ID.20 Health and Safety Executive (HSE) Webpage: 'Silicosis'

Webpage: https://www.hse.gov.uk/lung-disease/silicosis.htm

Webpage Extract:

Silicosis

Respirable crystalline silica (RCS) is found in stone, rocks, sands and clays.

Exposure to RCS over a long period can cause fibrosis (hardening or scarring) of the lung tissue with a consequent loss of lung function. Sufferers are likely to have severe shortness of breath and may find it difficult or impossible to walk even short distances or up stairs. The effect continues to develop after exposure has stopped and is irreversible. Sufferers usually become house- or bed-bound and often die prematurely due to heart failure.

Acute silicosis is a rare complication of short-term exposure to very large amounts of silica. This condition is life-threatening and associated with very significant clinical consequences.

Silica may also be linked to lung cancer. Precautions taken to control the risk of fibrosis will serve to control the risk of lung cancer. Workers with silicosis are at an increased risk of tuberculosis, kidney disease and arthritis. Exposure to RCS may also cause chronic obstructive pulmonary disease (COPD).

Occupational risks

Occupations with exposure to RCS include: quarrying, slate works, foundries, potteries, stonemasonry, construction (when cutting or breaking stone, concrete or brick), and industries using silica flour to manufacture goods.

Different types of stone contain different amounts of silica.

Type of Stone	Percentage of Silica
sandstone, gritstone, quartzite	more than 70%
concrete, mortar	25% to 70%

shale	40% to 60%
china stone	up to 50%
slate	up to 40%
brick	up to 30%
granite	up to 30%
ironstone	up to 15%
basalt, dolerite	up to 5%
limestone, chalk, marble	up to 2% (but these can contain silica layers)

Respirable crystalline silica particles are produced during many work tasks, including sandblasting, mining, rock drilling, quarrying, brick cutting, glass manufacturing, tunnelling, foundry work, stone working, ceramic manufacturing and construction activities.

Controlling the risks

In Britain, RCS exposure has a workplace exposure limit (WEL), which contains exposure below a set limit, preventing excessive exposure. The WEL for RCS is 0.1 mg/m3 expressed as an 8-hour time-weighted average (TWA). Exposure to RCS is also subject to the Control of Substances Hazardous to Health Regulations 2002 (COSHH).

There were 95 cases of silicosis in 2007 and 85 in 2008 reported from the Industrial Injury Disablement Benefit (IIDB) scheme (PDF) . There were 14 deaths from silicosis reported in 2006 and 7 in 2007.
Health surveillance for silicosis should be considered for workers who are involved in high-risk occupations, including construction, foundry work, brick and tile work, ceramics, slate, manufacturing, quarries and stonework. Where workers are regularly exposed to RCS dust and there is a reasonable likelihood that silicosis may develop, health surveillance must be provided.

Video case study: Terry the former stoneworker suffering with silicosis

Dr David Fishwick interviews Terry who suffers from silicosis after being exposed to respirable crystalline silica (RCS) at work. Terry worked for over 30 years with different types of stone. He has worked with marble and in recent years with sandstone containing 90% crystalline silica. He has developed silicosis – a serious respiratory condition that will almost

certainly shorten his life after breathing in RCS. Silicosis can develop in workers exposed to RCS in a number of industries including construction, stone working, quarrying, brick making and ceramics.

For more information visit Health surveillance for those exposed to respirable crystalline silica (RCS).

See also:

- Health surveillance guidance
- COSHH health surveillance
- Silica general advice sheet

Resources

- Control of exposure to silica dust: A guide for employees
- Health surveillance for those exposed to respirable crystalline silica (RCS)

More resources