



Johnson Matthey  
Inspiring science, enhancing life

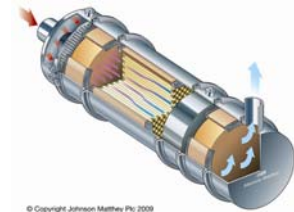
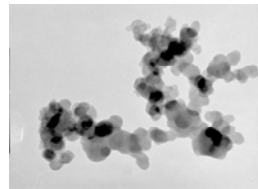
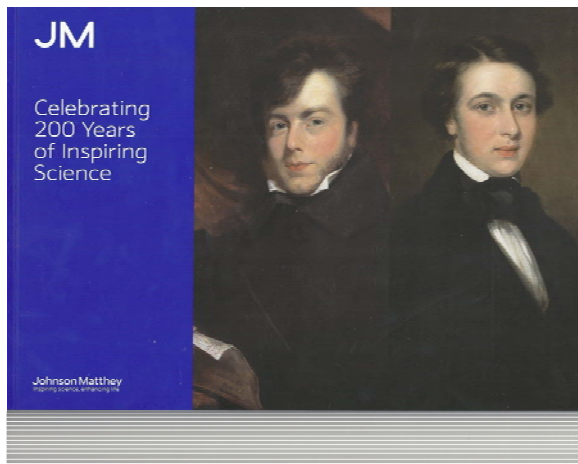


Innovation and Human Health  
Emissions Control from Diesel engines – mining CRT  
Removing Particulate Material from the existing fleet

Dr Joseph McCarney

MDEC 2017

### Improving air quality in mines –



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### The Dark side of progress

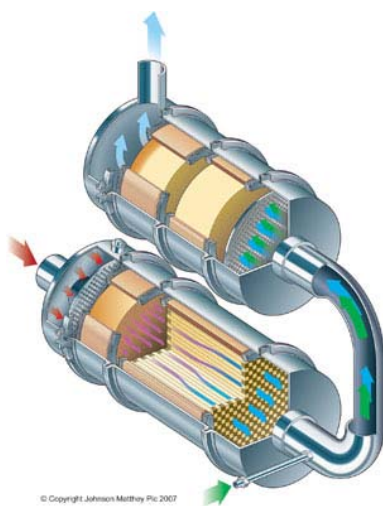


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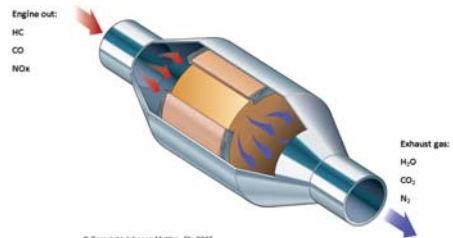
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### Building on technology developments



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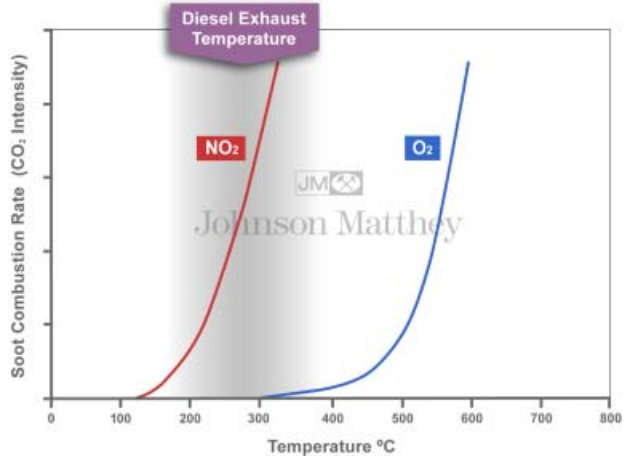
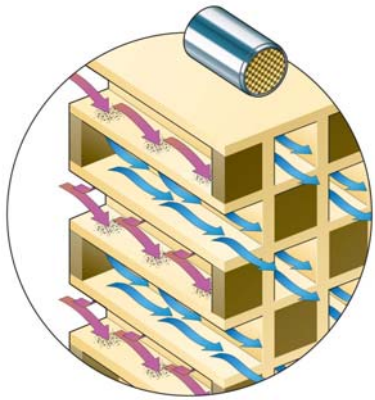


