

HYDROTAC



REDUCTION OF FUGITIVE DUST ON A SURFACE MINE'S ACCESS ROADS

ACCESS ROAD MAINTAINED WITH HYDROTAC, COAL MINE

DUST AND ROAD MANAGEMENT ON SECONDARY HAUL ROADS:

In any surface mining operation, the transport of ore, and to a lesser extent waste, is accomplished by large haul trucks running on gravel-surfaced haul roads of varying construction and material quality.

While rolling resistance is often the primary cost-driver in haulage operations, considerable effort and expense is also incurred in the control of dust generation. Particles that become suspended for a noticeable length of time are general $<30\mu\text{m}$ in diameter and the proportion of material in this range is approximately proportional to the wearing course material's erodibility.

Water is recognized as the cheapest treatment for temporary dust reduction. However, in the case of mine haul roads in South Africa, the frequent re-application rates and capital and operating cost of equipment used, together with (in some cases) the scarcity of water, may result in water being the least cost effective option for mines.

Water acts by surrounding and adhering to adjacent particles, making it more difficult to dislodge them. The period of effectiveness is dependent on weather, wearing course and traffic volumes, and can range from 30 minutes to 60 minutes.

HYDROTAC, AN ORGANIC BINDER AIDING IN WATER AND COST SAVINGS.

The use of dust palliatives can further reduce dust emissions compared to when water only is used thereby extending the time between treatments. In this case study, a solution of an organic binder was prepared in a 14 000 litres water cart which was then sprayed on the allocated untreated surface.

There was a noticeable difference in terms of dust emissions between the water treated area and the HydroTAC treated surface. It took only 45 minutes to reapply water on the water treated area as opposed to 3 hours on the HydroTAC treated surface. That in itself represents a significant saving in the water cart fleet operation and water usage.

The hard facts that were realised during this study were the reduction in water usage together with the water cart operating hours. In an 8 hour shift on the water treated surface water was sprayed every hour resulting in 8 loads a shift, while on the HydroTAC treated surface only 2 loads of product were sprayed.

The water saving realised during an 8 hour shift worked out to 75% re-duction in water usage. The operating hours of the water cart was also reduced by the same percentage.

PICTORIAL CASE STUDIES HYDROTAC



GOLD MINE

KEY BENEFITS OF USING HYDROTAC

- 75% Water savings realised | Binds surface particles together
- Good penetration into road surface | Biodegradable
- Increase strength of road material - resistant to load stress
- Environmentally friendly, non-toxic and non-hazardous
- No impact on water quality or plant life.



COAL MINE



COPPER MINE

For further information, expert advice or a quotation, email us on

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