

# Electrostatic Dust Mitigation and Environment Protection Device

## Introduction

Dust is a pervasive problem in handling bulk materials such as coal, cement, construction, demolition of buildings, thermal power plants etc. interfering with all aspects of operation. Dust suppression systems help to control the dust while improving efficiency. Electrostatic dust mitigation device is highly useful in suppressing the dust particles entrained in the air and protect the environment in an efficient way. It produces uniform and fine spray particles that are nearly equal in proportion of dust size particles.

The present invention and utility model discloses a multipurpose air-induced air-assisted high-range electrostatic spraying system based on induction charging principle for dust mitigation and environment protection. An induction charging based high-range electrostatic spraying system has been designed and developed at CSIR-CSIO, Chandigarh.

## Features

- Charged droplets are more effective in suppressing dust particles
- Globally competitive, at par with international standards
- Cost effective solution with higher efficiency
- Mobilization is very easy since it can be easily mounted on trolley or moving vehicle.
- Produces fine spray droplets of comparable in size to the particulate matter.
- Less amount of water is required
- Easily accessible in remote areas
- Long range dust suppression
- Easy to operate and safe
- Low power consumption and maintenance

## Specifications

- |                             |             |
|-----------------------------|-------------|
| ▪ Flow Rate (Present Model) | : 3 L/min   |
| ▪ Number Of Nozzles         | : 10        |
| ▪ Material                  | : GS/MS     |
| ▪ Output Velocity           | : 25-30 m/s |
| ▪ Coverage/Distance         | : 25-30 m   |
| ▪ Operating Pressure        | : 3-4 Bar   |



- Operating Voltage Range : 1-1.5 kV
- Power Source : DC Battery
- Droplet Size : 20-30  $\mu\text{m}$
- Rotation : 0 To 360°
- Elevation : 0 To 60°
- External Air Compressor : Required

## Benefits

- Very effective when it comes to suppression of PM 2.5 and PM 10
- Reduces the exploitation of natural resources

## Applications

- Coal mines
- Paper industry
- Cement industry
- Misting in rural area
- Thermal power-plants
- Hotels and restaurants
- Stone crushing industry
- Clay and brick manufacturing
- General pollution/ Airborne dust
- Industrial sanitization and disinfectants