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### Johnson Matthey CRT

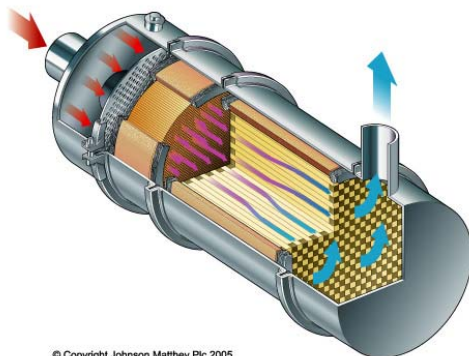


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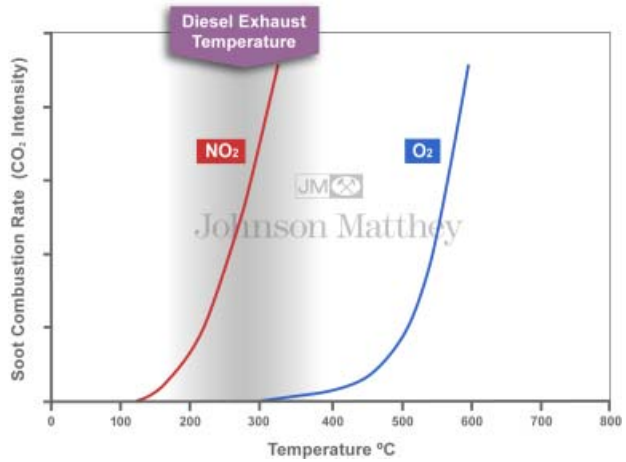
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### Johnson Matthey CRT



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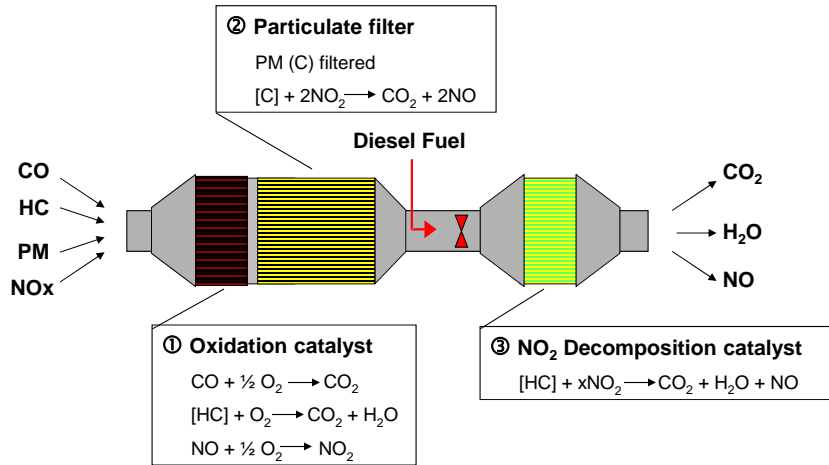


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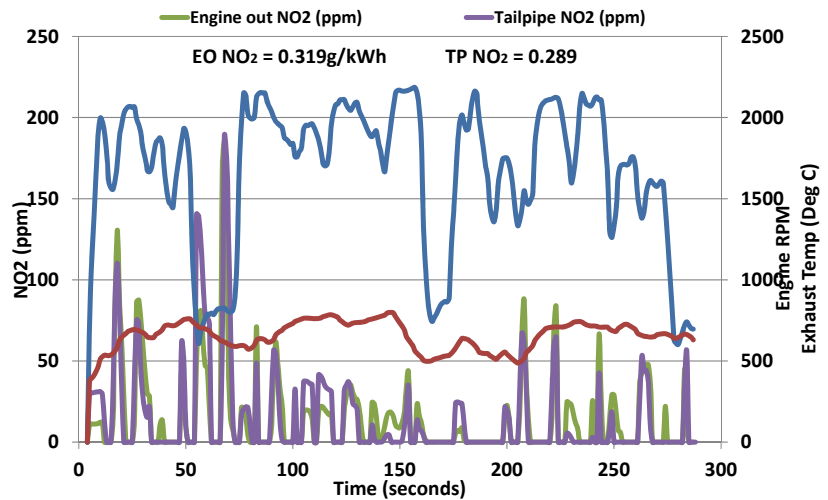
### Johnson Matthey mining CRT



Similar system approved by CARB/EPA for bus/truck retrofit in US

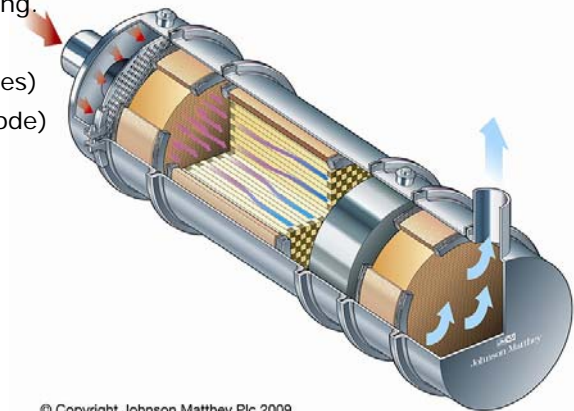


### Johnson Matthey mining CRT – demonstration



## Helping to solve the problems of air quality in mines.

- Demonstration of technology – Collaboration
  - Regenerates at 220°C/250°C during engine operating.
  - Replaces the original muffler/silencer
  - Suitable for retrofit & OE-fit (nearly all Diesel engines)
  - Mining-CRT<sup>®</sup> demonstrated (8-Mode & transient Mode)
  - 99% DPM reduction – by Particulate Number
  - Low HC-injection rates (190 ml/hour)
  - Lower NO<sub>2</sub> emission over cycles tested
  - Required – ULSD – 50ppm S
- 
- Market Needs?



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9