

## Cloud Tech Dust Suppression System

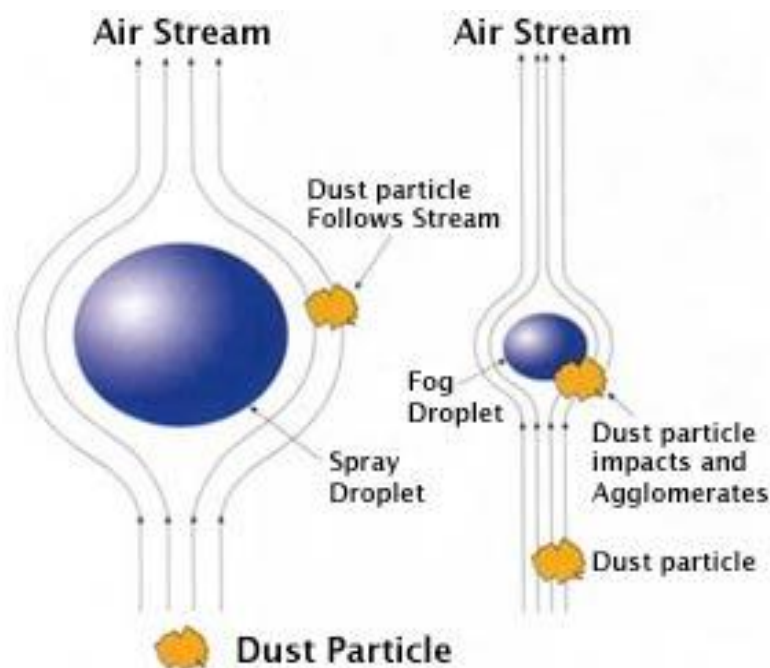
### Introduction

Cloudtech Dust Suppression System brings state-of-the-art technology to the difficult and costly task of controlling dust at manufacturing, industrial and agricultural sites. It produces a ultra-fine water fog that effectively attracts and holds dust particles so that they can be more readily removed from the work place and other environmentally sensitive areas. In a typical application. Cloudtech system can also deliver highly effective odor neutralizing agents.

### How it works

Cloudtech Dust Suppression System uses high pressure water fogging which creates a ultra-fine fog consisting of very fine water droplets (less than 10 micron size).

(Defined as Dry Fog) in diameter. These tiny water droplets absorb even the smallest dust particles in the air, yet fall to the ground without wetness. Particularly suited for dusty environments.



Cloudtech Dust Suppression System is delivered at .018 gallons (of water) per nozzle per minute. In a typical situation—.05 grams of dust per cubic foot of airspace - there would be, at any given moment, 210 times more water particles than dust particles (this is assuming both have the same density). Cooler Temperatures, Higher Productivity. Cloudtech Dust Suppression System also provides cooler temperatures in hot, dry outdoor situations, improving worker productivity. Inexpensive to operate, lightweight and compact, the system can be set up in a few hours, quickly providing a safer, more comfortable environment while reducing labor costs.

The Cloudtech Dust Suppression System can be a big money saver. Water consumption averages only 1.08 gallons per hour per nozzle. Operating cost, depending on the size of the system, can be as low as 20 cents an hour, water and electricity combined.

## Benefits

Low Initial Cost. Low Operating & Maintenance Cost. Operating at 1000 PSI, Cloudtech Dust Suppression System requires no costly air compressors, making the initial outlay lower than a ventilation type control system. Cloudtech Dust Suppression System can be installed for as little as 60% of the conventional bag filter type system. It can operate on as little as five percent of the total energy of a conventional system.

- Our dust suppression systems help you meet environmental standards: Custom installations can reduce dust to required levels, for environmental and worker safety standards.
- Smallest droplets give maximum dust control.
- Inexpensive to operate: Low water and electricity consumption save running costs.
- Low Maintenance: With no moving parts in the fogger, you will have years of reliable low-maintenance operation.
- Reduces PM-10 levels in open plant areas by 50% or more - Will remove much of the finer dust particles - Safer than bag houses. No fire hazard - Can be used in high humidity conditions - Cools workers on jobs where hot-dry air is a part of work environment - Traps dust particles without over-wetting material.

Each Cloudtech Dust Suppression System is custom designed to catch and suppress dust in the most effective way at any given site. The atomization nozzle and delivery system create a 10-micron fog droplet without using a air compressor, resulting in exceptionally cost effective PM-10 suppression. Lightweight, compact, minimum of interference with plant and worker activity and easily installed.

Cloudtech Dust Suppression System is highly effective in PM-10 suppression and can create a safer, more comfortable environment in a wide range of situations.

