

## PTE Evaluation for Spray Booth

**Equipment:** One Spray booth

### Calculations:

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

Maximum emissions are when the company manufactures and paints military cots. Source can generate 80 cots/shift and requires 4 gallons to coat 80 units. It takes approximately 1 minute to move parts into booth, 5.0 minutes to spray a rack of 12 pieces which equal 3 cots and 1 minute to remove for a total of 7 minutes/3 cots, which equals 186.67 minutes (3.1 hours) to coat 80 cots. Therefore, the bottleneck is not the spray booth but the manufacturing operation which has a limit of 80 units/8 hours.

Required primer and basecoat are listed below:

Primer, lb/gal	VOC: 4.36	Single HAP: 3.27 (Xylene)	Total HAP: 4.36
basecoat, lb/gal	VOC: 4.75	Single HAP: 1.16 (Xylene)	Total HAP: 2.63
Cleanup, lb/gal	VOC at 7.2 lb/gal	Single HAP: 0.0	Total HAP: 0.0

Transfer efficiency of guns = 35%  
Weight of primer solids = 6.14 lb/gal  
Weight of base coat solids = 3.00 lb/gal  
Cleanup uses 8 ounces/shift of mineral spirits

### PTE for VOC

Primer:  $80 \text{ cots}/8 \text{ hours} * 8760 \text{ hrs/yr} * 4 \text{ gal}/80 \text{ cots} * 4.36 \text{ lb/gal} * 1 \text{ ton}/2000 \text{ lbs} = 9.55 \text{ tpy}$   
Basecoat:  $80 \text{ cots}/8 \text{ hours} * 8760 \text{ hrs/yr} * 4 \text{ gal}/80 \text{ cots} * 4.75 \text{ lb/gal} * 1 \text{ ton}/2000 \text{ lbs} = 10.40 \text{ tpy}$   
Cleanup:  $8/128 \text{ gal/shift} * 7.2 \text{ lb/gal} * 3 \text{ shifts/day} * 365 \text{ days/yr} * 1 \text{ ton}/2000 \text{ lbs} = 0.25 \text{ tpy}$   
Total =  $9.55 + 10.40 + 0.25 = \mathbf{20.20 \text{ PTE VOC}}$

### PTE for Single HAPs

Primer:  $80 \text{ cots}/8 \text{ hours} * 8760 \text{ hrs/yr} * 4 \text{ gal}/80 \text{ cots} * 3.27 \text{ lb/gal} * 1 \text{ ton}/2000 \text{ lbs} = 7.16 \text{ tpy}$   
Basecoat:  $80 \text{ cots}/8 \text{ hours} * 8760 \text{ hrs/yr} * 4 \text{ gal}/80 \text{ cots} * 1.16 \text{ lb/gal} * 1 \text{ ton}/2000 \text{ lbs} = 2.54 \text{ tpy}$   
Cleanup: zero  
Total =  $7.16 + 2.54 + 0 = \mathbf{9.70 \text{ PTE Single HAP}}$

### PTE for **Total HAPs**

Primer:  $80 \text{ cots/8 hours} * 8760 \text{ hrs/yr} * 4 \text{ gal/80 cots} * 4.36 \text{ lb/gal} * 1 \text{ ton/2000 lbs} = 9.55 \text{ tpy}$

Basecoat:  $80 \text{ cots/8 hours} * 8760 \text{ hrs/yr} * 4 \text{ gal/80 cots} * 2.63 \text{ lb/gal} * 1 \text{ ton/2000 lbs}$

Cleanup: zero

Total =  $9.55 + 5.76 + 0 =$  **15.31 PTE Total HAPs**

### PTE for **PM** (uncontrolled)

Primer:  $80 \text{ cots/8 hours} * 8760 \text{ hrs/yr} * 4 \text{ gal/80 cots} * 6.14 \text{ lb/gal} * 1 \text{ ton/2000 lbs} * (1-.35)$   
spraygun efficiency = 8.74 tpy

Basecoat: Primer:  $80 \text{ cots/8 hours} * 8760 \text{ hrs/yr} * 4 \text{ gal/80 cots} * 3.00 \text{ lb/gal} * 1 \text{ ton/2000 lbs} * (1-.35)$   
spraygun efficiency = 4.27 tpy

Cleanup: zero

Total =  $8.74 + 4.27 + 0 =$  **13.01 tpy PTE PM**

### **Conclusion:**

The source is not major for any criteria pollutants or HAP emissions. Source should be designated a minor source

