DUSTCANARY™

A DIVISION OF AIR-MET SCIENTIFIC

DustCanary™ **TREND 420**

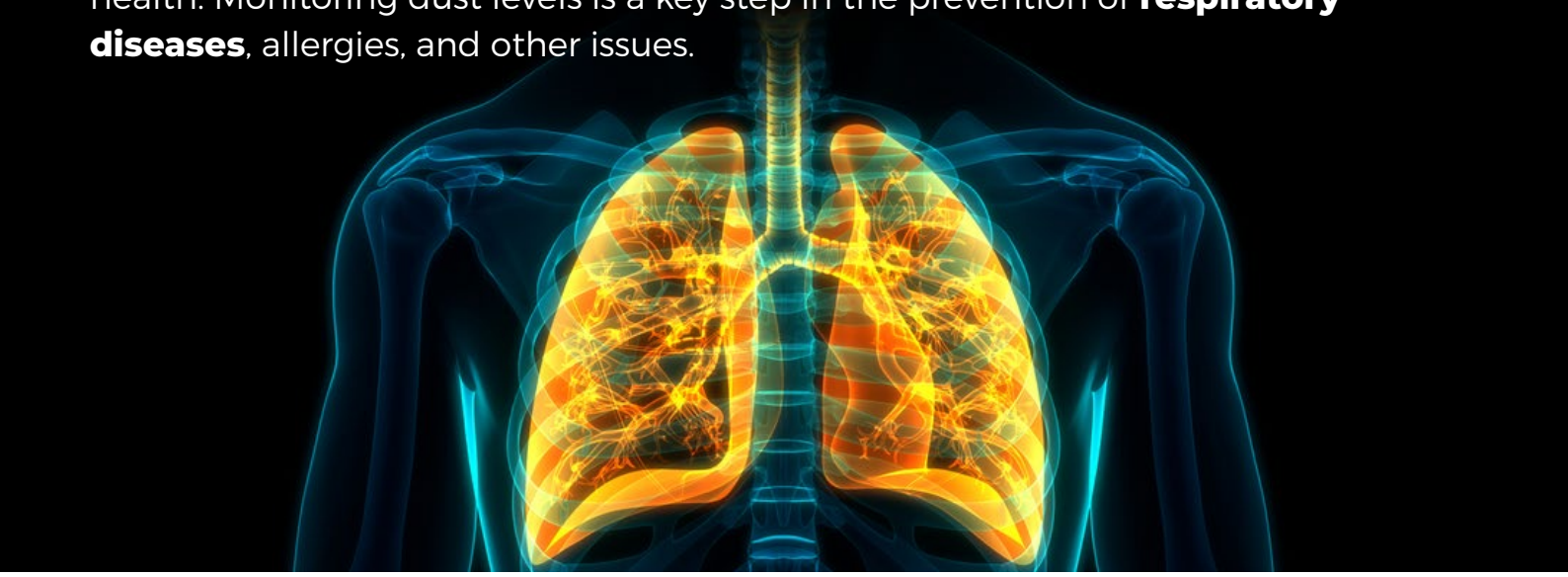
Personal Real-Time Respirable Dust Monitor

PROTECT YOUR STAFF YOURSELF

Help **safeguard respiratory health** in the workplace

DustCanary **recognise the importance** of long-term real-time dust monitoring, especially when the **health and safety** of workers is at stake.

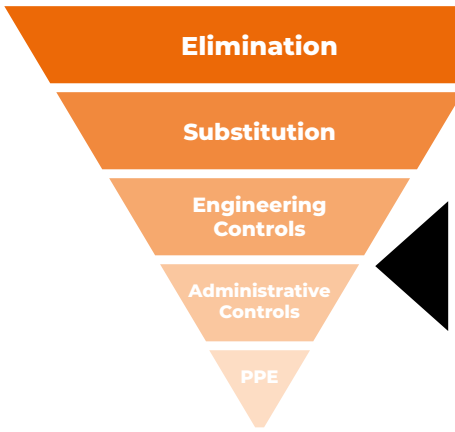
Airborne dust particles in the workplace are a common yet **serious risk** to human health. Monitoring dust levels is a key step in the prevention of **respiratory diseases**, allergies, and other issues.



