

Fugitive Dust

Frequently Asked Questions

What is fugitive dust?

Fugitive dust is small airborne particle called particulate matter. These small airborne particles have the potential to adversely affect human health or the environment. EPA defines fugitive dust as “*particulate matter that is generated or emitted from open air operations (emissions that do not pass through a stack or a vent)*”.

EPA classifies particulate matter as one of six principal air pollutants, which include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), and sulfur dioxide (SO₂).

Particulate matter consists of solid particles and liquid droplets suspended in the air. The most common forms of particulate matter (PM) are known as PM₁₀ (particulate matter with a diameter of 10 microns or less) and PM_{2.5} (particulate matter with a diameter of 2.5 microns or less).

Other pollutants can have particulates: Prior to falling to the earth, sulfur dioxide (SO₂) and nitrogen oxide (NO_x) gases and their particulate matter derivatives—sulfates and nitrates—contribute to visibility degradation and harm public health.

Where does fugitive dust come from?

Sources of fugitive dust can be both natural and human: Natural sources of fugitive dust are wind erosion - especially in dry, arid conditions and areas of sparse vegetation. Wildfires are another natural source of fugitive dust. In Alaska, dry winter conditions can increase fugitive dust.

Fugitive dust also originates from human activities.

Human activities include:

- Agriculture
- Building construction and demolition
- Commercial and Industrial activities
 - Gravel pits and crushers
 - Concrete and asphalt batch plants
 - Mining and mineral processing
 - Sandblasting
- Smoke stacks
 - Boilers
 - Incinerators
 - Wood stoves
- Open burns
- Vehicle exhaust
- Road traffic

Why is fugitive dust a concern?

EPA estimates 25 million tons of fugitive dust emissions are generated per year; the majority of those emissions come from unpaved roads and miscellaneous agricultural activities.

Fugitive dust and particulate matter emissions reduce visibility, create “haze”, cause aesthetic property damage, and impact surface waters. They can also cause hazardous driving conditions and interfere with scenic views.

Excessive fugitive dust and particulate matter emissions can have significant impacts on human health. Particles can be so small that they pass through the nasal passage, travel to the deepest parts of the lungs, and cause damage. To compound the problem, toxic and cancer-causing chemicals can attach themselves to PM and can produce much more profound effects when inhaled. The tiniest of particles can even pass through the lungs into the bloodstream. People most at risk from breathing particulate pollution are children, the elderly, and people with respiratory or heart disease. Healthy people can be affected as well, especially outdoor exercisers. Fugitive dust and particulate matter emissions have been linked to:

- Asthma
- Emphysema
- Chronic Obstructive Pulmonary Disease
- Chronic Bronchitis
- Heart Disease

How is fugitive dust regulated?

Department regulations protect human health and the environment so that fugitive dust does not cause unhealthy air. National and Alaska Ambient Air Quality Standards under 18 AAC 50.010 contain science-based thresholds for particulate matter. To ensure compliance with the Ambient Air Quality Standards, we have regulations to control fugitive dust from permitted and unpermitted sources.

Alaska's current regulations that address fugitive dust are

18 AAC 50.045(d) Prohibitions: A person who causes or permits bulk materials to be handled, transported, or stored, or who engages in an industrial activity or construction project shall take reasonable precautions to prevent particulate matter from being emitted into the ambient air.

18 AAC 50.110 Air pollution prohibited: No person may permit any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

Currently, the department applies its regulatory authority under 18 AAC 50.045(d) to request fugitive dust sources apply “reasonable precautions” to reduce emissions.

An activity suspected of violating 18 AAC 50.045(d) or 18 AAC 50.110 can result in a compliance/enforcement action initiated by DEC.

ADEC receives complaints about fugitive dust from a variety of activities. ADEC is assessing its current air quality regulations in 18 AAC 50 to ensure that current regulations are adequate to address the concerns generated by fugitive dust complaints

What more can be done about fugitive dust?

To address the unpermitted fugitive dust issues, the Air Permits Program is conducting public workshops, and initiating research and modeling demonstrations to determine at what threshold levels the air quality standards would be exceeded. Based on the threshold levels, the department may draft regulation language or require Minor permits to provide enforceable fugitive dust control provisions within the air permit process.

Who may be impacted by potential fugitive dust regulations?

The goal is to ensure basic health and environmental protection from air pollution for all citizens. If determined by the research and modeling demonstrations, activities that are engaged in coal handling, material handling, and abrasive blasting may be required to have Minor permit.

- There are approximately 60 businesses statewide that may require a minor source permit for abrasive blasting facilities.
- These businesses include:
 - shipyards,
 - boat repair yards
 - construction yards,
 - bridge maintenance projects (3 bridges are sandblasted a year by ADOT), and
 - auto/construction machinery repair shops.
- In addition, there are 65 gravel facilities, 5 quarries, and 361 mining operations that may be required to obtain a minor source permit.
 - Sources in this category may already have existing permits because they are larger sources (e.g., Red Dog) or have permits under the existing 18 AAC 50.502(b) categories (i.e., rock crushers).
 - Many of the mining operations are small placer miners and therefore are not likely to need a permit based on threshold levels.

Who do I call if I have concerns about fugitive dust?

Fugitive Dust Workshops and Regulation Development

- Tom Turner, (907) 269-8123, tom.turner@alaska.gov

Fugitive Dust Complaints:

- Southeast: Jim Plosay, (907) 465-5561, jim.plosay@alaska.gov
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Moses Coss, (907) 451-2163, moses.coss@alaska.gov
- South Central: Wally Evans, (907)269-7562, wallace.evans@alaska.gov

Sources: US Environmental Protection Agency, Department of Environmental Conservation, Alaska Department of Commerce