

Why is Dust Control More Than Just Compliance?



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How do the lungs work?

The lungs are the vital organs that are responsible for bringing oxygen from the atmosphere into our bodies in exchange for carbon dioxide. As part of the Respiratory System, they consist of a series of branching air tubes designed to deliver oxygen to the blood stream to provide us with energy without us even having to think (Canadian Centre for Occupational Health and Safety, 2012).

However, our lungs are constantly exposed to the dangers in the air that we breathe. Despite their natural defense mechanisms, tiny solid particles that are suspended in the air, commonly known as dusts and fumes, can enter the respiratory system causing irritation, illness and even disease.

Airborne contaminants in the form of dusts, sprays, aerosols, mists, smoke and fumes are of particular concern due to their association with lung diseases such as pneumoconiosis, along with systemic intoxications such as lead poisoning. The general term 'pneumoconiosis' is used to describe most lung diseases caused by the inhalation of dust and fumes, which simply means 'dusty lung'. The inhalation of dust and fume can also lead to some particles dissolving into the bloodstream, and being carried around the body potentially affecting the brain, kidneys and other organs.

Dust and fume are created by a multitude of human activities. Dusts and fumes can be organic or inorganic and unfortunately, can exist in the air around us whether we can see them or not. It is therefore important to consider what we are breathing in daily as well as what dusts and fumes we are generating that may harm others (Canadian Centre for Occupational Health and Safety, 2012).

What does this have to do with the workplace?

Workplaces may be exposing individuals to a range of different dusts and fumes. The work environment may contain fine airborne particles such as grains, flours, plants, coal dust, asbestos, silica, wood, feathers, insects and fungi, drugs and enzymes, chlorofluorocarbons, alcohols, metals and their salts and welding fumes (World Health Organisation, 1999).

With Australians spending up to 90% of their time indoors, indoor air quality is an important health consideration. Whenever people inhale airborne dust and fumes at work, they are at risk of disease, and some industries are more hazardous than others. As a matter of social justice, human suffering related to the workplace is preventable.

Moreover, financial losses resulting from the burden of occupational illness impacts the economic sustainability of the business, product quality and employee moral. Recent estimates predicted a \$60.6 billion cost to the Australian economy per annum due to workplace related illness (Safe Work Australia, 2012). And more specifically, respiratory illnesses like asthma, pneumoconiosis and asbestosis are known to have serious health, economic and social implications (Australian Safety and Compensation Council, 2005). Not only does respiratory illness affect the individual and business but employee absenteeism due to illness also increases the burden on remaining staff and the presence of rogue dust and fume means escalating machinery maintenance costs as well as product loss.

Dust-Prone Industries and the Mechanics of Dust Generation

Mineral dusts are generated from parent rocks by any breaking down process, vegetable dusts are produced by any dry treatment and any movement around, into or out of granular or powdered material will disperse dust, not to mention handling methods, such as filling, transferring and emptying materials (World Health Organisation, 1999).

Approximately 39% of Australian workers are estimated to be exposed to airborne hazards in the workplace. Of the exposed workers, almost half were exposed to dust only; about 20% were exposed to gases, vapours, smoke or fumes only; and around 30% were exposed to both dust and gases, vapours, smoke or fumes (Safe Work Australia, 2010). According to a report issued by Safe Work Australia the industries primarily susceptible to airborne contaminants are:

- Mining and Quarrying
- Manufacturing
- Transport & Storage
- Construction and Stone Masonry
- Woodworking
- Education
- Sand Blasting
- Spray Painting
- Working with Glass and Ceramics
- Agriculture
- Food Processing
- Forestry
- General Processes involving weighing, bagging or bag emptying



How can we protect the lungs from dust and fume in the workplace?

Over the past 15 to 20 years much research has been conducted into the alleviation of what is known as the 'sick building syndrome', defined by a series of heterogeneous work-related symptoms ranging from skin irritation, headache, fatigue to more sinister illnesses, and as such, dust and fume extraction systems have become increasingly sophisticated (Tobacco In Australia, 2012).

We can protect the lungs by containing the dust and fumes through carefully designed systems, removing the dust from the work environment before relieving the clean air into the atmosphere. In addition, a healthy building will have good ventilation and an ample supply of Personal Protective Equipment (PPE). Although the use of PPE may be vital, it is only a minor safety component and should not be substituted for proper dust or fume control. Wet and Dry Spray Booths can also be utilized to capture paint over spray and the control of waste can be managed using shredders, briquette presses and waste management specialists.

Why is expert dust control is about more than just compliance?

The prevention of occupational dust and fume emissions are more effective if considered during the planning stage, which is not to say that control measures cannot be introduced at any point in the life of a factory. It is, however, important to engage an expert to design a custom engineered system, built for your specific application to ensure the health of yourself, your employees and your business.

Although the concept is quite simple – the removal of hazardous airborne substances - considerable finesse is required in the execution. A combination of multifactorial elements dictate the need for a carefully selected filter unit that is paired with a specific fan, ductwork and fittings to ensure that you are creating a balanced system, guaranteeing the health of your building without collecting more material that you need to.

