



Dust Suppression

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ACTOM

Dust suppression

High pressure water only system:

This type of dust suppression system utilises a high pressure pump and specially designed nozzles to atomise the water droplets. The water pressure required for the efficient operation of this type of dust suppression system is a minimum of 8 bar.



Water only

The water only type of suppression system is used in the following applications where: -

- the nozzles are required to cover a long distance and/or area (typically at truck tipping areas)
- wind velocities are high at the point of suppression
- the areas requiring suppression cannot be fully enclosed;
- compressed air is not available
- cost is a main consideration
- moisture addition is not of concern.



Typical arrangement of spray bar and swivel nozzles – water only suppression system

Dust suppression

Dry fog system:

The nozzle used in this type of dust suppression system is specifically designed to allow for the introduction of compressed air in order to atomise the water droplets. The water and air pressure required for atomisation is in the region of 2 – 3 bar.

This type of system is more effective than the water only system because the water droplets can be made smaller by the addition of compressed air, thereby improving the agglomeration of smaller dust particles.



Dry fog system

The dry fog type of suppression system is used in the following applications where:

- the nozzles are not required to cover a long distance and/or area (typically at conveyor transfer point)
- wind velocities are low at the point of suppression
- the areas requiring suppression can be totally enclosed
- cost is not a main consideration;
- moisture addition is of concern.



Distribution block and cupola arrangement – dry fog system

Dust suppression

Dust suppression references:

Kumba Iron Ore – Sishen Expansion Project

- Plant 1 : Water only dust suppression system Primary Crusher – Truck Tipping
- Plant 2 : Dry fog dust suppression system Secondary Crusher – Surge Bin
- Plant 3 : Dry fog dust suppression systems Tertiary Crusher – Shuttle Conveyor & Surge Bin



Kumba Iron Ore - Sishen South

Load out station : Water only dust suppression system

Kumba Iron Ore - Sishen South

Secondary Crusher: Chemical dust suppression system

Primary tip, primary stockpile, product stockpile, fine product discharge, reclaim conveyor: Water only dust suppression systems

Namzinc – Skorpion

Dust suppression on Limestone, Zinc Ore

Tipping bay, screen feeder, silo and crushers: Water only and dry fog dust suppression



Typical tank and pump arrangement.