



Technical Article

Dust Emissions from Coal Wagons: Reducing Emissions from the Surface of Coal

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Due to the increase in Australian coal's demand and potential increase in dust emission, the Australian coal industry is committed to minimize the impact of dust emission from the bulk solids handling system. Research work carried out to assess the performance of experimental methods of reducing dust emission from the surface of coal in rail wagons show that a significant reduction in emissions is possible.

To meet the demand for Australia's coal, an efficient, economic transport system is a key element in the viability of coal mining and export. As the production of coal increases, rail transport is expanding.

The majority of coal is carried to the ports by rail. As the Australian coal industry is committed to operating in an environmentally responsible manner, and to continuously improve its environmental performance in the handling and transport of coal, the industry is committed to minimize the impact of dust emission from the bulk solids handling system.

This article presents experimental procedures and details of a purpose designed wind tunnel to assess the performance of experimental methods of reducing dust emission from the surface of coal in rail wagons. This work has been conducted in

the laboratories of Tunra Bulk Solids Research Associates at the University of Newcastle in New South Wales, Australia.

Wind tunnel testing was conducted to evaluate the amount of fine particles removed from the surface of open rail wagons due to wind created by train speed and ambient winds. Due to the long travel distances surface moisture evaporates at an early stage of the rail journey and leads to significant dust emission. Different dust suppression chemical treatments have been tested for application to the coal surface and the results are presented. It can be clearly seen that a significant reduction in dust emissions is possible with the correct surface application of a chemical veneer treatment.