## HEALTH EFFECTS:

Silica dust causes irritation and inflammation of the airways and lung tissue. Scar tissue forms when the inflammation heals, resulting in a stiffening [fibrosis] that gradually overtakes healthy lung tissue.

The fibrosis continues even after exposure ends.

The International Agency for Cancer lists crystalline silica as a cause of - lung cancer – the risk is higher in smokers and those with silicosis.

Treatment can only help manage symptoms such as cough.

*It is crucial to stop the exposure to silica and to stop smoking.*

**WORKERS NEED TO HAVE REGULAR MEDICAL EXAMINATIONS:** Respiratory questionnaire, lung function test and Chest X-ray. The doctor decides on the frequency of these tests.

## WEBSITES TO VISIT FOR MORE INFORMATION

Safe Work Australia has published a Guide to managing the risks of Foundry work:

**www.safeworkaustralia.gov.sd/sites/swa/about/publications/pages/managing-risks-foundry-work**

Guidance from the British Health and Safety Executive is useful:

**www.hse.gov.uk/pubns/guidance/fdseries/htm**

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# WARNING: SILICOSIS IS NOT CURABLE BUT IT IS PREVENTABLE

Silica dust, free crystalline silica, presents one of the greatest risks to the health of foundry workers. Fine silica dust is produced by the rubbing, abrading or mechanical action on quartz. Silica exposure can occur during mould and core making, shakeout, cleaning of castings, fettling shop, knocking out, sand reclamation, sand preparation and during furnace maintenance. It is illegal to use crystalline silica in abrasive blasting and spray painting.

There is no level of respirable silica dust below which there is no risk of silicosis (as respirable silica dust is very light, it can travel long distances in the air). Air monitoring of dust levels, by an agreed, reputable and qualified hygienist, is necessary to check control measures. The exposure standard is 0.1 mg/m3: however, it is recommended that action is taken 0.05 mg/ m3. Regular air sampling should be at least every 12 -18 months.

**A combination of controls is generally necessary:**

**1.** Use olivine and zircon sand in moulds and cores

**2.** Fully enclose dusty processes where possible

**3.** If not possible, then use local extractive ventilation

**Some pointers on extraction include:**

- **Local exhaust ventilation should be connected to a suitable dust extraction unit (e.g. a bag filter/cyclone)**
- **Don't allow workers to get between the source of exposure and the extraction; otherwise they will be directly in the path of the contaminated air flow**
- **A clean air supply coming into the work area to replace extracted air**
- **Keep ducts short and simple - avoid long sections of flexible duct**
- **Make sure the extraction has adequate air speed; for example for knocking out - between 1 and 1.5 metres per second into the enclosure and at down-draught tables**
- **Check the local exhaust ventilation is working e.g. manometer**
- **Get a competent ventilation engineer to examine the system and test its performance at least once every 12 months.**

**4.** Program housekeeping into the working day with regular vacuuming and wet sweeping of floors, machinery etc.

**5.** Work clothing should be vacuumed before removal.