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OMNITERRA DUST



AIRBORNE AND SURFACE DUST CONTROL

CAPE TOWN 2017

PREAMBLE:

Both airborne and surface dust have a negative effects on all forms of life of all sorts, human, animal, plant etc. Even machinery suffers under dusty conditions, however it also affect plant production and work efficiency. Dust must be abated or suppressed in natural and ecological way. Attempting to solve the problem with just water is inefficient and harsh on often limited natural resources.

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AIRBORNE DUST SUPPRESSION:

Airborne dust particles can be difficult to control due to the fact that they are so small in size (0.1 to 10 microns). These particles drift everywhere and can be a significant health hazard. Engineers often correctly look to control the problem by spraying water mist to capture the dust particles, but it is not always that successful. This is because large droplets (80 to 100 microns) will travel through the air and collide with very few particles on the way. The air stream traveling around the much larger droplet deflects the dust particle away from the droplet, thus avoiding collision. To effectively capture dust particles, the water droplets should be the same size and weight as the dust particles. Aqua Mist was specifically designed for this purpose.

With Omniterra Dust A technology, 85% of the super-fine dust (10 μ – 0.13 μ) is successfully captured. The system is robust and needs less maintenance than conventional PH systems. This affordable and efficient system is available for very specific applications as well as more general challenges in airborne dust suppression.

The following areas will benefit from Omniterra Dust A and a high-pressure misting system to suppress dust:

- Underground mining
- Crushers
- Conveyor Transfer Points
- Ore and Product Dump Areas
- Screens and Screening Rigs

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DOSAGES:

It is often difficult to quantify the dust density in air, thus the dosage is based upon dust abatement by way of trial. Prior spraying water on the airborne dust, mix the following:

- 1: Per 1000 liters water, add 0,5 kg of Omniterra Dust A
- 2: With a fine sprayer , spray the dust by adjusting the pressure until dust is suppressed. You will require an adjustable nozzle for the task.
- 3: Spray until the level of clarity in air is achieved.
- 4: The spray is continuous if the dust source is continuous.

TEST REPORTS:



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OMNITERRA DUST A , is used extensively in the mining sector, below are some of the practical and present utilization of the product.

UNDERGROUND TEST:

Tests conducted by the South African Chamber of Mines at their facility in Donkerhoek outside Pretoria, illustrated a marked improvement in the ability of water to capture dust particles of all sizes when treated with Omniterra Dust A.

BHP Billiton recently completed an eighteen-month intensive underground study producing exceptional results. All results with Omniterra Dust A in underground mining dust control system produced readings well below the government legislative targets of less than

BEFORE	Area 81	82	83	85	Avg
(mg/m ³)	3.74	3.39	3.26	3.20	3.40
AFTER	Area 81	82	83	85	Avg
(mg/m ³)	1.66	2.31	2.55	1.03	1.89

3mg/m³.

SURFACE DUST CONTROL:

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OMNITERRA DUST B is an innovative formulation of aqueous dispersible fine particle size co-polymers, anionic polyelectrolyte polymers. OMNITERRA DUST B is readily biodegradable and used to effectively control dust on most all road surfaces.

OMNITERRA DUST B is blended into water at recommended dosages, applied to road surfaces to provide strength to the surface and bind the super fines that create dust. OMNITERRA DUST B promotes the creation of a durable cross-linked matrix between the blend of polymers and the surface of the road, thus improving the integrity of the road surface

APPLICATION:

Water is the most common method used for dust suppression. By treating water with OMNITERRA DUST B, the product and water bind the super-fines into a durable matrix, thus creating longer dust-free periods after each spray. Under ideal circumstances, 5-day spray intervals can be

Roads at Glisa



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achieved. The saving on water usage is obvious as water needs to be re-sprayed every 35 to 40 minutes to effectively control dust. OMNITERRA DUST B can thus provide a cost saving of up to 1:500 on water used, as well as reduced R&M cost for vehicles using the road. Due to less water used, much smaller water carts need to be employed to service the area effectively.

OMNITERRA DUST B is supplied as a concentrated liquid that is dosed into water at recommended dosages. The treated water is then applied to the road surface using a water bowser; the surface is re-treated when dust levels become unacceptable.

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STANDARD OPERATING

PROCEDURE:

1st treatment is a shock dosage that can range from 25% to 40% depending on the substrate of the road to be treated. Clay and coal roads tend to need more initial product to start the binding process that is required for effective dust control.

2nd treatment is recommended at 5% the following day

3rd and further treatments can be applied at dosages of between 0.5% and 1% daily or as the road surface requires. Maintenance applications may be extended to as far as 5 to 7 days apart.

All dosages will be influenced by ambient weather conditions, volume and speed of traffic, volumes of secondary dust (dust not created on the

Roads at Kansanshi



Before treatment

After Treatment

road) and effectiveness of the water bowser spray mechanism.

ADVANTAGES OF OMNITERRA DUST B:

1. Reduced water consumption by a factor of 50 (50 X less water used)
2. Road integrity is protected against normal rain damage
3. Reduce repair & maintenance cost on vehicles as result of: * less road trips required per shift
* the roads rolling resistance is improved.
4. Improved surface integrity

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5.



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Water is used more effectively

6. Smaller water bowser can be employed

REQUIRED DOSAGE:

Ensure that the road to be treated has been compacted and if necessary smoothed. Any bumps left after treatment will remain and solidify. No loose earth must remain on surface.

Initially we require everyday treatment, one application per day is needed for the first week with the following mix:

For every 1500 liters of water, mix 20Kg of Omniterra Dust B. The above will be sufficient for 1500 m² of road.

After the above first week treatment, we need to apply once a week the same ratio as per above.

Apply uniformly.

CONCLUSION:

There are variants of Omniterra Dust B to suit each and every variants of surface dust encounters. Our full range of products are totally environmentally friendly and bio- degradable.

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