Reduce respirable dust exposure risk and support control measures

The hierarchy of controls methodology for reducing dust exposure focuses efforts on elimination and controls ahead of the use of personal protective equipment (PPE) as the final option to protect against risks.

In well controlled workplaces, real-time qualitative and indicative respirable dust monitors can form part of the Engineering and Administrative Controls. Instant data availability demonstrates that these controls, including local exhaust ventilation (LEV), are working as designed and reduces the risk of undetected incidents which would otherwise place workers at risk.



DustCanary forms part of the Engineering and Admin Controls

Ensure dust levels are controlled and safe on a daily basis

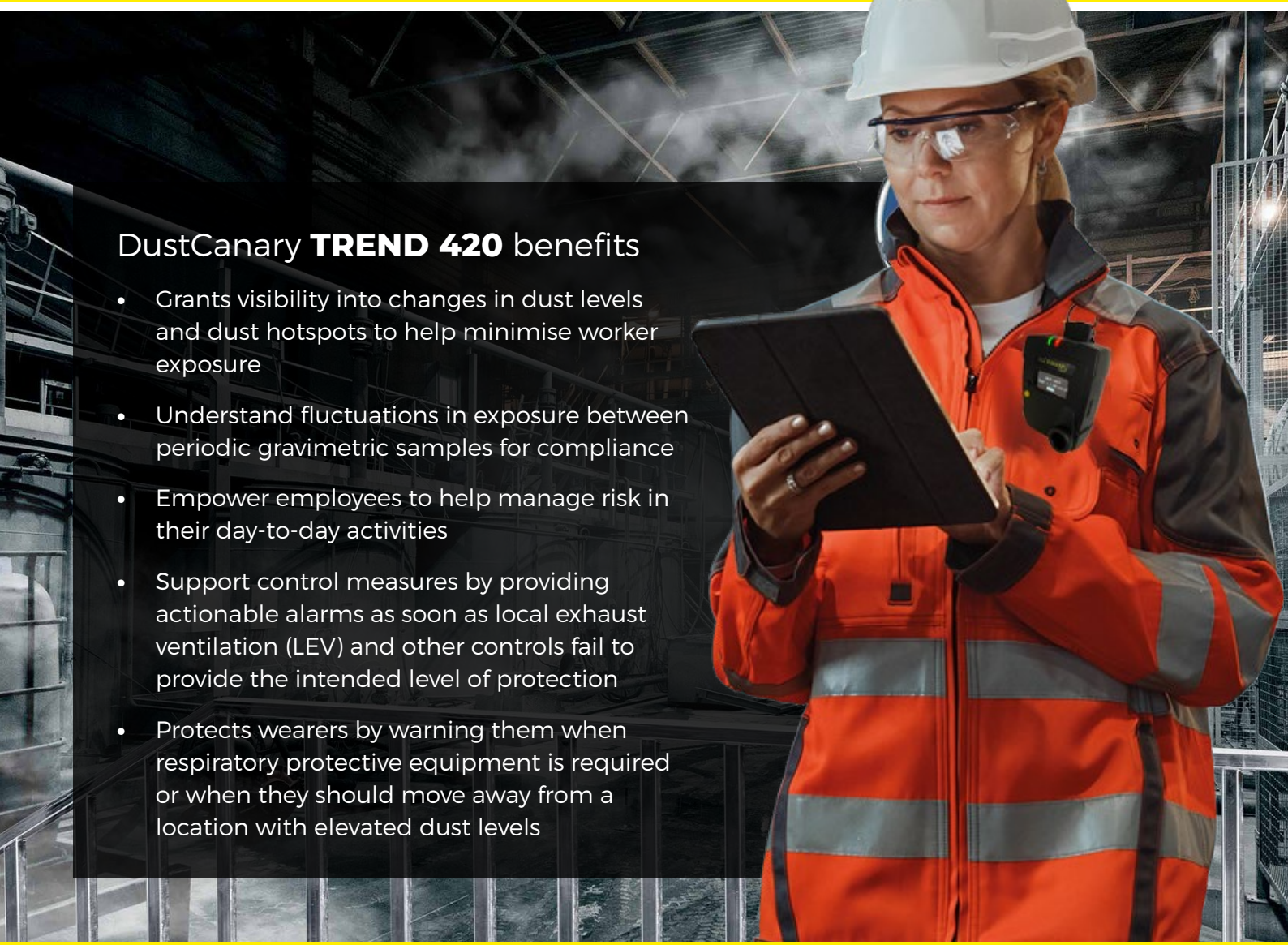
Practical, continuous personal dust monitoring