## Proven Results

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Cloudtech field experience and dedicated service make it the only choice for the most reliable and effective dust suppression systems.

## Academic Research

Research literature has long recognized that small droplet size is the key to dust suppression system. The following explanation comes from work at the Colorado School of Mines:

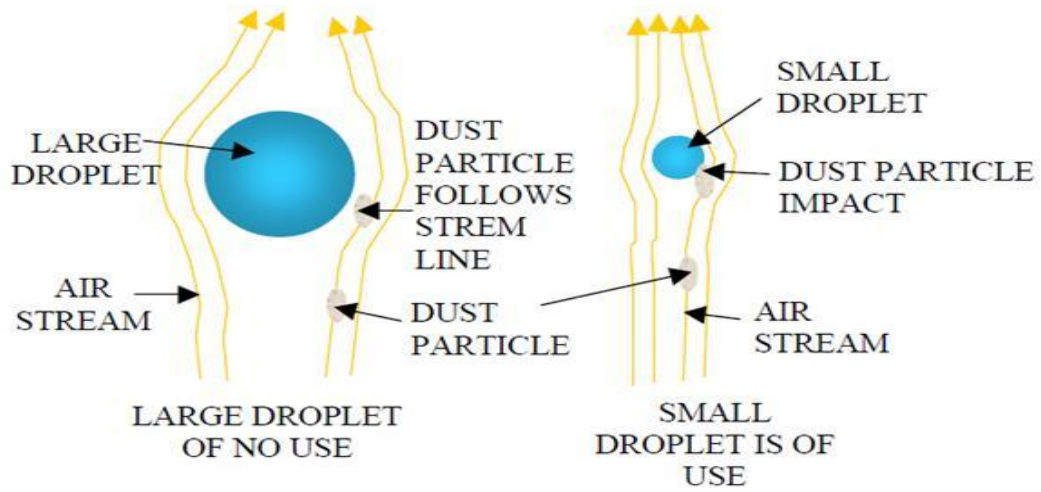
When water droplets that are sprayed to control coal dust are too large, the dust particles flow around the droplets, and thus are not absorbed-but water droplets too small simply evaporated. So CSM is looking into theories governing formation of clouds to improve existing water spray technology.

Experience gained over the years with water sprays has established the following facts:

(1) For a given spray nozzle, the collection efficiency for small dust particles increases as the pressure increases.

(2) At a given pressure, the efficiency increases as the nozzle design is changed so as to produce smaller droplets. The conclusion is clear-cut; the smaller droplets are more effective in knocking small dust particles out of the air. The reason for this is not hard to see.

Consider a water droplet about to impinge on a dust particle, or what is aerodynamically equivalent, a dust particle about to impinge on a water droplet, as shown in the drawing. If the droplet diameter is much greater than the dust particle, the dust particle simply follows the airstream lines around the droplet, and little or no contact occurs. In fact, it is difficult to impact micron-size particles on anything, which is why inertial separators do not work well at these sizes.



If, on the other hand, the water droplet is of a size that is comparable to that of the dust particle, contact occurs as the dust particle tries to follow the streamlines. Thus the probability of impaction increases as the size of the water spray droplets decreases.

### Dry Fog Dust Suppression System:

Dry fog Cloud tech Dust Suppression System uses high pressure water fogging which creates a ultra-fine fog consisting of very fine water droplets (less than 10 micron size). (Defined as Dry Fog) in diameter. These tiny water droplets absorb even the smallest dust particles in the air, yet fall to the ground without wetness. Particularly suited for dusty environments.



## Fog Canon:

The Cloud Tech Fog Cannon has been designed to tackle the problem of airborne dust particles generated by open mining activities, general demolition work and bulk material handling. Fog Cannon has been shown to suppress up to 95% of airborne dust particles. The smaller units are ideal for suppressing dust where it is generated in high concentrations at easily defined point sources such as discharging onto stockpiles, discharging into ships, reclaiming from stockpiles, dumping, crushing and loading/unloading trucks. In this case the Fog Cannon is directed at the point source of dust and it rapidly suppresses the emitted dust before it can disperse. The larger units are where Fog Cannon are unique, as they are able to suppress general airborne open area dust through fogging the general area. The larger units are also capable of suppressing dust caused by high volume dust events such as blasting - and the long throw distance is usually necessary for this. Fog Cannons are also useful for dust suppression of stockpiles where their low water use is an advantage.

There are several models of Cloud Tech Fog Cannon available with throw ranges from 15 to 100 metres. All models have automatic rotation of up to 270° and an adjustable elevation angle from 0° to 45°. Chemicals can also be added to the spray to either increase the performance of suppressing airborne dust or develop a crust on stockpiles.

