Silicosis in the construction industry

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Healthy, Safe, Happy & Sustainable Workplaces
PROMOTING DECENT WORK THROUGH CUTTING EDGE RESEARCH, SPECIALISED SERVICES, INFORMATION, TEACHING AND TRAINING
Silica

Mineral found in the earth’s crust

Two main groups: Crystalline and Amorphous silica

“quartz” is the most toxic form of silica

One form of crystalline silica and the most common is “quartz”
Materials containing silica
Important route of entry to the human body

Small particles, remain in the body for long periods! Unbreakable by the body
Exposure to Respirable Crystalline silica

For abrasive blasting of concrete structures, the respirable crystalline silica (quartz) concentration ranged up to 14.0 mg/m³ for a 96-minute sample resulting in an eight-hour time-weighted average (TWA) of 2.8 mg/m³. For drilling concrete highway pavement the respirable quartz concentrations ranged up to 4.4 mg/m³ for a 358-minute sample, resulting in an eight-hour TWA of 3.3 mg/m³. For concrete wall grinding during new building construction the respirable quartz measurements ranged up to 0.66 mg/m³ for a 191-minute sample, resulting in an eight-hour TWA of 0.26 mg/m³. The air sampling results for concrete sawing ranged up to 14.0 mg/m³ for a 350-minute sample resulting in an eight-hour TWA of 10.0 mg/m³. During the milling
Diseases of Silica Dust Exposure

• Silicosis
• Increased risk of pulmonary tuberculosis
• Lung cancer
• Chronic obstructive pulmonary disease (COPD)
• Kidney diseases
• Autoimmune diseases
Silicosis is a **progressive, irreversible lung disease**.

Silicosis is classified as several different types (simple silicosis, progressive massive fibrosis, acute silicosis, and accelerated silicosis).

Get worse over time & lead to disability or death
Silicosis and the construction industry in South Africa

Why are we always kept in the dark?

Who said that?

NO DATA
Risk assessment of silicosis and lung cancer among construction workers exposed to respirable quartz

by Evelyn Tjoe Nij,1 Dick Heederik2

The International Labour Inspectorate and the World Health Organization (WHO) launched an international program aimed at the global reduction and elimination of silicosis (55). WHO recognizes

Pneumoconiosis and emphysema in construction workers: results of HRCT and lung function findings

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Management silicosis

• Primary Prevention

  – prevent disease before it ever occurs

  – by preventing exposures to hazards that cause disease ~ HIRA

  – altering unhealthy or unsafe behaviours that can lead to disease
OEL Crystalline Silica

USA: 0.05 mg/m³
RSA: 0.1

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
CONSTRUCTION REGULATIONS, 2014

STATE PRESIDENT'S OFFICE
Engineering Controls

Cutting block without engineering controls

Cutting block using water to control the dust
Secondary Prevention

• Reduce the impact of silicosis

  – detecting and treating as soon as possible to halt or slow its progress

  – Risk based medical surveillance
Tertiary prevention

• Rehabilitation

• Compensation

• Reasonable accommodation
Challenges

• Occupational health services ~ latency period for silicosis

• Information & research

• Human resources
Where too now?

- Enforcement capacity
- Compliance (e.g. HIRA)
- Education, awareness & advocacy
- Data / Information access
- Capacity for public sector health workers
Ngiyabonga