

OCCUPATIONAL HAZARDS / DISEASES DUE TO EXPOSE IN DUSTY AND POLLUTED AIR

There are certain diseases which are related to one's occupation. These are caused by constant use of certain substances that sneak into air and then enter our body.

(i) Silicosis (Silico-tuberculosis) occurs due to inhalation of free silica, or SiO₂ (Silicon dioxide), while mining or working in industries related to pottery, ceramic, glass, building and construction work. The workers get chronic cough and pain in the chest. Silicosis treatment is extremely limited considering a lack of cure for the disease. However, like all occupational respiratory ailments, it is 100% preventable if exposure is minimized.

(ii) Asbestosis is caused by asbestos, which is used in making ceilings. It is also considered as cancer causing agent. Pathogenesis of the disease is characterized as progressive and irreversible, leading to subsequent respiratory disability. In severe cases, asbestosis results in death from pulmonary hypertension and cardiac failure.

(iii) Byssinosis, also referred to as brown lung disease, is an occupational respiratory disorder characterized by the narrowing of pulmonary airways. It is a disabling lung disease, which is marked by chronic cough and chronic bronchitis due to inhalation of cotton fibers over a long period of time.

(iv) Coal worker's Pneumoconiosis occurs due to inhalation of coal dust from coal mining industry. Also referred to as black lung disease. The workers suffer from lung problems. Apart from asbestosis, black lung disease is the most frequently occurring type of pneumoconiosis. In terms of disease pathogenesis, a time delay of nearly a decade or more occurs between exposure and disease onset.

7.1. Preventive Measures – The most successful tool of prevention of respiratory diseases from industrial dust is to minimize exposure. However, this is not a practical approach from the perspective of industries such as mining, construction/demolition, refining/manufacturing/processing, where industrial dust is an unavoidable byproduct. In such cases, industries must implement a stringent safety protocol that effectively curtails exposure to potentially hazardous dust sources. National Institute for Occupational Safety and Health (NIOSH) recommended precautionary measures to reduce exposure to a variety of industrial dust types.

1. Recognize when industrial dust may be generated and plan ahead to eliminate or control the dust at the source. Awareness and planning are keys to prevention of silicosis.
2. Do not use silica sand or other substances containing more than 1% crystalline silica as abrasive blasting materials. Substitute less hazardous materials.
3. Use engineering controls and containment methods such as blast-cleaning machines and cabinets, wet drilling, or wet sawing of silica-containing materials to control the hazard and protect adjacent workers from exposure.
4. Routinely maintain dust control systems to keep them in good working order.
5. Practice good personal hygiene to avoid unnecessary exposure to other worksite contaminants such as lead.
6. Wear disposable or washable protective clothes at the worksite.
7. Shower (if possible) and change into clean clothes before leaving the worksite to prevent contamination of cars, homes, and other work areas.
8. Conduct air monitoring to measure worker exposures and ensure that controls are providing adequate protection for workers.
9. Use adequate respiratory protection when source controls cannot keep silica exposures below the designated limit.
10. Provide periodic medical examinations for all workers who may be exposed to respirable crystalline silica.

11. Post warning signs to mark the boundaries of work areas contaminated with respirable crystalline silica.

12. Provide workers with training that includes information about health effects, work practices, and protective equipment for respirable crystalline silica.

13. Report all cases of silicosis to Federal / State health departments.

8.0. Preventing damaging effects of air and dust pollution – The prevention of air pollution is world wide concern. There have been many investigations into what causes air pollution and the exact methods that work best in the prevention of air pollution. Through the use of many different methods air pollution is becoming easier to control. It is only through various measures, though, that the prevention of air pollution is possible. The government plays a very important role in prevention of air pollution. It is through government regulations that industries are forced to reduce their air pollution and new developments in technology are created to help everyone do their part in the prevention of air pollution. The government also helps by continuously making regulations stricter and enforcing new regulations that help to combat any new found source of air pollution.

In many countries in the world, steps are being taken to stop the damage to our environment from air pollution. Scientific groups study the damaging effects on plant, animal and human life. Legislative bodies write laws to control emissions. Educators in schools and universities teach students, beginning at very young ages, about the effects of air pollution. The first step to solving air pollution is assessment. Researchers have investigated outdoor air pollution and have developed standards for measuring the type and amount of some serious air pollutants.

Scientists must then determine how much exposure to pollutants is harmful. Once exposure levels have been set, steps can be undertaken to reduce exposure to air pollution. These can be accomplished by regulation of man-made pollution through legislation. Many countries have set controls on pollution emissions for transportation vehicles and industry. This is usually done to through a variety of coordinating agencies which monitor the air and the environment.

In the prevention of air pollution it is important to understand about indoor air pollution. Indoor air pollution may seem like an individual concern, but it actually is not just something to worry about in your own home. Indoor air pollution contributes to outdoor air pollution. Prevention is another key to

controlling air pollution. The regulatory agencies mentioned above play an essential role in reducing and preventing air pollution in the environment. In addition, it is possible to prevent many types of air pollution that are not regulated through personal, careful attention to our interactions with the environment. One of the most dangerous indoor air pollutants is cigarette smoke. Restricting smoking is an important key to a healthier environment. Legislation to control smoking is in effect in some locations, but personal exposure should be monitored and limited wherever possible.

9.0. Conclusion – Air pollution prevention efforts of companies have generally focused on both source and waste reduction, and on reuse and recycling. Preventing air pollution within a company's manufacturing processes remains the key approach. Cleaning and processing, switch to non-polluting technologies and materials, reduced generation of waste water, converting hazardous by-products to non-threatening forms, etc. have been attempted in this regard. Indirect air pollution prevention measures by companies also cover transportation. Examples of such measures include: providing company transportation to employees; offering commuting information and selling public transit passes; and encouraging employees to carpool and use public transportation. Companies have also initiated successful programmes such as the use of bicycles to commute to work, telecommuting, and work-at-home etc. to reduce pollution due to commuting.

It should be noted that, only through the efforts of scientists, business leaders, legislators, and individuals can we reduce the amount of air pollution on the planet. This challenge must be met by all of us in order to assure that a healthy environment exist for ourselves and our children.

Source : <http://saferenvironment.wordpress.com/2009/09/05/industrial-dust-air-pollution-and-related-occupational-diseases/>