

## Dust Suppression

### *Chemical vs. Fog*

Chemical suppression outperforms fog suppression in cost, performance, safety, and maintenance, making it the smart choice for long-term dust control.

While fog systems merely attempt to control dust after it's airborne, chemical suppression stops dust at the source, delivering up to 95% reduction with lasting residual control across multiple downstream transfer points from a single application.

Benetech's solution is engineered for results—simple to install, proven in the toughest conditions, effective in wind or open air, and trusted by plants nationwide.



Feature/Benefit	Chemical Suppression	Fog Suppression
Performance	High Residual Dust Reduction	Localized Dust Control
Installation & Operation	Simple Setup	Complex Setup
Safety	Low Risk	Potential Hazards
Maintenance	Low Maintenance	High Maintenance
Environmental Impact	Eco-Friendly	Use Caution
Utility Requirements	Minimal Requirements	High Requirements
Applications	Versatile	Site-Specific Contained Areas
Availability	Year-Round	Cold Weather Limitations
Cost	Cost-Effective	Higher Cost

## Performance

*Chemical:* Chemical suppression reduces dust by up to 95%, controls it at the source, and provides residual suppression at downstream transfer points, even in open-air and windy conditions.

*Fog:* Fog suppression controls dust only in the immediate spray area, provides no residual suppression, and is less effective in moving air.

## Installation & Operation

*Chemical:* A pre-fabricated chemical suppression system can be applied once to cover multiple transfer points.

*Fog:* Fog suppression requires individual installation at each transfer point, making setup more time-intensive.

## Safety

*Chemical:* Chemical suppression uses low-humidity, non-toxic, biodegradable agents that do not create visibility or ice hazards.

*Fog:* Fog suppression can increase humidity, may pose inhalation risks if water is contaminated, and can reduce visibility and create slippery surfaces or ice buildup, posing hazards for both foot and vehicle traffic.

## Maintenance

*Chemical:* Chemical suppression systems use few nozzles, are easy to access and maintain, and do not require special water quality.

*Fog:* Fog suppression systems use multiple nozzles, are highly sensitive to water quality, and require routine cleaning and filter replacement, with large compressed air demands that increase wear and maintenance on air compressors.

## Environmental Impact

*Chemical:* Chemical suppression uses minimal water, is non-toxic, biodegradable, and safe for both workers and the environment.

*Fog:* Fog suppression uses more water, depends on clean water for effectiveness, and may produce harmful aerosols or environmental risks if water is contaminated.

## Utility Requirements

*Chemical:* Chemical suppression does not require special water treatment or compressed air.

*Fog:* Each nozzle requires 5–10 SCFM at 70 PSI of clean, dry compressed air, along with 100 mesh filtered water.

## Applications

*Chemical:* Chemical suppression is effective for loading, unloading, railcar dumps, and open-air transfers.

*Fog:* Fog suppression is generally limited to enclosed or contained spaces and is ineffective in open-air or windy environments.

## Availability

*Chemical:* Available for use year-round without weather-related performance issues.

*Fog:* Prone to nozzle freezing during cold weather, limiting availability in winter conditions.

## Cost

*Chemical:* Chemical suppression systems are economical to install and operate and require minimal maintenance.

*Fog:* Fog suppression systems have higher capital, operating, and maintenance costs due to continuous water filtration, frequent spray nozzle cleaning, and increased air compressor usage.

