

# JM

## Mining CRT technology for both PM and NO<sub>2</sub> control

For productive, sustainable mining and healthier underground air



**Johnson Matthey**  
Inspiring science, enhancing life



## Mining CRT® system technology delivers PM control with low NO<sub>2</sub> for improved air quality in underground mines

Diesel-powered machinery and healthy miners are essential to a sustainable mining operation. Miners must be protected from harmful diesel particulate matter (PM) and NO<sub>2</sub> gas emitted by the diesel engines. Johnson Matthey's Mining CRT system technology controls PM without increasing NO<sub>2</sub> for cleaner air in underground mines:

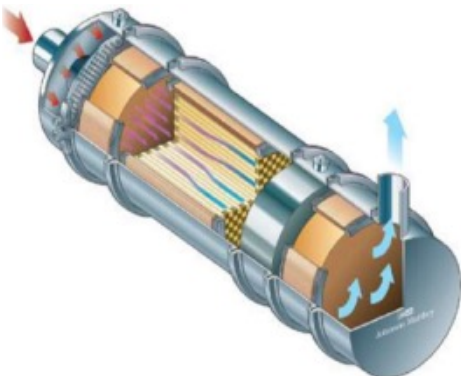
- Protects miner health and safety
- Does not impact mine productivity

### What is the Mining CRT?

The **Mining CRT** integrates Johnson Matthey's patented **CRT** technology with NO<sub>2</sub> abatement to deliver low-NO<sub>2</sub> PM control. The Mining CRT system combines a diesel oxidation catalyst (DOC) with a diesel particulate filter (DPF) to effectively trap PM from diesel exhaust, while removing CO and HC. The DOC converts part of the engine NO<sub>x</sub> to NO<sub>2</sub> which reacts with trapped PM to passively regenerate the filter.

The **Mining CRT** system takes it a step further and adds an NO<sub>2</sub> decomposition catalyst to reduce tailpipe NO<sub>2</sub>. Diesel fuel reacts with NO<sub>2</sub> over the catalyst, lowering tailpipe NO<sub>2</sub> to at or below engine baseline.

### Mining CRT system schematic



### Reliability and performance you can trust

- Rigorously evaluated in underground mines
- Reduces PM up to 99%, maintains tailpipe NO<sub>2</sub> within 20% of baseline level
- Some systems maintain NO<sub>2</sub> at baseline level
- CO and HC conversions > 90%
- Operated more than 5 years/5,000 hours without filter or catalyst cleaning
- Robust construction specifically for mining machines
- CARB-verified



Single filter Mining CRT system

# Mining industry DPF systems

## Johnson Matthey DPF Systems

## Mining CRT System

## CRT®

Active NO<sub>2</sub> control

Yes

No

Tailpipe NO<sub>2</sub> (based on specific test cycle)

At or below engine baseline

No NO<sub>2</sub> control

Configuration

DOC + DPF + NO<sub>2</sub> decomp

DOC + DPF

Filters

1 or 2

1

Baseline NO<sub>2</sub> measured at turbo

### Benefits:

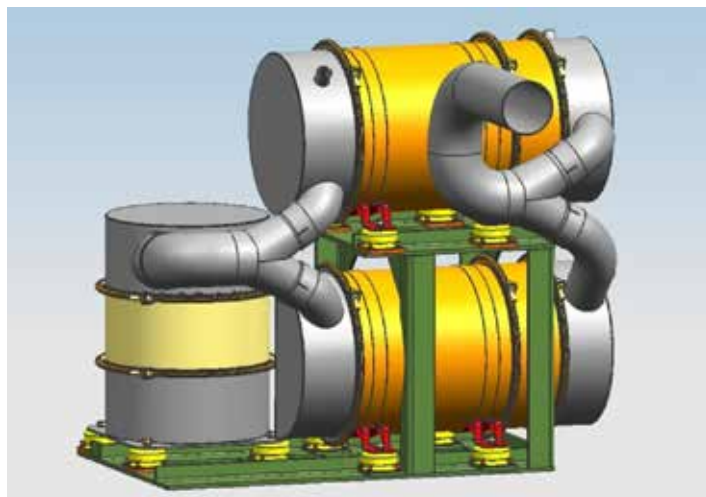
- **Safety:** Meets the most stringent particulate regulations and lowers NO<sub>2</sub> concentrations
- **Flexibility:** multiple filter sizes, types, and regeneration strategies for most mining equipment
- **Productivity:** modular design facilitates servicing; control system minimizes demands on the operator
- **Installation:** designed to fit within engine compartment
- **Convenience:** extended ash cleaning intervals minimize equipment downtime

### Why choose Johnson Matthey?

#### Trusted experience

- Johnson Matthey is the number one global supplier of emission control technology for both on-road and off-road diesel equipment
- Over 200,000 off-road DPF systems sold in North America
- Over 3 million on-road DPF systems in the last ten years in North America alone

Johnson Matthey was first to develop and patent CRT technology. We have been innovating diesel emission control systems for 25 years and no other supplier can match our experience.



**Dual filter Mining CRT:** Dual DOC+filter elements for reduced backpressure, plus NO<sub>2</sub> decomposition catalyst.



Contact us for more information:

900 Forge Avenue, Suite 100  
Audubon, PA 19403-2305, USA  
Email [jmsec@matthey.com](mailto:jmsec@matthey.com)  
Tel +1 484 320 2121

[www.jmsec.com](http://www.jmsec.com)

### **About Johnson Matthey**

Johnson Matthey is a global leader in science that enables a cleaner and healthier world. With over 200-years of sustained commitment to innovation and technological breakthroughs that improve the function, performance and safety of our customer's products. Our science has a global impact in areas such as low emission transport, pharmaceuticals, chemical processing and making the most efficient use of the planet's natural resources. Today more than 13,000 Johnson Matthey professionals collaborate with our network of customers and partners to make a real difference to the world around us. For more information, visit [www.matthey.com](http://www.matthey.com)

Inspiring science, enhancing life

**JM Johnson Matthey**  
Inspiring science, enhancing life

