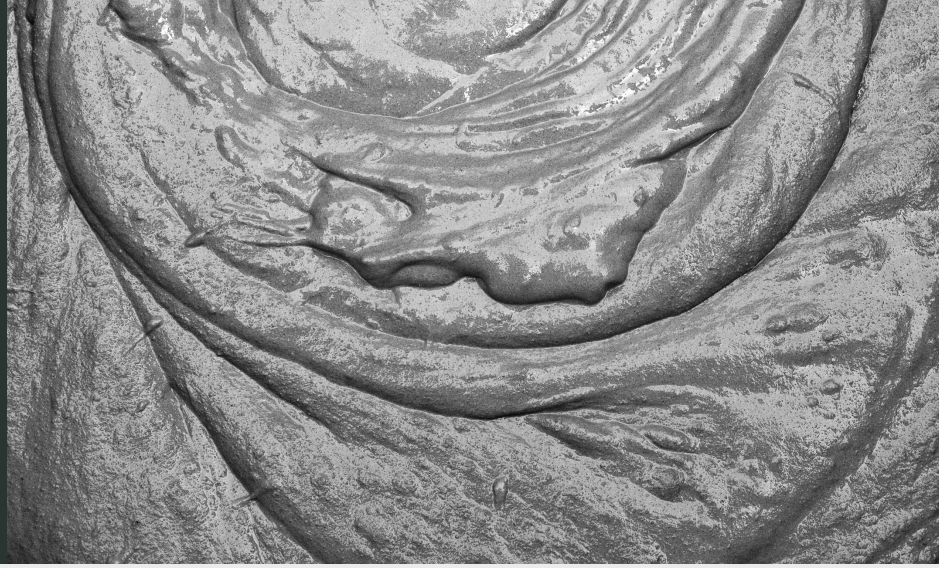
CCSA PROVIDES GUIDELINES ON THE SAFE USAGE OF CEMENT AND CONCRETE



By Jan De Beer

Concrete is the world's most widely used building material, and workers in every sector of the construction and precasting industries, as well as DIY enthusiasts, handle Portland cement and wet concrete daily. But, as with many building materials, there are significant potential risks involved in running or working with cement or cement mixes, says Bryan Perrie, CEO of Cement & Concrete SA (CCSA).

Perrie says that when dry cement is exposed to water, a chemical reaction called hydration takes place, resulting in an alkaline mixture that can be caustic. "This could cause alkali burns on the skin, so safety measures should be observed to prevent fresh concrete or its bleed water from contacting the skin," he cautions.

To prevent roughness and dryness of the hands after exposure to cement, and protect against accidental skin exposure, appropriate protective equipment such as impermeable gauntlet-type rubber gloves and high-length rubber boots is recommended. Trousers should overlap the shoes rather than be tucked into them.

"Hydrophobic alkali-resistant barrier creams should be applied to the hands and any areas of skin likely to be in contact with fresh concrete. Ordinary barrier creams will not offer adequate protection. Furthermore, these precautions may only be adequate if the skin is clean and has concrete residue.
Even a tiny trace of cement dust remaining in contact with wet skin could burn the skin, so it is recommended that disposable gloves be used on site."

Perrie says other organic body tissue (for example, mucous membrane) can also be attacked by strong alkalis, leading to burns. "The use of cement inevitably creates dust from operations such as handling aggregates or cutting concrete. This dust is suspended in the air in the working area and inhaled by people on site, potentially irritating the nose, throat, and eyes. So, airborne cement dust should be kept to a minimum, but should this be impractical, goggles and dust masks should be worn.

"Many of the aggregates used in concrete have high silica contents.

The fine silica dust created when crushing or handling these aggregates could cause lung problems, and precautions should be observed to avoid breathing in such dust.

"Dust from demolishing or cutting hardened concrete may contain unhydrated cement and could cause respiratory problems. In addition, if the coarse or fine aggregate used in making the concrete contains crystalline silica, inhaling these fine silica particles could expose workers to occupational lung disease. Using suitable respiratory protective equipment such as dust masks is recommended," Perrie adds.

He adds that particular care should be taken to ensure that:

* Normal and protective clothing does not become soaked with wet concrete or concrete fluids as this could result in extended exposure leading to skin tissue damage that can be severe; and

* Workers do not kneel on fresh concrete during placing, compacting, and finishing operations. If kneeling is unavoidable, thick waterproof kneepads should be worn, and a kneeling board should be used to prevent the pads from sinking into the fresh concrete.

“Protective clothing should also be regularly and properly washed to keep it clean and concrete-free. Any areas accidentally splashed with wet concrete should be rinsed clean with water as soon as possible,” Perrie states.

“Guide to the safe use of Portland cement and concrete,” a free leaflet that identifies the areas of risk, provides guidance on how to avoid unprotected exposure, and outlines basic first aid procedures, can be downloaded free of charge from the CCSA website: www.cemcon-sa.org.za. Or email info@cemcon-sa.org.za for more information.