The DustCanary **TREND 420** wearable dust monitor provides **protection to workers** in industrial and construction settings from inadvertent exposure to respirable dust.

It provides visibility into the variability and hotspots of **dust exposure** and a record of the temporal record profile of dust exposure throughout the working day.

Instant **visual and audible alarms** alert workers when they are exposed to increased respirable dust and respirable crystalline silica (RCS) so that action can immediately be taken to **minimise exposure**.

Being compact and lightweight with no sampling tubes or waist worn pumps as catch hazards, the DustCanary **TREND 420** gives **continuous protection** without hindering worker productivity or work patterns.



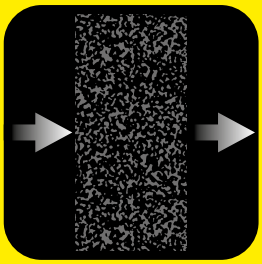
DustCanary **TREND 420** benefits

- Grants visibility into changes in dust levels and dust hotspots to help minimise worker exposure
- Understand fluctuations in exposure between periodic gravimetric samples for compliance
- Empower employees to help manage risk in their day-to-day activities
- Support control measures by providing actionable alarms as soon as local exhaust ventilation (LEV) and other controls fail to provide the intended level of protection
- Protects wearers by warning them when respiratory protective equipment is required or when they should move away from a location with elevated dust levels

Advanced detection methods

At the heart of the DustCanary **TREND 420** is the highly advanced **Next-PM** sensor module. The design has been optimised to provide **efficient and reliable measurements** for workplace applications.

Prefiltration foam (optional)



Removes particles > 4µm (allows respirable dust to pass)

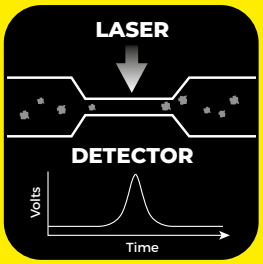
Aeraulic filtration

Patented secondary protection to remove particles > 10µm

Protected optics

Flow path to minimise particle deposition affecting measurement

Optical Particle Counter



Counts and measures particles in predetermined particle size cuts

Fan

2L/min for representative sampling when wearer is walking through a workplace

These innovations provide:

- A serviceable prefiltration option to remove particles larger than the respirable dust fraction and reduce dust contamination on optical surfaces
- Focused optical particle counter measurements on a single size fraction (respirable dust) as a representative control and alarm activation measure while still having capability to measure multiple size fractions
- Wide dynamic range from 0.005 to 10mg/m^3
- Cumulative dust measurement to trigger sensor maintenance
- A configurable dust protection mode to protect sensor when exposed to elevated dust levels for extended periods

The dust sample is drawn into the DustCanary **TREND 420** through the inlet at the front of the device, ensuring accurate measurements representative of the air the wearer is breathing.

2L/min flow from the front of the device for representative dust measurement

Protect from respirable dust across construction and industrial processes

Respirable Crystalline Silica (RCS)
In the construction and minerals industry, ensuring exposure to respirable crystalline silica (RCS) is minimised and below the Workplace Exposure Standard (WES) of 0.05 mg/m^3 is a primary safety objective due to the carcinogenic classification of the crystalline particles. These particles are created when construction and industrial materials containing silica are fractured by drilling, cutting, sanding, abrasion or blasting.

The DustCanary **TREND 420** has the resolution to measure respirable dust to below 0.005 mg/m^3. While the unit does not detect RCS specifically, it is a practical tool for alerting workers when there are dangers in overall respirable dust levels and when controls are no longer working as intended.

