

JM



MineTerra
Breathe Easy Underground

Mining CRT technology for both PM and NO₂ control

For productive, sustainable mining and healthier underground air



Johnson Matthey
Inspiring science, enhancing life

 **MineTerra**



Mining CRT® system technology delivers PM control with low NO₂ 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 NO₂ gas emitted by the diesel engines. Johnson Matthey's Mining CRT system technology controls PM without increasing NO₂ for cleaner air in underground mines:

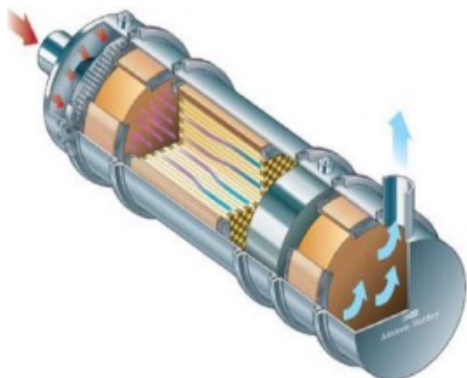
- Protects miner health and safety
- Does not impact mine productivity

What is the Mining CRT?

The **Mining CRT** integrates Johnson Matthey's patented **CRT** technology with NO₂ abatement to deliver low-NO₂ 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_x to NO₂ which reacts with trapped PM to passively regenerate the filter.

The **Mining CRT** system takes it a step further and adds an NO₂ decomposition catalyst to reduce tailpipe NO₂. Diesel fuel reacts with NO₂ over the catalyst, lowering tailpipe NO₂ 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 NO₂ within 20% of baseline level
- Some systems maintain NO₂ 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



Mining CRT system



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Mining industry DPF systems



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Johnson Matthey DPF Systems

Mining CRT System

CRT®

Active NO ₂ control	Yes	No
Tailpipe NO ₂ (based on specific test cycle)	At or below engine baseline	No NO ₂ control
Configuration	DOC + DPF + NO ₂ decomp	DOC + DPF
Filters	1 or 2	1

Baseline NO₂ measured at turbo

Benefits:

- **Safety:** Meets the most stringent particulate regulations and lowers NO₂ 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.



Mining CRT: DOC + DPF + NO₂ DeComp filtration for low NO₂ with superior CO and DPM reduction

For more Information, contact MineTerra:

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