

Mineral Crusher PTE Template

Equipment:

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

Calculations:

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

Capacity: 50 tons/hr

Emissions are from:

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

AP-42 Emission Factors:

Crusher Loading (Chapter 11.19.2, Table 19.2-2)

0.003 lb PM/ton of material throughout (Uncontrolled)

0.0011 lb PM₁₀/ton of material throughout (Uncontrolled)

Crushing (Chapter 11.19.2, Table 19.2-2)

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

0.0150 lb PM₁₀/ton of material throughout (Uncontrolled Fines Crushing)

Crusher Unloading (Chapter 11, Table 19.2-2)

0.0001 lb PM and PM₁₀ of material throughout (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 = 15 mph

M = Moisture Content = 0.25

k = particle size multiplier = 0.74 for PM

= 0.35 for PM₁₀

PTE for PM:

Crusher Loading:

$$(50 \text{ ton/hr})(0.003 \text{ lb PM/ton}) = 0.15 \text{ PM/hr}$$

$$(0.15 \text{ lb PM/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 0.657 \text{ ton PM/yr}$$

Crushing:

$$(50 \text{ ton/hr})(0.0390 \text{ lb PM/ton}) = 1.95 \text{ PM/hr}$$

$$(1.95 \text{ lb PM/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = 8.541 \text{ ton PM/yr}$$

Crusher Unloading:

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

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

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 PM₁₀:

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 PM₁₀

Regulations

40 CFR 60 Subpart OOO

This source is not subject to Subpart OOO 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.