



## Oasis Irrigation Equipment Company Limited The "Rain Maker"

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## DUST SUPPRESSION SOLUTIONS.

### Control dust levels - dust suppression improves the working environment

Oasis can provide the solutions to a large range of dust problems. Our dust suppression solutions range from mines to road dust to manufacturing. Please either Email ([info@oasisirrigation.in](mailto:info@oasisirrigation.in)) or phone (+91-33-23648812) us so we can work with you to design an appropriate dust suppression solution for your needs.

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## Haul road dust suppression

Traditional haul road dust suppression has been to use water carts. The disadvantages of this approach are the high ongoing cost of water carts and the labour to operate them. Oasis offers an automated sprinkler solution using high quality sprinklers, valves and an automated control system.

The addition of wetting agents and polymer binders to the water used for haul road dust suppression can decrease both the application frequency and the amount of water required. The wetting agents improve the performance of the water in wetting the surface material thoroughly. The polymer binders cause the surface particles to hold together reducing their likelihood of becoming airborne (dust). It also makes the haul roads more compacted with less loose surface material. Dust suppression chemicals can be used with both water carts and sprinkler based solutions.



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## Dust generated during above ground mining and blasting

Increasing the moisture level of material through pre watering can reduce the dust generated by mining and blasting. Oasis has a range of high volume sprinklers for this operation.

Above ground mining and blasting in particular generate large amounts of airborne dust. The only solution to suppress this large scale open air dust once it is already airborne are Fog Cannons. They are high volume mist generating machines with throw distances of up to 250m which blanket the area in a fine mist which suppresses any airborne dust. They are designed specifically for this type of large scale airborne dust suppression.



## Stockpile dust suppression

Stockpile dust suppression is simply a case of stabilizing the surface of the material. This is usually done with regular watering. Oasis has a range of long throw, high angle sprinklers which are suitable for stockpile dust suppression. We can also provide the full solution including sprinklers, valves and control system.

In cases where either the material can't get wet or the action of adding or removing material generates an unacceptable amount of dust then Fog Canon is the recommended solution.

When using either high volume sprinklers or Fog Cannons the addition of a polymer based crusting agent can dramatically reduce the frequency of application and also improve the dust suppression performance in high wind conditions.



## Dust generated during and transferring, discharging, crushing and processing

Once dust is airborne then a misting based solution is most practical approach.

For small scale applications then misting nozzles can be used. Oasis offers two types of misting nozzles to suit different applications

- Hydraulic atomizing misting nozzles are the most common misting nozzles. They require a well filtered high pressure (10-20bar) water supply. They can also be supplied as cluster nozzles where large amounts of mist are required ;

- Air assisted ultrasonic atomizing misting nozzles are a newer approach and use a combination of water (2-5 bars) and compressed air (2-5 bar) to make a fine mist. These nozzles have a smaller droplet size which improves dust suppression performance and a large mist cloud. They also only require low pressure water, but they require a supply of compressed air.

For large scale applications then a Fog Cannons is the most practical solution. Pointing one of the smaller Fog Cannons directly where the high concentration dust is being generated is a very successful approach.

To improve the performance of misting dust suppression an ionic wetting agent can be added to the water. The ionic element can be selected to improve the attraction between the dust and water particles and the wetting agent increases the likelihood of the water and dust particles combining.



## Dust generated during dumping

The action of dumping can generate a large velocity of air which can result large amounts of airborne dust. The use of nozzles spraying water opposing the exiting air/dust can reduce the amount of dust.

In cases where spray nozzles are not practical or do not adequately suppress the dust then a misting solution needs to be used to address the airborne dust. See the solutions recommended for Dust generated during and transferring, discharging, crushing and processing.



## Conveyor belt and product transfer points

The most efficient approach for dust suppression of conveyor belts and transfer points is to build a structure to physically contain the dust.

Where physical containment is not possible then reducing the materials likelihood to suppress dust is a preferred first option. This can be done by increasing the materials moisture level or by putting foam on the top of the material. Increasing the moisture level can be simply done by an array of nozzles or cluster nozzles over the conveyor applying an appropriate amount of water to increase its moisture level so that it is less likely to generate dust. The addition of wetting agents to the water can be used to improve the thoroughness of wetting. Applying a foam coating to the material can also reduce dust creation. The application of foam requires specialist nozzles spraying water with a foaming agent additive.



When dust is generated at transfer points and the wetting/foaming is not appropriate or successful then the approach used in Dust generated during and transferring, discharging, crushing and processing should be used.

## Open area dust control methods

In cases where there is a desire to wet the area (ie fire protection, water disposal) then a network of sprinklers can be used. Oasis offers an automated sprinkler solution using high quality sprinklers, valves and an automated control system.

In most open areas it is possible to prevent the dust becoming an issue through applying a dust suppression chemical spray.

