

Safe working with precast products

Purpose

This guidance note provides advice on minimising the risk to health from exposure to respirable crystalline silica (RCS) when working with precast concrete products. **The particles of RCS that can be breathed in are not always visible to the naked eye.**

Provided that the respirable dust is adequately controlled using local exhaust ventilation, wet cutting, etc, then exposure can be adequately controlled and the risk is negligible.

Controlling exposure to RCS

Use water and wet working methods to keep RCS out of the air. However, remember that water suppression is between 90% and 98% efficient and is not fully effective.

Ensure equipment and affected work areas are frequently cleaned with a water hose or vacuum cleaning system. The latter should be a H (High) or M (Medium) class extraction unit with a high-efficiency particulate air (HEPA) filter to protect nearby workers from dust exposure.

Don't dry sweep or use compressed air to blow off dust.

Dust control methods

Look for dust control features and dust collection systems when purchasing equipment and machinery. For example, tools used for cutting, grinding or polishing concrete and masonry should provide water to the blade and/or be fitted with on-tool dust extraction.

Ensure other dust generating equipment has a dust collection system with a filtered air supply to isolate the operator from the dust.

Remove dust from work areas using vacuum cleaning systems with filters (HEPA filters).

Respiratory (breathing) protection

Provide the correct respirators for protection against the dust. The type of respirator should be carefully chosen and managed as per training and make sure your workers use the respirators you provide.



Degree of Exposure		
Low to Medium	Low to Medium	High or use with facial hair

Carry out facial fit testing for each worker as required (for example, half-face or airline respirators).

Health monitoring

Provide ongoing health surveillance for all your workers who may be exposed to silica dust. Surveillance could include lung function testing, a respiratory questionnaire and chest x-rays. Occupational health nurses can provide this service.

Protective clothing

Ensure your workers have disposable or washable clothes to change into at the worksite.

Ensure that before your workers leave the worksite they shower (if possible) or wash with water, and then change into clean clothes.

If clothes have become dusty, then it is vital that dusty clothes do not contaminate cars, homes and other areas outside of the worksite. Do not allow your workers to take dusty clothing home to wash. If you are washing this clothing, take care that dust exposure does not occur.

If clothes have become dusty, then investigate why and implement corrective action.



Warning signs

Post warning signs to mark the boundaries of work areas where silica dust is created. These signs should warn your workers about the hazard and specify any protective equipment required.



Activities that can generate RCS

The installation and maintenance of concrete products can result in the generation of fine airborne respirable crystalline particles. Typical activities that produce these dust particles are machining operations, e.g., drilling, circular saw cutting, routing/channelling, scabaling/polishing, and hand or machine sanding. Other sources of breathable dust are when bagging dust from local exhaust ventilation (LEV) systems, using compressed air to blow dust off articles and dry sweeping of floors.

Air monitoring results confirm that when manufactured precast concrete products are dry cut or sanded, there is a significant airborne hazard and exposure to RCS.

End users of precast concrete products have a duty of care to ensure that any intrusive work into the cured concrete is appropriately risk assessed and all hazards are identified and suitably controlled.

Both the assessment and the consideration of control options are best carried out in consultation with relevant workforce.

Health hazards associated with RCS

Reported health effects associated with exposure to dust from concrete products include:

- Skin disorders such as allergic dermatitis -
- Silicosis, asthma and impaired lung function
- Nose irritation, rhinitis (runny nose), violent sneezing, blocked nose and nose bleeds
- Kidney disease: There is evidence that silica exposure can cause kidney disease
- Throat irritation, and sore and watering eyes.

Important note: Lung disease can be caused by both long term exposure to small or moderate levels of RCS, and short term exposure to high levels of RCS.

Additional information

References and further links are:

www.hse.gov.uk

www.nepsi.eu/good-practice-guide

www.safeprecast.com

www.safequarry.com

