

Texas Commission On Environmental Quality

INTEROFFICE MEMORANDUM

To: APD Technical Staff Date: March 17, 2006
 From: Robert Opiela, Team Leader
 Emissions Banking/Modeling Team (EBMT)
 Subject: Outdoor Blasting and Coating Adjustment Factor for Shrouds

Shrouds are obstacles to air flow. ISC3, SCREEN3, and AERMOD assume a Gaussian dispersion in the vertical. When shrouds are used, only a percentage of the emissions can escape above the shroud top. Based on the theoretical distribution of emissions in the vertical, the EBMT has chosen conservative adjustment factors to use under the following conditions:

- 1) Shrouds must have two, three or four sides with a shade factor of 85% or greater. Shade factor is defined in 30 TAC 111.131 (5) as percent of area impermeable to particles or sunlight.
- 2) Shroud sides must be connected and be taller and wider than the item blasted/coated.
- 3) The actual blasting/coating height of release from the application equipment must be at least one meter below the top of the shortest side of the shroud.

This adjustment factor is for modeling purposes only and must not be used to adjust the emission rates for the permit application. Other adjustment factors could be used based on the specific permit application and the merits of the technical justification. The applicant is still responsible for meeting all rules and permit conditions.

The following default adjustment factors are based on the actual height of release of the blasting/coating operation and the lowest height of a shroud side:

If Worst-Case Actual Blasting/Coating Height is > 0.75 of Shroud Top or < 1 Meter (about 3 Feet) below Shroud Top	Then No Adjustment Factor Can be Used	
If Worst-Case Actual Blasting/Coating Height is ...	Then Use the Applicable Factor to Adjust the Permitted Emission Rate for Modeling Purposes	
	Two Sides	Three, Four Sides
0.75 of the Shroud Top and > 1 Meter below the Shroud Top	0.8	0.6
≥ 0.50 and < 0.75 of the Shroud Top and > 1 Meter below the Shroud Top	0.5	0.3
≥ 0.25 and < 0.50 of the Shroud Top	0.4	0.2
< 0.25 of the Shroud Top	0.3	0.1

Use the area source characterization for this modeling approach. Area dimensions are based on the rectangle formed by the shroud around the blasting/coating operational area. The modeled height of release would be the top of the shroud if the height of the shrouds is uniform; otherwise, the shortest height would be used. Use the applicable adjustment factor to determine the emission rate for modeling purposes.

Example A:

Two-sided shroud: 10' wide × 10' high side connected to 15' wide × 9' high side

Item to be blasted: 5' wide × 10' long × 5' high (blasting can be at 5', 0.55 shroud top height and > 3' from top)

Permitted Emission rate: 10 lb/hr → with modeling adjustment 0.5 → leads to modeled rate 5 lb/hr

Area source: northerly length 10', easterly length 15', release height 9'

Example B:

Three-sided shroud: 10' wide × 10' high side connected to 15' wide × 9' high side connected to 10' wide × 10' high side

Item to be blasted: 5' wide × 10' long × 6' high (blasting can be at 6', 0.67 shroud top height and > 3' from top)

Permitted Emission rate: 10 lb/hr → with modeling adjustment 0.3 → leads to modeled adjusted rate 3 lb/hr

Area source: northerly length 10', easterly length 15', release height 9'