

MDEC 2011: DIESEL EMISSIONS AND CONTROL TECHNOLOGIES

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OEM vs. Retrofit

- Until recently diesel particulate filter (DPF) and selective catalyst reduction (SCR) systems were available to underground (UG) mining industry in North America primarily in the form of aftermarket retrofits for heavy-duty (HD) and light-duty (LD) applications.
 - ▣ However, DPF and SCR systems are gradually becoming integral part of HD and LD off-road diesel engines.
 - ▣ Certainly some of those engines should be suitable for UG applications.
 - ▣ Certain number of existing UG mining applications might still require aftermarket retrofit applications.
 - ▣ Introduction of OEM offerings should facilitate implementation and use of DPF and SCR systems in UG mining applications that are currently perceived as the last line of defense.

Diesel Particulate Filter (DPF) Systems

- ▣ DPF systems are as very efficient in removing DPM.

- ▣ The remaining issues are related to:
 - ▣ durability and reliability;
 - ▣ regeneration;
 - ▣ NO₂ slip;
 - ▣ maintenance;
 - ▣ safety...

- ▣ Improvements in fuel and lubricating oil quality, reductions in diesel emissions and integration of exhaust aftertreatment systems (incorporating DPFs) with engine systems should alleviate some of these issues.

Selective Catalyst Reduction (SCR) Systems

- ▣ Part of the exhaust aftertreatment system of some Tier 4i and Tier 4 engines.

- ▣ Offered as aftermarket products for retrofit applications.

- ▣ Require use of diesel exhaust fluid (DEF).

- ▣ In some applications, underground mining industry might benefit from used of SCR systems.

Exhaust Aftertreatment Technologies in UG Mining Equipment

- ▣ Large manufacturers are addressing issues with supplying vehicles and equipment for global and local markets.
- ▣ Availability of equipment depend on the availability of OEM engine solutions, fuels, and lubricating oil for myriad of applications destined to different markets worldwide.
- ▣ Space is one of the major limiting factors in integration of exhaust aftertreatment technologies in UG mining equipment.
- ▣ The exhaust aftertreatment systems will substantially increase cost of the power packages and to some extent vehicles.
- ▣ In general, manufacturers are working with customers on providing optimized solutions for the specific applications.

Thank you for your attention!
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