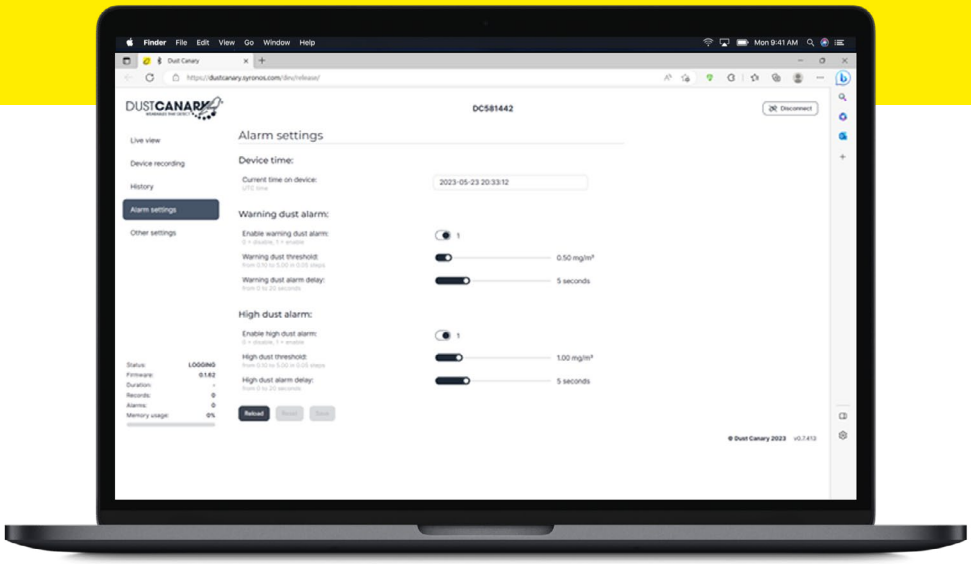
The DustCanary **TREND 420** is applicable to all types of respirable dust and has relevance to applications where dust must be minimised due to the carcinogenic or long-term health impacts of exposure. These include industries with exposure risks from the following dusts and aerosols:

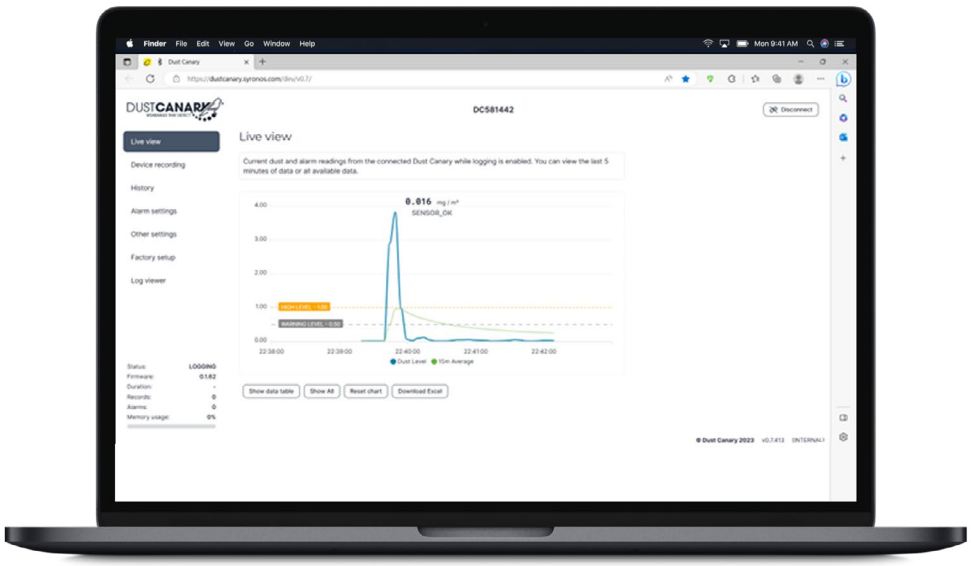
- Oil mist
- Bioaerosols
- Flour and food dusts
- Wood and MDF dusts
- Metallic dusts

Secure configuration and **convenient reporting**

The DustCanary browser application provides a responsive, secure and private web experience for reporting dust exposure profiles recorded by the DustCanary **TREND 420** wearable dust monitor.

