

July 2011

FAQ: Fugitive Dust

What is fugitive dust?

Fugitive dust is small airborne particulate matter, both solid particles and liquid droplets. The US Environmental Protection Agency (EPA) defines fugitive dust as particulate matter (PM) that is generated or emitted from open air operations (emissions that do not pass through as stack or vent) and classifies PM by size:

- Particles under 10 microns in diameter are referred to as PM₁₀
- Particles under 2.5 microns in diameter are referred to as PM_{2.5}

Fugitive dust consists primarily of PM₁₀ particles.

What causes fugitive dust?

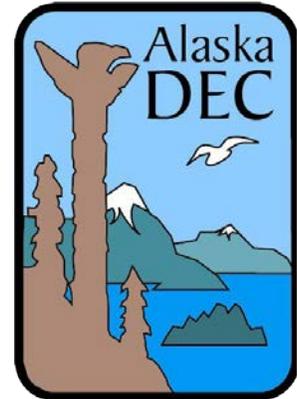
Fugitive dust is generated through human activities and natural processes. For example, agricultural activities, wind, construction, and driving on unpaved roads all cause fugitive dust. Generally, increased population and activity increase fugitive dust. As industrial areas move closer to residential and recreation areas, fugitive dust becomes a greater nuisance.

Why is fugitive dust bad?

Health concerns linked to PM include asthma, chronic bronchitis, emphysema, heart disease, and chronic obstructive pulmonary disease. PM_{2.5} is small enough to penetrate deep into lung tissue. In addition to affecting human health, fugitive dust reduces visibility, affects surface water, reduces plant growth, and can be a nuisance.

Is fugitive dust from some sources worse than dust from other sources?

Unlike most other pollutants, particulate matter is not made up of a single chemical compound or even family of compounds with similar characteristics. Because the chemical makeup of these particles varies depending on their source, so do their health and environmental effects.



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How is fugitive dust regulated?

The state is responsible for protecting healthy air and has adopted the federal ambient air quality standards for particulate matter. Our regulations are based on science regarding human and environmental health. To ensure that our air meets state and federal standards, DEC monitors air quality (see Monitoring FAQ for more information).

Ambient Air Quality Standards for Particulate Matter

Class	Definition	24-hour limit	Annual limit
PM ₁₀	All particulates less than 10 microns	150 µg/m ³	–
PM _{2.5}	All particulates less than 2.5 microns	35 µg/m ³	15 µg/m ³

NOTE: µg/m³ = micrograms per cubic meter

Permitting is another tool DEC uses to protect our air quality. Depending on the nature of the operations and the potential to emit pollutants, some facilities must obtain air quality permits. DEC will cite operators if violations occur and, although it seldom occurs, has the authority to revoke permits if warranted.

Although not all sources that emit fugitive dust are required to obtain permits, all sources must maintain air quality standards. If an unpermitted activity suspected of violating air standards is identified, DEC works with operators to put appropriate and reasonable precautions in place to prevent future violations.

How does DEC regulate dust from roads?

Alaska's many unpaved roads are a common source of fugitive dust and cause most dust complaints. Generally these incidents are one-time events and resolve quickly when reasonable precautions are implemented.

How can fugitive dust be reduced?

The best way to reduce fugitive dust is to prevent particulate matter from getting into the air in the first place. Common mitigation practices include wetting the source material or installing barriers to prevent dust from leaving the source area. Because wind often picks up fugitive dust, additional measures may be needed during high wind periods.

What about coal dust and coal ash?

Mining and transporting coal, as well as coal ash left over from burning coal, have the potential to generate fugitive dust. Storing both coal and the ash in piles can leave them susceptible to being picked up by the wind. In Fairbanks, coal ash disposal is causing concerns about fugitive dust. In other areas, coal handling, particularly transferring the coal from one transport vehicle to another, generates fugitive dust. DEC is working with residents and source operators to resolve these issues.