

The use of water suppression when using stone cut-off saws

Construction Occupational Health case study COH13

This case study outlines how Tameside MBC addressed the issue of dust control within their construction operations, and developed an effective 'wet method' technique.

The problem

Hand-held portable cut-off saws are used in the construction industry to cut kerbstones, paving slabs, blocks and other concrete and clay products.

Tameside MBC recognised the importance of operators understanding the health risks of dust exposure.

The risks

The cutting technique generates high levels of respirable dust, which contains tiny particles called respirable crystalline silica (RCS). The dust generated can be so fine that it is invisible under normal light.

All respirable crystalline silica is hazardous and can cause silicosis. Constant exposure can cause serious lung disease consequently leading to permanent disability and early death. Exposure is linked to chronic obstructive pulmonary disease (COPD).

The solution

The Council introduced portable polypropylene pressurised water tank units to accompany every cut-off saw when cutting concrete and clay products. Operator awareness of respiratory protective equipment (RPE) was also important.



Figure 1 Use of water suppression to effectively control dust



Figure 2 The risk



Figure 3 RPE is essential



Figure 4 A simple solution



Figure 5

The benefits

- Dust emissions are captured and contained at source.
- When airborne dust is controlled by water suppression, the COSHH (workplace exposure) limit of 0.1 mg/m³ RCS or less is achievable
- Vastly reduced dust emissions are beneficial both for the workers on site and the general public within the vicinity of the cutting.
- Using water significantly increases the life of the disc and prolongs the lifespan of the cut-off saw motor.
- The portable tank is light, can simply be connected to the saw, is easy to handle and can be transported around site as necessary

How they did it

- The Council purchased 20 portable polypropylene pressurised tank systems and distributed them to each construction gang.
- A number of hoses, reels and connectors were also purchased so (where possible) cut-off saws could be connected to receive the mains water supply.
- Through development review meetings, toolbox talks and referring to method statements/risk assessments, workers were told the reasons for using the wet-method control systems of dust suppression must be followed at all times.
- Operator awareness and refresher training in dust control is ongoing.

Key points

- The importance of consulting and engaging the workforce in the procurement and use of RPE and personal protective equipment (PPE) is essential.
- Workers need to be informed of the risks if water suppression is not used.
- Make sure that operators refer (when necessary) to risk assessments/method statements and that toolbox talks are given on a regular basis.
- Make sure that operators are competent by training them in the wet method technique of water suppression.
- This method of working was achieved by the consultation and engagement of the workforce and encouraged high levels of health and safety awareness throughout the Engineering Services Division.