

# THE COST OF DUST EXPOSURE:

## WHY YOU SHOULD BE USING REAL-TIME DUST MONITORING.

For workers in heavy duty and highly dusty environments, the risk of exposure to hazardous dusts is a reality that many have become too accustomed to.

**But how much exposure is too much exposure before it's too late?**

It's assumed that in highly dusty environments, workers are surrounded by visible clouds of dust, meaning they can introduce subsequent control measures to control exposure. Yet the risk remains when workers cannot see the dust.

Often, people assume they're not in highly dusty environments just because they can't physically see the dust. However, in some cases, workers are often exposed to respirable dust, a harmful and finite dust type and are more likely to be at risk due to how it remains suspended in the air.

How governing bodies and local legislative groups ensure that workers are protected from exposure to hazardous dust, before occupational lung diseases such as silicosis and Chronic Obstructive Pulmonary Disease (COPD) are contracted, is essential.

Where it is not possible to completely ban use of products and production of certain materials altogether, it seems the common solution is imposing litigation and heavy fines for businesses who expose workers to dangerous dust.

In the last 10 years, across major industries worldwide, many large companies have failed to adequately protect their employees from exposure to different types of hazardous dusts, as well as failures to adhere to solutions in line with the Hierarchy of Controls, such as substitution of hazardous substances, or introducing control measures and have subsequently received major financial penalties.





**...IT'S LED TO THE QUESTION:  
WHAT IS THE COST OF DUST EXPOSURE?**

Country	Fines given		Total figures of all cases
Australia	\$2,234,500 (AUD)	»	\$7,352,389 (AUD)
USA	\$1,608,600 (USD)	»	\$5,347,764 (USD)
Spain	€1,100,000	»	€4,796,504
Canada	\$724,740 (CAD)	»	\$7,263,125 (CAD)
United Kingdom	£360,754	»	£4,084,690

Let's look at the lengths at which local authorities are willing to go to protect individuals from exposure to hazardous dust by industry.



## Mining

Due to the nature of mining processes, such as excavation and transportation, dust is generally part of the work, and the management of such dust is essential.

However, multiple mining corporations worldwide have been hit with major financial litigation in relation to silica, coal and toxic dust exposure across their occupational environments.

A leading global mining group were fined \$678,890<sup>1</sup> for failure to control worker exposure to process dust that contained toxic substances, including beryllium in British Columbia, Canada.

Another major mining company based in New South Wales, Australia were fined a total of \$30,000<sup>2</sup> for failure to control dust exposure across their site. An initial fine of \$15,000 for a failure to conduct continuous air quality monitoring in March 2022 was followed by another fine of \$15,000 for a failure to prevent dust pollution in August 2022.

Worldwide, major companies are regularly found guilty of exposing workers to hazardous dust. Other cases of fines for mining corporations include a \$200,000<sup>3</sup> fine for cheating test results designed to protect miners from deadly black lung disease in Kentucky, US; a \$45,850<sup>4</sup> fine for failure to comply with dust limit regulations, in British Columbia, Canada and a \$15,000<sup>5</sup> for failure to minimise air pollution caused by dust, in New South Wales, Australia.

An estimated total of over half a million pounds in fines were accumulated for the above cases, across four states in three countries, not just for exposing workers to hazardous dust, but negligence and failure to comply with dust related legislation.

## Stone works

As of July 2024, all use, production and manufacturing of engineered stone in Australia was banned, effective immediately. According to Work Health & Safety and Workplace Relations Ministers “rates of silicosis and silica-related diseases in Australian workers are rising substantially in recent years”, so a unanimous decision was taken to ban the substance.

The decision comes after large fines were handed out in the previous 12 months to some of the biggest stone manufacturers in Australia, with the aim of reducing worker exposure to occupational silicosis. In June 2023, a Queensland company was fined \$32,500<sup>6</sup> for the failure to prevent exposure of silica dust on site.

Earlier in 2024, two other major companies, based in Victoria and New South Wales were fined \$2,000<sup>7</sup> and \$375,000<sup>8</sup> respectively, each for their failures to prevent exposure to respirable crystalline silica (RCS) in stone-cutting processes.