As the filter unit and fan work together they create a negative airflow removing the airborne dust from the atmosphere - but if the airflow is too strong or weak it can result in either not enough suction or the removal of too much material, which is exceedingly bad for your bottom line. In the mining industry alone \$480M a year is lost to fugitive coal dust, product literally vanishing into thin air. An effective, and expertly engineered dust control system will reclaim saleable resources as well as ensure a safe and productive work environment (AAF International, 2014).

Why buy Australian Made?

Social responsibility is about more than just intention. In endeavoring to create a safe environment for your fellow human beings, it is also important to consider the wider cultural context of which you are a part.

In Australia, our manufacturers, farmers and processors make some of the best products in the world. By buying their goods you're not only supporting local jobs and our economy, but also getting great products, produce and service (Australian Made, 2014).

There is a direct correlation between consumer purchasing behavior and employment, meaning that when you buy Australian Made you are ensuring employment and economic prosperity for your family, friends and fellow Australians. So it's important to make sure your next purchase is from a Certified Australian Made company.

Australian Dust Control – it's all in the name

- ✓ We're Certified **Australian** Made.
- ✓ We specialise in the control of all types and sources of **Dust** and fume.
- ✓ We put you in **Control** of your environment, so you can breathe easy.

Australian Dust Control is a Certified Australian owned and operated business, which means you can be assured that all components of this product are of the highest quality. Our installations are carried out safely and efficiently and we have our own Safety Management Plan.

Australian Dust Control can provide a complete turnkey installation or supply only. We consistently deliver what we promise and meet our customer's deadlines. In addition we have trained technicians to service equipment and spare parts are available locally.

Australian Dust Control Puts You in Control of Your Environment, ensuring that you are making a sound investment in the long run, giving you a greater serviceability of your equipment and a top quality product that is built to last.



We will help you choose the Right Australian Dust Control Product for Your Application. Some of our Products include:

Reverse Flow Filter Units

- The innovative and energy efficient European design of the Reverse Flow Filter Unit is completely modular, providing customers with the flexibility to future-proof their business.
- The optional chain filter allows for extra modules to be added.
- The reverse flow unit can also be fitted with Australian Dust Control's variable Speed Drive, to achieve significant energy cost savings.
- Filter bags are used as the filtration media, with regeneration fans as the cleaning mechanism.
- The cleaning cycle is carried out every 4 - 6 hours.

Reverse Pulse Filter Units

- Reverse Pulse Units have low energy consumption, emit low noise and have a wide range of options available, providing great flexibility
- This unit is available with an airflow capacity of more than 100,000 m³/hr.
- It has a continuous cleaning cycle with high pressure air pulsing over each row of filter socks every two minutes, allowing for non-stop operation
- Filter bags are used as the filtration media, with electro pneumatic pulse valves operating as the cleaning mechanism
- This system requires a high-pressure air supply.

Shaker Filter Units

- Shaker Filter Units are suitable for small to medium size applications with an airflow capacity of up to 50,000m³/hr.
- Made from galvanized steel, they have a low energy consumption, emit low noise and have a wide range of options
- The shaker dust collector is a very economical filtration system and is used in many industries including timber, paper, plastics, powder coating and in schools and TAFE colleges.
- This type of unit uses filter bags as the filtration media and the shaker motor is the cleaning mechanism.
- This cleaning cycle is carried out every 4 hours.

Cyclones

- The energy efficient Cyclones are suitable for all industries.
- The cyclonic action causes the dust particles to discharge at the base of the Cyclone with the clean relief air discharging into the atmosphere.
- This system is the least effective dust extraction filter but there is no cleaning cycle as there is no filter media to clean.

Wet Scrubbers

- This type of unit uses liquid reticulation system, usually water, that mixes with the air stream containing dust particles.
- These dust particles drop out of suspension and settle in the sump of the scrubber.
- The cleaned air normally passes through a mist eliminator before being discharged to atmosphere.
- The dirty water from the scrubbing system needs to be drained from the sump at regular intervals.

We will help you choose the Right Australian Dust Control Product for Your Application. Some of our Products include:

Fume Extraction

- Fume extraction systems aim to capture, transport and discharge fume and odors to atmosphere, in accordance with Australian Standards and regulatory authorities.
- In some cases this air needs to be filtered before it is discharged to atmosphere.

Variable Speed Drives

- The Variable Speed Drive (VSD) is an energy saving device that can be fitted to any one of Australian Dust Control's dust and fume extraction systems.
- VSDs can also be retrofitted to existing systems.
- Australian Dust Control has an additional and unique feature that automatically pre-sets suction levels ensuring maximum efficiency.

Spray Booths

- Wet & Dry Spray Booths aim to capture overspray in the operation of spray painting.
- The area where the spray painting is being carried out is under negative pressure so that the airflow is towards the filtration section of the spray booth.
- The overspray is collected on the front face of the spray booth and the filtered air passes through and discharges to atmosphere via the extraction fan.
- The filter media of the dry spray booth is cardboard or coalescing material. The wet spray booth uses a water wall method to filter the overspray.

Shredders

- The industrial shredder aims to reduce a volume of waste by approximately 3:1.
- It will convert waste such as chipboard, solid timber, cardboard and plastic into smaller particles that can be fed directly into a dust collector or manually fed into a waste bin.

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