

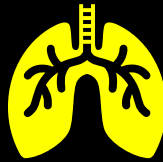
## The Dangers of Dust

Dust is more than just particles in the air—it represents significant health and environmental risks, especially in industrial and workplace settings.



**4.2 Million**

People fall ill annually due to poor air quality in the workplace, especially due to particulate matter



**€ 960 million**

Annually costs of the German employers' liability insurance associations for respiratory diseases



**85%**

of deaths due to recognized occupational diseases occur because of respiratory diseases

### Types of Dust:

Dust particles vary by size and are categorised based on their ability to reach and impact different areas of the respiratory system. The key classifications include:

- **PM10 (Inhalable Dust):** Particles smaller than 10  $\mu\text{m}$ . These settle in the upper respiratory tract and can cause irritation and coughing.
- **PM4 (Respirable Dust):** Particles smaller than 4  $\mu\text{m}$ . These penetrate deep into the lungs, causing severe health issues like silicosis and chronic obstructive pulmonary disease (COPD).
- **PM2.5 (Fine Particles):** Particles smaller than 2.5  $\mu\text{m}$ . These are associated with cardiovascular and respiratory diseases.
- **PM1 (Ultrafine Particles):** Particles smaller than 1  $\mu\text{m}$ . These remain airborne for extended periods and can enter the bloodstream, leading to systemic effects.

### Why Is Dust so Dangerous?

Dust particles pose serious risks due to their ability to remain airborne for extended periods of time. Here are the key considerations when working with Dust:

- **Respiratory Damage:** Fine particles sized PM4 and below reach deep lung tissues and can be extremely difficult to get back out again, causing a host of issues outlined above.
- **Invisibility:** Many hazardous dust particles are too small to see, making exposure difficult to detect.
- **Cumulative Damage:** Symptoms often appear years or decades after initial exposure, complicating early diagnosis and treatment
- **Environmental Hazards:** Dust clouds contribute to poor air quality, affecting broader communities.

# Common Dust Types

## 1. Metalliferous dust

Metalliferous dust can be found in any industry working with metal, such as mining, Welding and Metalworking. Processes such as grinding, drilling, cutting and polishing can release metals into the air. The exact composition of the dust and its effects on your body can depend on the metal type being worked with. However, Metalliferous dust generally can cause Asphyxiation, Metal fume fever, Lung damage and Cancer.

## 2. Asbestos

Defined as a naturally occurring fibrous mineral known for its heat resistance and strength. The three main types of asbestos are brown asbestos, known as amosite; blue asbestos known as crocidolite; and white asbestos, known as chrysotile. Crocidolite fibers are widely used to insulate railway carriages and in the shipbuilding industry. The fibers fluff up when heated and can form sheets that are used for insulation, as they will block fire. Exposure to asbestos has potentially fatal results. The most common health risks linked to Asbestos are Asbestosis, Lung cancer and Mesothelioma. The symptoms for Mesothelioma usually appear 20-30 years after inhalation.

## 3. Silica

Silica dust consists of fine particles of crystalline silica released during activities like cutting, grinding, or drilling materials such as concrete, stone, or sand. Silica can be found across industries, from Mining, Construction, Manufacturing and Food Processing Industries. Silica is one of the most dangerous dust types, causing illnesses such as Silicosis and Lung cancer and increasing the risk of Tuberculosis, COPD and autoimmune issues.

## 4. Sawdust

Sawdust is created in industries such as Construction and Manufacturing. At each stage of wood processing, Sawdust is being created, whether it be processing the wood or cleaning. Extended and unrestricted exposure to airborne sawdust can cause throat irritation, reduced lung capacity and even occupational asthma.



## 5. Coal Dust

All stages of working with Coal, whether mining, processing or even transporting, can release Coal dust. Heavy industries such as steel and coke, power generation and mining are synonymous with the usage of Coal. Coal dust is particularly dangerous due to how fine it is, meaning particles can stay in the air unknowingly for extended periods of time. Exposure to Coal dust can cause Black lung disease, an irreversible and lethal condition involving fibrosis of the lungs, leading to long term damage and respiratory failure.

# General Health Impacts of Dust Exposure to Consider

## Short-Term Effects:

- Respiratory Irritation: Exposure to dust can cause coughing, throat irritation, and difficulty breathing.
- Workplace Discomfort: Acute exposure often leads to reduced productivity and increased fatigue

## Long-Term Effects:

- Silicosis: A progressive lung disease caused by inhaling crystalline silica particles.
- Chronic Obstructive Pulmonary Disease (COPD): Permanent damage to the lungs, including bronchitis and emphysema.
- Lung Cancer: Increased risk from prolonged exposure to carcinogenic dusts like asbestos and silica.
- Systemic Health Issues: Ultrafine particles (PM1) can enter the bloodstream, causing cardiovascular problems and inflammation.

## Why use the Dustlight?

Global occupational safety standards and legislations regarding Dust exposure are getting more stringent day by day. Therefore, it is vital to protect your workers from the hazards of Dust.

A key aspect of occupational safety includes the precise measurement of Dust exposure in order to identify hazards at an early stage and take appropriate protective measures. The Dustlight can assist with this process, identifying exactly when and where you should be wearing protective equipment, increasing worker safety and reducing waste in disposable masks.

Dustlight can also assist in identifying areas where Dust hazards should be considered where they may not have been previously. Acting as a personal protective piece of equipment for your team.



**Dustlight**

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