The stone ban, however, is not in effect worldwide and concerns are growing about the use of manufactured stone and its effect on worker's health, particularly in Europe.

In early 2023, a worldwide stone supplier based in Almeria, Spain, was ordered to pay €1.1 million<sup>9</sup> in total compensation to 1,900 workers who had contracted occupational silicosis from their work with the company.

Concern for worker exposure to RCS dust isn't a new issue. In November 2015, a stone merchant and supplier from Durham, UK was fined £4,400<sup>10</sup> for failure to provide bearded workers with adequate respiratory protection equipment. It is now being proposed that the UK and other nations worldwide follow Australia in banning all use of engineered stone.



### Construction and woodworking

British workplace health public body 'Health and Safety Executive' (HSE) suggest exposure to wood dust can cause serious health problems, including asthma and even cancer. In 2023, multiple UK joinery and furniture firms were handed fines for failing to control workers exposure to excess wood dust whilst on the job.

In April 2023, a London based joinery firm was fined £20,000<sup>11</sup> for failures relating to the control of exposure to wood dust on site and negligence in wood dust management. It set the precedent for what was to come for companies who failed to adequately protect workers from excess wood dust.

In October 2023, three furniture and woodworking companies were fined for failures to protect, control or limit workers from exposure to excess wood dust in the workplace. Fines of £25,000<sup>12</sup>, £16,000<sup>13</sup> and £1,354<sup>14</sup> were handed to companies in Norfolk, Cheshire and Lincolnshire respectively, with a total of over £9,000 ordered to pay in costs.

Finally, in December 2023, a London based joinery firm was fined £14,000<sup>15</sup> for a range of failures including control of dust, excesses levels of settled dust and lack of clean facilities relating to excess dust across their site.

HSE inspector Natalie Prince said that the charges handed down should "underline to everyone in the woodworking industry that the courts, and HSE, take a failure to follow the regulations extremely seriously." Ian Betley, another HSE Inspector continued "Occupational lung disease causes the death of 12,000 people in Great Britain annually. We will not hesitate to take enforcement action when necessary to make sure workers' health is protected."



### Quarrying

Some of the highest profile cases of financial litigation have come in the quarrying industry, where workers have been exposed to excess levels of RCS, in Victoria, Australia. Work Safe Victoria, the state's workplace health and safety regulator, have highlighted exposure to dust, including RCS, as one of the most common hazards found when working in quarries.

A major construction materials supplier was at the centre of a major case relating to workplace health and safety breaches in May 2023. After pleading guilty to exposing staff to dangerous levels of silica dust at a quarry in Montrose, Victoria, as well as failure to enforce correct mask use, they were fined \$180,000<sup>16</sup> and ordered to pay \$13,886 in costs.

Similarly, a sand quarry in Nyora, Victoria was the subject of a case where four workers were exposed to RCS while loading pallets during their working day. In June 2024, the operators were found guilty of two charges where they'd failed to provide or maintain systems of work that were safe and without risks to health. They were fined a total of \$400,000<sup>17</sup>, with each case costing them \$200,000.

Cases of dust exposure in quarrying don't just end in Victoria, or even Australia. A quarry operator in Massachusetts, US was fined \$19,000<sup>18</sup> in July 2024, for failure to control the production of nuisance dust across their quarry and local environment.

"The nuisance dust produced by the facility's operations is a threat to the health and well-being of the residents and businesses located in the neighbourhood" said Eric Worrall, director of Massachusetts Department of Environmental Protection's Northeast Regional Office in Woburn in response to the case.



## Industrial

Some of the most notable and biggest fines have been handed out to companies with industrial and manufacturing plants, for producing excess hazardous dust linked to air pollution. According to the World Health Organisation (WHO), almost the entire global population ( $\approx 99\%$ ) breathes air that exceeds WHO air quality limits, deemed to be polluted air, causing damages to lung health.

In May 2024, a chemical and mining solutions operator was fined \$1.2 million<sup>19</sup> for exposing two workers to potentially deadly cobalt dust over a two-year period. The company operating in New South Wales, Australia, previously had 12 prior convictions under the Work Health and Safety Act, spanning over a 29-year period, where cobalt dust was being generated during manufacturing, causing a worker to develop asthma.

