assess the risk control measures, and take appropriate action prevent lifting injuries.

Training, Monitoring and Reporting

Employers are required to provide employees with information, instruction, and training on the nature of the health risks and the precautions to be taken. They are required to arrange for employees to receive suitable health supervision where there is exposure to a possible skin disease and where a disease may occur. This means you should provide health supervision for employees who will be working with wet cement on a regular basis. Health supervision is needed to:

- protect individuals; and
- identify as early as possible any indicators of skin changes, so that treatment steps can be taken.

Health supervision must never be regarded as reducing the need to control exposure or to wash cement off the skin. Simple observation will usually be sufficient. Skin inspections should be done at regular intervals by a competent person and the results recorded. Employers will probably need the help of an occupational health physician or nurse who is competent to recognize the signs and symptoms of cement-related dermatitis. The responsible person should report any findings to the employer.

The employer must report both irritant and allergic dermatitis to the Occupational Safety and Health Administration (OSHA) using the **Form 300**, *Log of Work-Related Injuries and Illnesses*, **Form 301**, *Injury and Illness Incident Report*. These forms can be found on the OSHA website at <http://www.osha.gov>. The employer must also complete the Texas Department of Insurance, Division of Workers' Compensation (TDI-DWC), *Employer's First Report of Injury or Illness DWC Form-001*, or if applicable, the injury must be reported on the *Non-Covered Employer's Report of Injury or Illness DWC Form-007*. These forms can be found on the TDI-DWC website at <http://www.tdi.state.tx.us/wc/indexwc.html>.

Review Questions:

1. Cement can cause skin problems. True or False
2. Should skin problems be reported on the OSHA Form 300, *Log of Work-Related Injuries and Illness*? Yes or No
3. Cement burns heal quickly. True or False

Answers:

1. True, cement can cause dermatitis and burns.
2. Yes, occupational skin problems must be reported on the Form 300.
3. False, it takes several months for cement burns to heal.

Resources

This training program was published was developed with information from Health and Safety Executive (HSE), Occupational Health and Safety Administration (OSHA) and the Texas Department of Insurance, Division of Workers' Compensation (TDI-DWC) and is considered accurate at the time of publication.

The TDI-DWC also offers several free safety publications online at <http://www.tdi.state.tx.us/wc/safety/videoresources/index.html>.

The TDI-DWC features a free occupational safety and health audiovisual loan library. Call 512-804-4620 for more information or visit the agency website at <http://www.tdi.state.tx.us/wc/safety/videoresources/avcatalog.html>.

***Remember to practice safety.
Don't learn it by accident.***