

Selective health surveillance of those exposed to quartz.

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Purpose and scope of the guidance

- The purpose of the sector agreement
- Selective, targeted health surveillance for employees exposed to quartz dust.
- Based on HSE G404 Health surveillance for those exposed to respirable crystalline silica.
- To uncover the possible effects of exposure at work
 - o Ordering health surveillance for its employees from its company health service.
 - o Used by the company health service as guidelines or a standard for carrying out the health surveillance.

Risk assessment of pulmonary disease from quartz exposure

- RCS stands for respirable crystalline silica, known colloquially as quartz
- The risk depends on:
 - How long the employee is exposed
 - How much dust the employee is exposed to
 - How large the proportion of crystalline silica in the dust is
 - Predisposing factors (e.g. smoking, asthma, COPD, Alpha-1 antitrypsin deficiency)
 - Particle size

The main diseases caused by quartz dust (RCS)

- Silicosis
- COPD (chronic obstructive pulmonary disease)
- Lung cancer
- There is sufficient information to conclude that the relative risk of lung cancer is greater in sufferers of silicosis. Preventing outbreaks of silicosis will, therefore, also reduce the risk of cancer.

Silicosis

- Development of small, hard lumps of scar tissue that show up on x-ray.
 - Chronic silicosis: Normally takes some years to develop this (the most common) form of silicosis. The level of exposure can be low, while exposure time is normally more than 10 years.
 - Acute form: This can start over a short period of time, and can have fatal consequences within a few months of the first exposure. This form of silicosis can occur in cases of very high exposure, even before five years
 - Accelerating form: This form can develop after 5-10 years of relatively high exposure.

Silicosis

- The main symptoms are coughing and breathing problems
- Employees with silicosis have a greater risk of contracting tuberculosis and lung cancer, and can also develop kidney diseases and arthritis (and related illnesses). Employees that work with quartz can have a greater risk of developing these illnesses even if they do not have silicosis.

Chronic obstructive pulmonary disease (COPD)

- Exposure to RCS can cause COPD. This disease affects the air flow in and out of the lungs and causes
- Symptoms: Dyspnoea, often with chronic cough and sputum.

Lung cancer

- Lung cancer is defined as one or more malignant tumours in lung and/or respiratory passage. There are two main types of lung cancer:
 - Small cell lung cancer
 - Non small cell lung cancer.
- The symptoms of lung cancer vary, but the most common are a prolonged cough, bloody sputum, hoarseness, headaches, dizziness and weight loss. Heavy breathing or chest pains, and frequent lung infections are also symptoms

The purpose of selective, targeted health surveillance

- Identify symptoms and signs that can stem from exposure to quartz. This information will give the company important information on the need to implement measures to reduce the exposure to quartz.
- Identify persons that have incipient lung changes that can stem from exposure to quartz, so that these can be further explored, the necessary treatment given, and alternative work found where appropriate.
- Identify persons with an already existing pulmonary disease that means they should not be working in an environment where they are exposed to quartz.
- For employees that are leaving their job will the purpose of documentation be any changes of the lungs and give advice for follow-up.

Selection criteria

- The risk is assessed based on the level and length of exposure.
- The following employees shall undergo such an examination:
 - Employees that work on a daily basis in an environment where cases of RCS have been demonstrated.
 - Employees that work sporadically in a working environment in which the exposure to quartz is above the OEL (Occupational Exposure Limits)
- The following employees that do not need to undergo such an examination:
 - Employees who work sporadic in working environment where the exposure is beneath maximal concentration allowed to standard
- Health surveillance is never an alternative to proper exposure control of.

Frequency

- Employees with no special symptoms, shall undergo a medical check-up every three year.
- Employees experiencing symptoms from the respiratory passages contact the company health service so that a medical check-up can be carried out
- Employees due to start working in a position that carries a risk of exposure to RCS
- Employees that are leaving their job should undergo the medical check-up

Anamnesis

- MRC form
- pulmonary diseases and atopy must be mapped
- Familial pulmonary diseases and atopy should be mapped
- Previous and current exposure to factors that are a strain on the lungs must be mapped
- Occupational history must be mapped
- Map the employee's smoking habits

Examinations

- Spirometry with minimum FVC, FEV1 and FEV %
- To be X-rayed:
 - Employees due to start working in a position that carries a risk of exposure to RCS. Repeated every six years
 - Employees that are leaving jobs that entail RCS exposure
 - Employees that have symptoms from the respiratory passage and/or reduced spirometry values
- A percussion of the thorax should be carried out, an inspection of the respiratory movements, as well as a lung auscultation.

Conclusion after examination

- In the event of a negative result: The next check-up will be in 3 years and X-rays every 6 years.
- Symptoms and/or spirometry values have fallen: An assessment will be made of whether the employee has a need for further examination or treatment, or whether different work should be found. The assessment shall be based on symptoms and signs, other examinations and investigations, as well as the employee's exposure in terms of quantity and time. In addition to the exposure to quartz, exposure to other factors that put a strain on the lungs will also be considered, including smoking.
- Concluded silicosis: Investigate whether joints or the kidney are affected shall also be considered

Feedback and follow-up

Individual level:

- All employees shall be informed of
 - the result of the examination
 - need for further investigation and follow-up.
 - of what he should watch out for; primarily the development of the symptoms.
- Clarified with the employee whether his employer can be informed of the results. (In accordance with the Working Environment Act in Norway, the employee has a duty to report occupational injuries/illnesses.)
- The company health service shall inform the employee of the notifications to send to the public authorities, the employer, insurance companies etc., in the event that an occupational illness is established.

Feedback and follow-up

Group level:

- The company health service shall inform the company, i.e. the employer, the personnel safety representative and the working environment committee of the results made on a group basis. In some cases it may be appropriate to inform the Norwegian Labour Inspection Authority
- The company health service shall give notice of what follow-ups should be undertaken by the working environment committee based on the conclusions drawn
- In addition, the company health service shall give the employer the following information for reporting to the national industry coordinator for quartz
 - The number of employees in the company being followed up with general health checks
 - The number of employees in the company being followed up with targeted health surveillance in accordance with the arrangement for quartz

Documentation

- All data shall be filed in the employee's journal
- The company health service shall keep an exposure register of employees exposed to quartz, and shall keep the register and the results of the lung function tests for 40 years. (It is mandatory for the employer to keep a register of employees that are exposed to carcinogenic substances, but this service should be purchased from the company health service.)