

# Dustlight

## Applications in Industry and Trade



### Mining

Coal mining  
Metal mining  
Gravel & sand mining



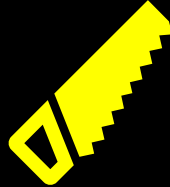
### Chemical industry

Paint and varnish industry  
Pharmaceutical industry  
Medical technology



### Food industry

Grain processing  
Baked goods industry  
Oil & fat processing



### Construction Industry

Wood processing  
Road construction  
Stone Masonry



### Metal industry

Foundry industry  
Welding technology  
Plastics processing



### Research & Development

Prototype construction  
Materials research  
Defense industry

## Dust & The Mining Industry

Coal mining generates coal dust, either underground or on surfaces. Dust is in the atmosphere wherever coal is mined, stockpiled and loaded. As well as the miners, all employees that handle the coal are susceptible to health hazards.

Along with coal dust, mining workers are often exposed to high concentrations of quartz dust, especially when working with quartz-containing rocks such as granite or sandstone. Without protective measures, the dust particles can enter the lungs unhindered, which greatly promotes the development of silicosis and other respiratory diseases.

The mining of tin, iron ore, copper, gold, nickel, silver and zinc causes metalliferous dust. It is generated during extraction, drilling, hauling, crushing, stockpiling and processing of the minerals. This type of dust is particularly dangerous when inhaled due to the toxicity of these elements.



## Dust & The Food Industry

Crystalline and amorphous silica is used in the food industry as a carrier for certain additives. The exposure here is lower than in other industries, but regular contact, especially with inadequate ventilation, can also be harmful to health in the long term. Silicosis is one of the most dangerous respirable lung diseases in the workplace. What is particularly alarming is that these dusts are often invisible and can therefore remain in the air unnoticed - an invisible danger for employees.

---

## Dust & The Metal Industry

Welding fumes are a fine mixture of metal oxides and particles that are produced when metals melt and evaporate during the welding process. These fumes contain tiny particles made up of the base materials and the filler materials in the welding process. Depending on the metals used and the welding processes, different types of metal oxides and compounds can be released, such as iron oxides, aluminum oxides or nickel compounds.

**Welding processes** such as arc or MIG/MAG welding generate different amounts and compositions of fumes.

**Materials:** Steels, aluminum and other metals can release various harmful particles.

The particles contained in welding fumes are often so small that they can penetrate deep into the lungs and cause significant health problems - from respiratory problems to serious illnesses such as lung cancer or silicosis.

Some of the most common health risks from welding fumes include:

**Carcinogens:** Certain metals in welding fumes, such as manganese, have toxic properties and are released into the air during welding operations.

**Respiratory diseases:** Long-term inhalation of metal oxides and other pollutants can cause chronic respiratory diseases.

**Acute symptoms:** Dizziness, nausea and eye irritation are typical short-term symptoms caused by unprotected contact with welding fumes.



## Dust & Construction

Dust pollution on construction sites is an issue that has received increasing attention in recent years. Dust levels are particularly high on construction sites due to many building processes and materials releasing a lot of dust and dirt. This includes mixing cement, removing plaster or brickwork, sanding wood and cutting tiles. In addition to this, machines such as excavators, grinders or saws also generate dust.

Dust can cause serious health problems. The tiny particles penetrate deep into the lungs and cause breathing difficulties, coughing and asthma. Long-term exposure can lead to chronic diseases such as lung cancer, cardiovascular disease and strokes.

Crystalline silica is a natural component of cement, concrete and other building materials. Activities such as cutting, drilling and grinding generate fine quartz dust, which can quickly reach dangerous concentrations, especially in enclosed spaces.

## Dust & Carpentry

The health risks of dust in joineries are similar to those on construction sites. Sawdust is created during every stage of wood processing including sawing, sanding and other operations. Carpenters are using Wood-based materials such as MDF boards, chipboard or plywood daily.

Additionally, painting or staining wood can also release harmful vapors and dust into the air. The tiny particles can penetrate deep into the lungs and cause respiratory diseases, coughing, asthma or chronic bronchitis. Long-term exposure can lead to serious illnesses such as lung cancer.



Measuring and monitoring air quality in the workplace is essential to protect workers from long-term exposure to dust. A crucial aspect of occupational safety is the precise measurement of dust exposure in order to identify hazards at an early stage and take appropriate protective measures. This is where Dustlight comes in - a high-precision particulate matter monitor that measures air quality in real time and helps to monitor hazardous particles in the work area. By understanding and applying the Dustlight, companies can be proactive and create a safe working environment.

**Dustlight**

More information:

buzz@3bz.co.uk  
+44 191 829 9930

