

## Mineral Crusher PTE Template

**Equipment:** One mobile non-metallic minerals crusher (50 ton/hr)  
(Limestone, construction debris, etc)  
One Conveyor (50 ton/hr)

### Calculations:

The emissions for this company are based on the following assumptions.

Emissions are from:

- Loading into Crusher
- Crushing
- Loading onto a conveyor
- Loading onto a storage pile from a conveyor

Capacity: 50 tons/hr

AP-42 Emission Factors:

*Crusher Loading (Chapter 11.19.2, Table 19.2-2)*

0.003 lb PM/ton of material throughput (Uncontrolled)

0.0011 lb PM<sub>10</sub>/ton of material throughput (Uncontrolled)

*Crushing (Chapter 11.19.2, Table 19.2-2)*

0.0390 lb PM/ton of material throughput (Uncontrolled Fines Crushing)

0.0150 lb PM<sub>10</sub>/ton of material throughput (Uncontrolled Fines Crushing)

*Crusher Unloading (Chapter 11, Table 19.2-2)*

0.0001 lb PM and PM<sub>10</sub> of material throughput (Uncontrolled)

*Unloading onto Pile (Equation 1 in Chapter 13, Section 13.2.4.3)*

Emission Factor (lb/ton) =  $k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$  U = Mean Wind Speed = 15mph

M = Moisture Content = 0.25

k = particle size multiplier = 0.74 for PM

= 0.35 for PM<sub>10</sub>

### PTE for PM:

Crusher Loading:

(50 ton/hr)(0.003 lb PM/ton) = 0.15 PM/hr

(0.15 lb PM/hr)(8760 hr/yr)(1 ton/2000 lb) = 0.657 ton PM/yr

Crushing:

(50 ton/hr)(0.0390 lb PM/ton) = 1.95 PM/hr

(1.95 lb PM/hr)(8760 hr/yr)(1 ton/2000 lb) = 8.541 ton PM/yr

Crusher Unloading:

(50 ton/hr)(0.0001 lb PM/ton) = 0.005 ton PM/hr

(0.005 lb PM/hr)(8760 hr/yr)(1 ton/2000 lb) = 0.0219 ton PM/yr

Unloading onto Pile:

$$(50 \text{ ton/hr})(0.74)(0.0032)(15/5)^{1.3}/(0.25/2)^{1.4} = 9.08 \text{ lb PM/hr}$$

$$(9.08 \text{ PM/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 39.77 \text{ tpy}$$

**Total = 48.99 tpy PM**

PTE for PM<sub>10</sub>:

Crusher Loading:

$$(50 \text{ ton/hr})(0.0011 \text{ lb PM}_{10}/\text{ton}) = 0.055 \text{ PM}_{10}/\text{hr}$$

$$(0.055 \text{ lb PM}_{10}/\text{hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 0.241 \text{ ton PM}_{10}/\text{yr}$$

Crushing:

$$(50 \text{ ton/hr})(0.0150 \text{ lb PM}_{10}/\text{ton}) = 0.75 \text{ PM}_{10}/\text{hr}$$

$$(0.75 \text{ lb PM}_{10}/\text{hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 3.285 \text{ ton PM}_{10}/\text{yr}$$

Crusher Unloading:

$$(50 \text{ ton/hr})(0.0001 \text{ lb PM}_{10}/\text{ton}) = 0.005 \text{ ton PM}_{10}/\text{hr}$$

$$(0.005 \text{ lb PM}_{10}/\text{hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 0.0219 \text{ ton PM}_{10}/\text{yr}$$

Unloading onto Pile:

$$(50 \text{ ton/hr})(0.35)(0.0032)(15/5)^{1.3}/(0.25/2)^{1.4} = 4.29 \text{ lb PM}_{10}/\text{hr}$$

$$(4.29 \text{ PM}_{10}/\text{hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 18.79 \text{ tpy}$$

**Total = 22.34 tpy PM<sub>10</sub>**

## Regulations

*40 CFR 60 Subpart 000*

This source is not subject to Subpart 000 since the throughput is 50 tons/hr, which is less than 150 tons/hr. Therefore fugitives emissions such as wind erosion from the pile and emissions from vehicle traffic on unpaved roads, are not accounted for in this PTE.