

Can Silicosis Be Cured?

No. There is no known medical treatment to reverse silicosis or stop its progress. This disease can only be prevented by controlling exposure to silica dust. Workers who have been exposed to silica should stop smoking to reduce their risk of developing lung cancer.

Are There Other Potential Health Hazards Associated With Working in a Dental Lab?

Yes. They include the following:

☑ **Bloodborne pathogens** – Exposure to the agents that cause HIV, Hepatitis B, and C can occur when handling impressions and other items if contaminated with blood or saliva.

☑ **Methyl methacrylate** – Used in making dentures and plates, it can be absorbed into the body by inhalation, through the skin, and by ingestion. It is irritating to the eyes, skin, and respiratory tract. Repeated and prolonged exposure can cause skin sensitization and asthma, as well as adverse effects on the nervous system.

☑ **Electroplating chemicals** – The process of electroplating can release hazardous contaminants into the air that pose a variety of risks to the dental lab worker. The contaminants include various acid and alkaline mists that can cause respiratory and skin problems.

☑ **Metals** such as beryllium, chromium, cobalt, and nickel. These metals in alloys used for castings of bridge framework and other dental prosthesis components can cause a variety of lung problems.

☑ **Repetitive motion disorders** – A range of injuries to the muscles, tendons, nerves, ligaments and joints of arms, hands, wrists, shoulders, neck, and upper back. These injuries result from damage to the body over a period of time. If not treated they can result in chronic pain and permanent disability.

☑ **Noise** – grinding, sandblasting, and other dental lab machinery can make noise that may cause hearing loss.

☑ **Chemical sterilants** – These are used to sterilize impressions and prosthetic devices, received from dental offices, contaminated with blood and saliva. Sterilant chemicals include aldehydes, phenols, and quaternary ammonium compounds. These chemicals may cause lung problems and dermatitis.

Who Can I Contact for Additional Information?

If you have any questions about silicosis or need information about occupational health hazards in dental laboratories, please write, phone, e-mail, or fax your request as shown below:

NJ Department of Health & Senior Services
Occupational Health Surveillance Program
PO Box 360
Trenton, NJ 08625-0360

Phone: (609) 984-1863
e-mail: surveillance@doh.state.nj.us
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Visit our web site at
www.state.nj.us/health/eoh/survweb

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Commissioner

What Dental Technicians Need to Know About Silicosis



Division of Epidemiology, Environmental and Occupational Health

What is Silicosis?

Silicosis is a disabling and incurable lung disease. However, **it is preventable!** Silicosis is caused by breathing in fine dust containing crystalline silica. Once in the lungs, this dust causes damage that stops the body from using oxygen properly. Breathing in dust containing crystalline silica has been linked to other diseases such as tuberculosis, kidney disease, and lung cancer.

Silicosis begins with few, if any, symptoms. Once present, these symptoms can include shortness of breath, severe cough, wheezing, and chest tightness. Silicosis can get worse even after exposure has stopped.

Do Dental Technicians Get Silicosis?

Yes. Silicosis has been diagnosed and confirmed in dental laboratory workers. One individual developed the disease after only six years of exposure.

What Tasks in a Dental Lab Cause Silica Exposure?

Casting – Exposure can occur when mixing investment materials and during divestment of castings. Investment materials often contain large amounts of cristobalite. Cristobalite is a very toxic form of crystalline silica.

Sandblasting – Sandblasting of castings can cause exposure to the investment material or the sand itself. Silica sand is often used to clean castings. It contains almost 100% crystalline silica. Exposure can also occur when the blasting box has leaks. Opening the door of the blasting box **before** the dust has settled or been removed by a dust collection system is dangerous.

Grinding porcelain – Silica content in porcelain varies. Exposure can occur when mixing porcelain powders or when grinding or polishing dried porcelain material.

Cleaning/Maintenance – Tasks that involve cleaning dusts that contain silica pose a major hazard if dust is raised. The same is true when maintaining local exhaust ventilation or dust collection systems.

How Can Exposure to Silica be Controlled in a Dental Lab?

Substitution – The ideal method to stop exposure is to eliminate materials containing crystalline silica. This method is most feasible for sandblasting media. Aluminum oxide is one of many acceptable substitutes.

Ventilation – When there are no good substitutes, dust exposure should be minimized through the use of local exhaust ventilation systems. These systems capture dust at its source and transport it to a dust collection system.

Respirators – The worker should wear a respirator when other control methods are missing or do not work. The type of respirator recommended is, **at a minimum**, a half-mask air-purifying respirator with type N-100 particulate filters.

Good housekeeping – Wet wiping, wet mopping, and vacuuming with a HEPA vacuum are recommended. Dry sweeping, dry dusting, use of compressed air, and use of ordinary vacuum cleaners should be avoided because they reintroduce the dust into the air.

Dental lab materials that contain silica:

- sand
- investment materials
- porcelain
- shop dust



What Medical Tests Should I Have If I Think That I May Have Been Exposed to Silica?

In the case of silicosis, disease symptoms and clinical signs are usually delayed. They may not show up for as many as 20 years after the first exposure. If you think you have been exposed or begin to notice symptoms such as cough and shortness of breath, you should go to your doctor and explain your work history.

Your doctor should give you a medical exam that checks your respiratory system. This exam should include pulmonary function tests. You will also need a chest X-ray that should be read and evaluated by a certified “B-reader,” a person trained to read X-rays showing silicosis. A skin test for tuberculosis is also recommended because people with silicosis are more susceptible to this disease. Additional information can be found in the factsheet, “*To My Doctor: What Physicians Need to Know about Occupational Silicosis and Silica Exposure Sources.*” Call the Occupational Health Service or visit our web site. See back of brochure for details.