

Hot Mix Asphalt

An Overview of Environmental Regulations

In order to protect and preserve Colorado's public health and valuable resources, hot mix asphalt (HMA) plants (or facilities) must adhere to strict air, water, and waste requirements administered by the Colorado Department of Public Health and Environment (CDPHE). As Colorado moves forward, so has the need for asphalt materials. Today, over 12 million tons of hot mix asphalt are produced by over 60 HMA facilities in Colorado each year.

This fact sheet provides an overview of the asphalt production process and the environmental requirements that apply to HMA facilities in Colorado.

The Asphalt Production Process

Hot mix asphalt paving materials are a mixture of aggregate, sand, asphalt binder, and may include recycled asphalt pavement. The HMA process involves mixing the crushed aggregate with asphalt cement (a product of oil refining that acts to glue the aggregates together) to form a hot asphalt mixture that can be laid down as a smooth road surface.

Air Emissions

Controlling the emission of harmful pollutants into the air is the guiding principle behind the state's air quality standards. Stringent limits are set for a range of pollutants based on their known effects to human health and the environment. Technology and control systems are available to modern HMA facilities so that they comply with the air quality standards of the State of Colorado. Operation and Maintenance Plans are submitted by the permittee to ensure and document that their controls are working in the most efficient manner. In addition, dust control plans are required to be in place to control fugitive dust from material storage and handling areas and from trucks traveling on haul roads.

HMA plants have the potential to emit various emissions. Potential emissions include, volatile organic

compounds (VOCs), carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂ - if sulfur is present in the fuel), and particulate matter (PM). Asphalt plants are required to install controls or take other measures to reduce harmful air emissions. These measures and controls include counter-flow mixing equipment technology, baghouse systems to control particulate emissions, enclosed or partially enclosed conveyor systems, and top-of-silo emission recovery systems. In addition, best management practices to minimize emissions during HMA production have been established by the asphalt industry. These best management practices include guidance on facility operation and maintenance so as to maximize efficiency and minimize emissions. Natural gas is a common fuel for asphalt plants. Therefore, the emissions from a plant fueled by natural gas are similar to a household furnace.

➤ *Air Reporting & Permitting Requirements*

All Colorado HMA plants are required to report their air emissions to the CDPHE Air Pollution Control Division (APCD) and obtain an air permit. HMA plants must report their air emissions by submitting an Air Pollutant Emission Notice (APEN) to the APCD. The APEN includes information on the location and ownership of the site and detailed information on the site-specific process equipment and air pollution control measures. The APCD uses the information provided on the APEN to write an air permit for the HMA plant. A Final Approval air permit is issued only when the HMA plant demonstrates and certifies compliance with all state and federal air quality standards.

An Air Permit Includes...



- Limits on annual asphalt production
- Required air pollution controls
- Opacity (visual emissions) limitations
- Recordkeeping requirements
- Operating and maintenance requirements
- Other key areas that may need to be addressed e.g., methods for controlling fugitive dust at the site.

In addition to obtaining an air permit, HMA plants must comply with federal requirements called *New Source Performance Standards* provided in Colorado Regulation No. 6, Part A, Subpart I, *Standards of Performance for Hot Mix Asphalt Facilities*. The performance standard limits the particulate emissions from the HMA plant. To show that the HMA plant can meet the air emission limits, the owner/operator must

conduct a performance test for particulates, opacity, and sometimes CO emissions. Generally, the test is conducted within six months after the HMA plant receives an initial approval to construct the plant.

➤ **Air Inspections and Enforcement**

The APCD enforcement staff conducts routine inspections of Colorado HMA plants to ensure that plant operators are properly maintaining the required air pollution equipment, keeping records, and complying with all conditions of the air permit. Most HMA plants are inspected every 3 to 5 years, while others are inspected annually. The APCD also responds to citizen complaints on dust, odor, or noise problems at HMA plants. When a permit violation or noncompliance issue leads to enforcement proceedings, corrective action is required and fines up to \$10,000 per day can be levied against HMA plants.

Frequently Asked Question:

When I drive by an asphalt plant, what is it that I see coming from the plant?

Often this is steam produced from the moisture in the aggregate when dried. This steam may be mistaken for smoke, especially in cold weather. Visual emissions of smoke are regulated and restricted.

Stormwater/Colorado Discharge Permit System (CDPS)

Almost all Colorado HMA plants are required to obtain a Stormwater General Permit for Light Industrial Activity or to be covered under a Stormwater General Permit for Construction Activities if the plant is dedicated to a specific construction site covered by this permit.

Stormwater refers to runoff resulting from rain or snowmelt events. When stormwater comes into contact with plant operations or storage piles, it can become contaminated with sediments, oil and grease, or other pollutants that could impact Colorado waterways. The Stormwater General Permit requires an HMA plant to develop and implement a Stormwater Management Plan (SWMP) that includes best management practices to prevent the discharge of pollutants in stormwater runoff. In addition, spills of oil or fuel of greater than 25 gallons, or spills of any size

that reach State waters, must be reported to CDPHE. Spill remediation and monitoring is required.

Stormwater and process water permits are issued under the Colorado Discharge Permit System (CDPS) administered by the CDPHE Water Quality Control Division (WQCD).

Solid and Universal Waste

A typical HMA plant does not generate hazardous waste and generates very little solid and universal waste. Some wastes, such as petroleum-contaminated soils, may be reused in the asphalt production process. All wastes must be properly managed and disposed of.

Community Right to Know

On March 1 of each year, every HMA production facility is required by state and federal law to report the storage of regulated onsite chemicals. This information is sent to emergency planning organizations. Concerned citizens can obtain this public information from state and federal agencies.



The air, water, and waste environmental programs at CDPHE work together to answer questions and help businesses understand and comply with environmental regulations. If you have questions on the requirements for HMA plants in Colorado, please contact the resources listed below:

- ❖ **Air Emission Reporting and Permitting:**
Small Business Assistance Program (SBAP)
(303) 692-3175 or (303) 692-3148
www.cdphe.state.co.us/ap/sbap.asp
- ❖ **Wastewater and Stormwater Permitting:**
Water Quality Control Division
(303) 692-3500
www.cdphe.state.co.us/wq/wqhom.asp
- ❖ **Solid and Universal Waste Management:**
Generator Assistance Program (GAP)
(303) 692-3415 or Hotline: (303) 692-3320
www.cdphe.state.co.us/hm/gap/gaphom.asp