



**Natural Resources Conservation Service**  
**CONSERVATION PRACTICE STANDARD**  
**DUST CONTROL ON UNPAVED ROADS AND SURFACES**

**CODE 373**

**(sf)**

**DEFINITION**

The treatment of unpaved roads and surfaces to reduce dust (airborne particulate matter) produced by vehicle and machinery traffic or wind action.

**PURPOSE**

This practice may be applied to—

- Improve air quality by reducing emissions of particulate matter (PM).
- Improve visibility by reducing emissions of PM.
- Improve plant health and vigor by reducing emissions of PM.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies to any nonvegetated, unpaved surface where vehicle or machinery movement or wind action would normally occur, such as an unpaved road, traffic area, parking lot, staging or assembly area, equipment storage lot, runway, loading and unloading area, and associated agricultural land.

It does not apply to paved surfaces, active rangeland and cropland, or to surfaces that are normally subject to animal activity (such as pens and corrals). Use NRCS Conservation Practice Standard (CPS) Dust Control from Animal Activity on Open Lot Surfaces (Code 375) for applications where animal activity is the primary source of dust.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Select an appropriate surface treatment based on—

- Site-specific dust mitigation goals.
- Typical frequency and duration of dust generation at site, based on observations, as well as—
  - Expected traffic (typical number and frequency of vehicles, average vehicle weight, average vehicle speed, number and types of wheels per vehicle, etc.).
  - Characteristics of the existing surface material (gradation, compaction, cohesiveness/bonding, durability, etc.).
  - Climate of the site and relationship to dust generation (precipitation, temperature, humidity, erosive wind potential).
- Environmental factors (potential for runoff, proximity to water bodies, etc.).

Properly prepare the unpaved surfaces for treatment and ensure good drainage from the surface.

Allowable dust suppressant categories are—

- Water.
- Water-absorbing products.
- Petroleum-based products.
- Organic nonpetroleum-based products.
- Electrochemical products.
- Clay additives.
- Polymer products.
- Fiber-based products.

Apply the dust-control product as prescribed by the product specifications. Follow all manufacturer's label directives, in accordance with Federal, State, and local laws and regulations. If manufacturer's specifications are not available, develop a plan for site-specific product application and maintenance to meet the intended purposes for dust suppression.

Dust suppressants require periodic reapplication based on traffic and other factors. Reapply dust suppressants as prescribed by the product guidance, or as identified in the plan for product application and maintenance.

When using water as a dust suppressant or as a component of a dust suppressant, ensure that an adequate water supply is available for the calculated application and reapplication needs. It may be necessary to reapply water frequently to maintain effective dust control. Obtain all permits or water rights as required by Federal, State, and local agencies.

## **CONSIDERATIONS**

Consider additional activities such as speed control, or minimizing or restricting vehicle and equipment movement on unpaved roads and surfaces.

Consider particle size distribution, plasticity, and compaction when evaluating an effective dust-control measure. Consider using a number 200 sieve analysis of the upper layer of the unpaved surface to determine percent fines less than 75 micrometers ( $\mu\text{m}$ ). Use this information as part of the process to select an appropriate treatment based on this analysis.

Consider both effectiveness and economics in the selection of an appropriate dust suppressant.

Use of water as the primary means of dust suppression is discouraged. Consider using water on a temporary or supplemental basis only.

Consider adding a surfactant with water application to increase the effectiveness period, reduce water reapplication frequency, and amount of water used.

Implement track-out control measures such as gravel pads at intersections with paved roads.

Consider using additional practices or activities such as filter strips (use NRCS CPS Standard Filter Strip (Code 393)) on the side of the road or unpaved area to minimize runoff of sediment or dust suppressants to a water body.

Consider using other associated conservation practice standards including NRCS CPSs Mulching (Code 484), Critical Area Planting (Code 342), Heavy Use Area Protection (Code 561), Hedgerow Planting (Code 422), or Windbreak/Shelterbelt Establishment (Code 380).

## PLANS AND SPECIFICATIONS

Prepare specifications for installation of CPS Dust Control on Unpaved Roads and Surfaces (Code 373) for each site or planning unit according to the criteria.

At a minimum, include the following in the plans and specifications:

- Location or area of the treatment.
- Identification of the treatment selected, including the dust mitigation goals and other factors used to select the treatment.
- Identification of any surface preparation and grading requirements prior to application of the selected treatment.
- Identification and description of the type and amount of material used for dust control, and method of application. Include any plans for required periodic reapplications of dust suppressants.
- Identification of any adjacent sensitive areas (e.g., fish spawning areas and water bodies).
- Identification of any supporting and facilitating practices used in conjunction with dust suppressant
- Records of product information sheets or material safety data sheets or equivalent, if applicable and available.

## OPERATION AND MAINTENANCE

Develop an operation and maintenance plan consistent with the purposes of this practice, its intended life, safety requirements, and the criteria used for its design. The plan must contain requirements including but not limited to—

- Maintenance of the surface treatment or reapplication of the dust suppressant, as needed, and including any additional surface preparation or maintenance requirements. Reapplication of the treatment if the planned area is heavily disturbed by grading or other major disturbance following the initial dust suppression treatment.
- Requirements for reapplication of the treatment if natural weathering has reduced the effectiveness of the initial treatment to the point where airborne PM from the surface is visible.

## REFERENCES

These references are available in the documents section of the NRCS Air Quality website.

Bolander, P. and A. Yamada, 1999. Dust Palliative Selection and Application Guide. Project Report 9977-1207-SDTDC. San Dimas Technology Development Center, U.S. Dept. of Agriculture, Forest Service, San Dimas, California.

Jones, D., Kociolek, A., Surdahl, R., Bolander, P., Drewes, B., Duran, M., Fay, L., Huntington, G., James, D., Milne, C., Nahra, M., Scott, A., Vitale, B., and Williams, B., 2013. Unpaved Road Dust Management, A Successful Practitioners Handbook. Federal Highway Administration Report No. FHWA-CFL/TD-13-00. 94 pp.