

Health and safety effects of dust

Breathing in dust can result in a range of occupational illnesses and diseases depending on:

- size of dust particles
- composition of the dust particle and its effect on the body
- concentration of dust particles in the breathing zone of the worker
- how often and how long a person breathes in the dust.

Most dust clouds contain particles of widely varying sizes. Hazardous dust is not always visible. The larger particles that can be breathed in are called inhalable or inspirable dust particles. Inhalable dust particles are visible to the naked eye and are deposited in the nose, throat and upper respiratory tract. Respirable dust contains dust particles so small they are invisible to the naked eye and reach deep into the lungs.

Different types of dust particles have different health effects. For example, respirable crystalline silica dust causes scarring of the lungs, and inhalable lead dust can damage the central nervous system. Many occupational diseases are the result of many years of exposure to dust and it may take years or decades before the disease becomes noticeable.

Health effect	Dust particle content
Systemic toxic effects caused by absorption into the blood	Lead, manganese, cadmium, zinc
Allergic and hypersensitivity reactions	Certain woods, organic and inorganic chemicals
Bacterial and fungal infections	Viable organisms or spores
Lung scarring and fibrosis	Asbestos, quartz (crystalline silica)
Cancer	Chromates, asbestos, quartz (crystalline silica)
Irritation of the mucous membranes of the nose and throat	Acid, alkali, other irritating particles
Pulmonary disease (e.g. coal workers' pneumoconiosis (CWP) and chronic obstructive pulmonary disease (COPD) such as bronchitis and emphysema)	Coal dust