



Targeted engine maintenance can drastically reduce Diesel Particulate Matter (DPM) emissions which can contribute to serious health concerns.

## Reliable, Effective

The dPM-RT is the tool that ventilation officers and workshop staff need in order to reliably identify high DPM emitters, and to validate the effectiveness of emissions-related maintenance.

## Key Benefits

### Accurate Measurement

The rugged, practical and easily operated DPM analysis instrument was specifically designed for measuring particulate concentrations in the exhaust of mining engines. Using advanced laser light-scattering technology, the dPM-RT can accurately and instantly measure particulate mass concentrations in the exhaust from all engine types.

### Rapid Results

The dPM-RT has been pre-programmed to measure particulate mass emissions during a Stall Test or Free Acceleration Test in as little as just one minute. Internal software guides the operator through these standardised DPM test procedures, collects and processes the test data, and automatically produces an overall result immediately once the test is completed.

### Simple Operation

The instrument is highly automated, with only a single press-button required to initiate and run a test. It is designed for ease of use by maintenance personnel as an everyday workshop tool, after only minimal training, but retains the flexibility to support more complex research or investigative activities.

Routine maintenance of the dPM-RT is limited to checking and periodically replacing one disposable filter.

## Key Features

- » Instant measurement of fine particulate levels in diesel exhaust
- » Easy to use, on-screen prompts, minimal (<10min) training required
- » Designed to handle the rugged demands of mining sites
- » Meets NSW MDG 29 and QLD Govt. testing requirements
- » Auto-generates & displays Stall or Free Acceleration test results



## Why Should I Conduct DPM (Diesel Particulate Matter) Measurements?

### Health Concerns

• Diesel vehicles are one of the major producers of fine particulate pollution, which is linked to the incidence of severe lung and heart disease. The World Health Organisation has declared diesel particulate matter to be a Class 1 carcinogen – the highest risk factor category.

In the confines of underground mining, where diesel engines are the dominant source of mobile power, this issue has even greater relevance and importance.

Fortunately, good maintenance can greatly reduce particulate emissions – by up to 80% in some cases.

### Mechanical Repair Cost Reductions

• The level of particulates in diesel exhaust is a very important indicator of engine and injector system health. Accordingly, reliable identification of high polluters and validation of repair effectiveness is essential.

Traditional methods, such as measurement of smoke opacity, have been shown to be significantly inferior to the laser light scattering technologies employed in the dPM-RT. The dPM-RT can detect and measure concentrations of particulates with a nominal diameter down to less than 100 nm (0.0001mm)

Recent advances in mine safety and occupational hygiene have resulted in a large number of diesel vehicles and plant being fitted with particle filters. These filters, when working correctly, greatly reduce particle emissions, so it is essential that their efficiency can be periodically checked. The dPM-RT provides the capability to perform these checks quickly and accurately.

### Technical Data

<i>Measurement Method</i>	Laser light-scattering photometry
<i>Particle Size Range</i>	<100nm to 10 microns
<i>Particle Concentration Range</i>	0.1 to 420 mg/m <sup>3</sup> (Elemental Carbon)
<i>Resolution</i>	0.1 mg/m <sup>3</sup>
<i>Sample Flow</i>	2.0 lpm (nominal)
<i>Range selection</i>	Auto-Ranging
<i>Zero Check</i>	Auto-Zero prior to every test
<i>PC Connection</i>	USB
<i>Operating Voltage</i>	12V DC (via external 240/12V adapter), or internal NiMH battery
<i>Battery Operation</i>	~3 hr continuous operation per charge
<i>Operating Current</i>	2.0 amp (max)
<i>Analyser mass</i>	4kg (approx)
<i>Supplied Accessories</i>	Tail pipe probe, High-temperature sample hose, Battery charger (100 - 240 V, 50/60 Hz), Calibration-Check Plug, 5 x Spare filter elements (external filters), Remote 'Enter' button with 7m cable, Operator Manual, Heavy duty portable carry case (w/- wheels, carry handle)

### How Do Particulates Effect Our Health?



Areas of attack	Particle size
Nose and throat area	5 – 10 micron
Windpipe	3 – 5 micron
Bronchia	1 – 3 micron
Alveolen (Lung bubbles)	0.01 – 1.0 micron

**Diesel Particulate Matter can be less than 0.25 microns in size - just a fraction of the size of a human hair which is 70 microns.**



*Rugged, compact design*

