

Emissions Inventory Help Sheet for Vehicle Travel on Unpaved Roads

Travel on unpaved roads at a facility needs to be included in an emission inventory report. Identify which categories of the following types of equipment and speeds apply to your facility and use a separate **General Process Form** for each. On line 2 of the General Process Form, describe the type of equipment used on site and the average speed. If you do not want to use our default emission factors, please contact us for certain county parameters and be sure to submit an Emission Factor Calculation Form.

On the General Process Form:

line 4, "Process TIER Code" is **140799**.

line 5, "SCC Code" is: **30502504** for sand/gravel and concrete batch facilities
50100401 for landfills

PM₁₀ Emission Factors, lb/VMT at miles per hour (mph) average VMT = "Vehicle miles traveled"

Vehicle Type	PM ₁₀ Emission Factor (EF)								
	Enter EF in column 15, and enter "lb/VMT" in column 16								
	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph
Heavy-Duty Vehicles (e.g., haul trucks, cranes)	2.13	3.2	4.27	5.33	6.4	7.47	8.53	9.6	10.67
Medium-Duty Vehicles (e.g., front end loaders, forklifts)	0.57	0.86	1.14	1.43	1.71	2.0	2.28	2.57	2.85
Light-Duty Vehicles (e.g., pickup trucks)	0.29	0.44	0.59	0.74	0.88	1.03	1.18	1.33	1.47

The emissions factors above are **uncontrolled**. The calculation for travel without dust control is:

$$\text{Annual miles (line 11)} \times \text{emission factor (column 16)} = \text{PM}_{10} \text{ emissions (column 25)}$$

You may account for dust control efforts on haul roads if: (1) you use water or other dust suppressants, **and** (2) if you are in full compliance with the record keeping requirements in Rule 310, Fugitive Dust and/or Rule 316, Nonmetallic Mineral Mining and Processing. Record capture efficiency (in column 20) at 100%. A control efficiency (column 23) of 90% is allowed for regular watering or use of a chemical palliatives (dust suppressants). Document the dust control device used on a **Control Device Form**, using Control Type Code **217** (Dust Suppression).

The calculation including dust control is as follows:

$$\text{Annual miles (line 11)} \times \text{emission factor (column 16)} \times (1 - \text{control efficiency}) = \text{PM}_{10} \text{ (lbs., column 25)}$$

Example: Heavy-duty trucks traveled 1800 miles at 15 mph on regularly watered haul roads on site.
 $1800 \text{ VMT} \times 3.2 \text{ lb/VMT} \times [1 - (100\% \times 90\%)] = 576 \text{ lb. PM}_{10}$

NOTE: If your business has an issued or pending Title V permit, emissions from unpaved road travel should be reported on the "Data Certification / Fee Calculation" Form as "**PM₁₀ (non-billable)**".

Reference: U.S. EPA, "Compilation of Air Pollutant Emission Factors: Volume I: Stationary Point and Area Sources" (AP-42), fifth ed. Section 13.2.2.

Emissions Inventory EXAMPLE: Unpaved Road Travel

You may use this form for reporting. Indicate vehicle size and speed.

General Process Form – 2015

Permit number(s) _____

Place an X in any gray cell to mark data requested to be held confidential. See Instructions for requirements for information to be deemed confidential.

1- Process ID _____

circle one: light/medium/heavy

2- Process Type/Description: unpaved road travel, ^ ^ -duty vehicles @ mph

3- Stack ID(s) (only if required on Stack Form) NA

4- Process TIER Code: 140799 - fugitive dust

5- SCC Code 30502504 (8 digit number) _____

6- Seasonal Throughput Percent: Dec-Feb ____% Mar-May ____% Jun-Aug ____% Sep-Nov ____%

7- Normal Operating Schedule: Hours/Day ____ Days/Week ____ Hours/Year ____ Weeks/Year ____

8- Typical Hours of Operation (military time) Start ____ End ____

9- Emissions based on (name of material or other parameter) e.g. "rock", "diesel", "vehicle miles traveled" vehicle miles traveled

10- Used (input) or Produced (output) or Existing (e.g. VMT, acres)

11- Annual Amount (a number) _____ 12- Fuel Sulfur Content (in percent) _____

13- Unit of Measure (for example: tons, gallons, 1000 cu ft, acres, units produced, etc.) vehicle miles traveled

14- Unit Conversion Factor (if needed to convert Unit of Measure to correlate with Emission Factor Units, see Attachment 5) _____

Emission Factor (EF) Information				Control Device Information						
15	16	17	18	19	20	21	22	23	24	25
Pollutant	Emission Factor (EF) (number)	Emission Factor Unit (lb per)	Controlled EF? Yes or No	Calculation Method Code*	Capture% Efficiency	Primary Control Device ID	Secondary Control Device ID	Control Device(s) % Efficiency	Efficiency Reference Code**	Estimated Actual Emissions
PM-10		VMT	No	6						lb

VMT emission factors are uncontrolled. With daily watering & 4.5% minimum moisture content: capture efficiency = 100% and control efficiency = 90%.

How to calculate emissions: Multiply annual miles (line #11) x EF (lbs/VMT, column #16) x [1- column 23] = column #25, Estimated emissions.

***Calculation Method Codes**

- 1 = Continuous Emissions Monitoring Measurements
- 2 = Best Guess/ Engineering Judgment
- 3 = Material Balance
- 4 = Source Test Measurements (Stack Test)
- 5 = AP-42/ FIRE Method or Emission Factor

- 6 = State or Local Agency Emission Factor
- 7 = Manufacturer Specifications
- 8 = Site-Specific Emission Factor
- 9 = Vendor Emission Factor
- 10 = Trade Group Emission Factor

****Control Efficiency Reference Codes**

- 1 = Tested efficiency / EPA reference method
- 2 = Tested efficiency / other source test method
- 3 = Design value from manufacturer
- 4 = Best guess / engineering estimate
- 5 = Calculated, based on material balance
- 6 = Estimated, based on a published value