

PTE Evaluation for Blasting Cabinet

Scope: Construction Project

Equipment: One (1) Empire Abrasive Products Blast Cabinet

Assumptions:

- Nozzle size is 5/16"
- Nozzle pressure is 50 psi
- The capacity from Air Chart 468 lb/hr.
- Shot Emission Factor is approximately 10% of Sand's Emission Factor

Table 13.2.6-1. PARTICULATE EMISSION FACTORS FOR ABRASIVE BLASTING
(from AP-42)

Source	Particle size	Emission factor (Sand) lb/1,000 lb abrasive	Emission factor (Shot) lb/1,000 lb abrasive
Sand blasting of mild steel panels (SCC 3-09-002-02)	Total PM	27	2.63
	5 mph wind speed		
	PM ₁₀	13	1.27
	PM _{2.5}	1.3	0.13

Source (95% Controlled)	Particle size	Emission factor (Sand) lb/1,000 lb abrasive	Emission factor (Shot) lb/1,000 lb abrasive
Sand blasting of mild steel panels (SCC 3-09-002-02)	Total PM		
	5 mph wind speed	1.35	0.1317
	PM ₁₀	0.65	0.0634
	PM _{2.5}	0.065	0.0063

Shot Blasting Cabinet Uncontrolled:

PM (5 mph):

$$(468 \text{ lb/hr})(2.63 \text{ lb/1000 lb})(8760 \text{ hr/yr})/(2000 \text{ lb/ton}) = \mathbf{5.40 \text{ tpy}}$$

PM₁₀:

$$(468 \text{ lb/hr})(1.27 \text{ lb/1000 lb})(8760 \text{ hr/yr})/(2000 \text{ lb/ton}) = \mathbf{2.60 \text{ tpy}}$$

PM_{2.5}:

$$(468 \text{ lb/hr})(0.13 \text{ lb/1000 lb})(8760 \text{ hr/yr})/(2000 \text{ lb/ton}) = \mathbf{0.26 \text{ tpy}}$$

Shot Blasting Cabinet 95% Controlled:

PM (5 mph):

$$(468 \text{ lb/hr})(0.13 \text{ lb/1000 lb})(8760 \text{ hr/yr})/(2000 \text{ lb/ton}) = \mathbf{0.27 \text{ tpy}}$$

PM₁₀:

$$(468 \text{ lb/hr})(0.06 \text{ lb/1000 lb})(8760 \text{ hr/yr})/(2000 \text{ lb/ton}) = \mathbf{0.13 \text{ tpy}}$$

PM_{2.5}:

$$(468 \text{ lb/hr})(0.01 \text{ lb/1000 lb})(8760 \text{ hr/yr})/(2000 \text{ lb/ton}) = \mathbf{0.01 \text{ tpy}}$$

Conclusion:

This project is not a major source for any criteria pollutants.