Similarly, a multinational building materials company was fined for excessive dust and emissions at a cement plant in Colorado. After failures to comply with multiple air pollution violations for fugitive dust (which is heavily regulated and commonly banned in the US) in the Boulder County area, the company was eventually hit with a \$1.3 million<sup>20</sup> fine in May 2024.

The scale of the air pollution problem, particularly in relation to excess dust is evident here, with the two cases costing each business over \$1 million in fines.

## Agriculture and renewable energy

According to the HSE, excess dust can often be found in agricultural and recycling processes, such as those involved with sustainable or renewable energy companies. Commonly, both wood dust and grain dust are found to be sources of occupational lung diseases including occupational asthma and asbestosis.

For industries where dust exposure may be expected to be minimised, especially for recycling or renewables organisations where hazardous waste management is often a top priority, cases of financial litigation in relation to dust exposure aren't uncommon.

In Hawaii, a sustainable agricultural company was fined a total of \$9,600<sup>21</sup> in July 2023 for a failure to control dust as well as breaching violations of clean air laws. In the UK, a renewables company from Teesside was fined £160,000<sup>22</sup> in May 2024 for putting workers in danger due to exposure to wood dust.

The Hawaii Department of Health found that wind and farming operations "caused or permitted visible fugitive dust (which is regulated and banned in the US) to become airborne without taking reasonable precautions" whilst an investigation into the case in Teesside found that "control of wood dust to protect employees working on the site was not adequate and fell short of the expected benchmark".

Both cases demonstrate that hazardous dust exposure doesn't always occur in heavy duty and harsh working environments but can commonly be found in less hazardous environments.



**Public services**

As previously noted, exposure to dust can occur in more unexpected environments. In some cases, public environments are often exposed to hazardous and potentially dangerous dust.

In particular, examples of wood and stone use for buildings, roads and recreational areas have led to organisations and even local governments being fined for RCS exposure.

Historically, a college in Lancashire, UK, was fined £100,000<sup>23</sup> for exposing an individual to harmful levels of RCS on site.

A stonemason, employed in 1999, for repairing building work in the college, was exposed to silica dust and later developed silicosis due to the work undertaken.

Also based in Lancashire, a company who build and supply play areas for playgrounds, schools and public parks was fined £20,000<sup>24</sup> in July 2019 for failure to provide employees with adequate control measures to prevent exposure to RCS.

A municipality-owned bus service in Anchorage, Alaska was fined \$80,000<sup>25</sup> in June 2023 for exposing their bus drivers to potentially dangerous silica dust when on shift. A bus driver suspecting of their own exposure to potentially harmful RCS blew the whistle after becoming concerned with the amount of excess dust coming from glacier silt that’s sprinkled on roadways to improve winter driving.

**More than a financial cost**

Whether it’s workers exposed on the job or the wider community at risk, authorities are ready to do whatever is required financially and have been doing so for the past 10 years and more, to prevent the dust problem growing.

Financially, the cost of dust exposure is significant and if changes to legislation aren’t introduced worldwide to stop unnecessary dust exposure damaging the health of more people, then the issue will only get worse, and fines will only get bigger. However, the cost of dust exposure is more than just financial.

Exposure of hazardous dusts to individuals can seriously harm health, causing people to have to stop working altogether and in many cases leads to patients dying. In 2019, over 400 million people worldwide had COPD, and 3.3 million people died from the disease. With dust exposure clearly a problem worldwide, these numbers are likely to grow if nothing changes.

Exposure to hazardous dusts for workforces and businesses causes a cost to efficiency and output. Ill health and subsequently time off for workers inevitably reduces the output of business and in time will affect productivity, worker satisfaction and ultimately profits.

Beyond financial litigation, more needs to be done to ensure that large corporations, who often can afford to pay these fines, do not continue to expose workers, and in some cases wider communities, to excess dust.

Failure to comply with legislative guidance causes huge fines, punishments and costs to business operations, but the biggest cost is inevitably the causing of ill health and even death to workers, simply by just providing inadequate support and protection for exposure to hazardous dusts in the workplace.

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