# Respirable Crystalline Silica [RCS]

Silica is one of the most abundant materials in the earth's crust.

Three different forms

- Quartz – most common , found in most rocks, sands, clays and gravel.
- Crystoblalite
- Trydimite

**Health hazards**
Crystalline silica has been classified by the International Agency for Research into Cancer as a Category 1 Carcinogen. Prolonged exposure and inhalation can lead to silicosis and chronic obstructive pulmonary disease. These are serious conditions leading to permanent disability and early death.

In 2006 HSC set a new workplace exposure limit [WEL] for RCS of 0.1mg.m$^3$

A Workplace Exposure Limit is the maximum concentration of an airborne substance, averaged over a reference period, to which employees may be exposed by inhalation. This means it is a figure that, at worst, should not be exceeded. In practice, however, employers will be expected to keep exposures well below 0.1 mg/m$^3$. More importantly, employers are expected to apply good control practice, to achieve adequate control as well as getting below the WEL.

**Risk Assessment & Control of Exposure**
As with any other chemical, a **risk assessment** must be carried out for any procedure involving the use silica. The assessment should take account of the following:

- the nature and severity of the hazard and the WEL.
- whether substitution by a less hazardous substance is reasonably practicable.
- evaluation of the risk of exposure. Are there any workers who may be at particular risk including possible risks to pregnant women.
- identify the control measures by which exposure can be **prevented** or if not *reasonably practicable* **controlled**.
    - Elimination/substitution [ e.g. use of preformed/packed columns to avoid dispensing powdered silica]
    - Use of fume cupboard /LEV when handling dry silica
    - Procedural controls to minimise dust dispersal
    - Good hygiene practices
    - Use of personal protective equipment
- precautions under non routine conditions e.g. emergencies and escape from primary containment.
- waste disposal procedures

- monitoring procedures, where necessary [e.g. testing for dust particles outside primary containment – where identified as necessary this can be organised via the Estates Office]
- health surveillance procedures
- information/training and supervisory requirements

The assessment must be reviewed

- if there is any indication that control measures may not be working such as following and accident or incident or if indicated by monitoring activities.
- if there is any change to the process
- in the event of none of the above at least annually.

**Additional guidance**
The HSE web site has a number of guides on the safe use of silica that, whilst directed to specific industries, do contain some generic information that may be useful.

http://www.hse.gov.uk/pubns/guidance/index.htm