The software makes it easy for health and safety professionals to connect a DustCanary wearable device to a PC in order to configure the audible and visual alarms, download recorded sessions and produce reports on respirable dust exposure over time.





Bluetooth communication for wireless access to live data, alarms and dust logs

Graphs produce valuable insights to help diagnose the source of dust hotspots

Once installed, can run offline – useful where internet access is not guaranteed

App runs within a web browser for enhanced security

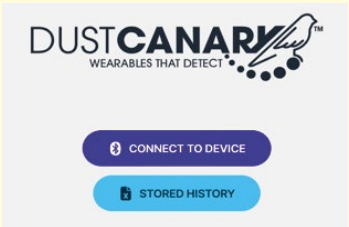
Ongoing **quality assurance**

The DustCanary Trend 420 performs an **automatic self-check** cycle each time a monitoring session is started. In addition, the instrument **continuously monitors** for any changes in the Next PM (sensor module) error flags (flow rate, laser operation and valid reading) and alarms if any errors are detected.

The sensor module should be replaced annually and the unit displays a reminder when this period is due. All replacement sensors from Air-Met Scientific are supported with a **manufacturer's reference calibration report**.

Specification/Function	Description

User interface	• Easy operation with two simple buttons
	• Tilt switch to invert display when instrument is viewed upside down.
	• OLED display with menus for:
	  · Current dust level (mg/m³)
	  · Battery level (%) and charge status
	  · Alarm set points
	  · Alarm condition
	  · Bluetooth settings
	  · Automatic self-check results
	 

Datalogging	• Recording of real-time dust levels (7 day capacity at recording interval of 1 second) • Recording interval configurable from 1 second to 60 seconds • Separate session of recorded data each time instrument is used (time stamped) • Log of alarm events (time, type and alarm level)
External communication	Bluetooth wireless communication for connection to external devices and the DustCanary broswer application used for: • Configuration • Live view of dust • Download and reporting of recorded sessions and alarms • Calculation of 15 minute and 8 hour average exposure • Charting data • Exposure summary by calendar day • Exporting data to external programs including XLXS for Microsoft Excel and CSV for NIOSH Evade. 
Measurement range	• 0.01 to 1mg/m³ – Continuous qualitative monitoring of respirable dust • 1 to 10mg/m³ – Continuous indicative monitoring of respirable dust and configurable dust protection mode (intermittent measurements)

Specification/Function	Description
Real-time sensor	• Next PM sensor module (OPC), with prefiltration and algorithm for respirable dust • Respirable dust reading updated every 1 second
Inlet sampling flow	2 litres per minute (permits representative measurement with moving wearer)
Concurrent functionality	• High and warning dust alarms (can be enabled on or off) • Dust monitoring • Automatic self-checks on sensor operation, hardware and battery • Data recording
Alarms	• **High dust alarm** · Configurable alarm threshold of 0.1 to 5mg/m^3 · Configurable alarm delay of 1 to 30 seconds · Alarm can be enabled/disabled · RED visual LED (can be seen from top and front) · Audible alarm  • **Warning dust level** · Threshold and alarm delay can be configured · Yellow visual LED · Audible alarm • Dust protection mode – Halts recording to reduce contamination from dust which can be overridden by wearer • Non-conformance of automatic sensor checks on start of each new session • Visual and audible alarm (85dB at 10cm) on all alarm conditions
Ergonomics	Weight: 210g Size: 65 x 90 x 25mm plus clothing clip with backup lanyard loop Material: Polycarbonate
Rechargeable battery	IP44 Lithium Ion: 12.8 WHr. 3500mAHr capacity • 16 hour operating life when new, 12 hour operating life after 200 recharges • 3 hour recharge time with USB-C cable (1Amp/hr)
Continuous operation	No time limit when powered permanently by USB-C
Ambient conditions	-10 to 55°C (non-condensing)
Safety and EMC	CE and UKCA

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For more information on Personal Dust Monitoring Wearables, get in touch today
Phone: **1800 000 744** Email: **sales@airmet.com.au** Website: **www.dustcanary.com**