

## Attachment D: Wood Refinisher Worksheet    Utah Division of Air Quality

**Business Name** \_\_\_\_\_ **Date** \_\_\_\_\_

The calculations on this worksheet will help to determine the estimated emissions from the dust collection and painting operations. If the results do not exceed 5 tons per year you are eligible for the Small Source Exemption. After completing this worksheet, enter the emission estimates in **Section IV, Air Emission Information**, of the Small Source Registration Notice. If you need assistance filling out this form please contact the Small Business Assistance Program (SBAP) at the Division of Air Quality at 536-4000, if you live in the Salt Lake City area or 1-800-270-4440, toll-free outside of the Salt Lake City area.

### (1) Dust Collection Emissions

		Column A	Column B	Column C	Column D
Location/ Name	Type: Cyclone Baghouse	Emission Rate (gr/cu. ft.)	Fan Size CFM (cu.ft/min.)	Hours of Operation Per Year	Emissions (lbs/yr)
<b>1.</b>					
<b>2.</b>					
<b>3.</b>					
<b>Total PM<sub>10</sub> Emissions in Lbs/yr</b>				<b>Box X:</b>	
<b>Total PM<sub>10</sub> Emissions in Tons/yr</b>				<b>Box Y:</b>	

To determine particulate matter (PM<sub>10</sub>) emissions, which is the dust that is discharged to the outside air, use the following procedure. Do not estimate emissions for dust collection systems discharging to interior building spaces.

- Step 1**    The emission rate, how dirty the air is as it leaves the control device, the Division uses an emission rate of **0.016 grains per cubic foot (gr/cf) for baghouse dust collection systems**, if the manufacturers designed emissions rates are not known. For **cyclone dust collection systems, use 0.055 gr/cf**. Enter the number in Column A for each air pollution control device. Note: Do not include dust emission estimates for equipment discharging to the inside of buildings for this calculation.
- Step 2**    Enter your air flow in cubic feet per min (cfm) in Column B. Refer to your manufacturer’s manual, name plate data or contact your vendor for this number. A fact sheet titled, *How to Estimate Your Baghouse Discharge*, is available to estimate air flow passing thru equipment.
- Step 3**    Estimate the hours you operate your dust collector per year. You can do this on a monthly basis and then multiply by 12 for a yearly estimate. Enter number in Column C.
- Step 4**    The emission estimate, column D, is calculated by multiplying Column A by the cfm in Column B. Multiply that number by 60 to convert from minutes to hours. Multiply that number by the hours in Column C. Divide by 7000 to convert grains per year to pounds per year. **D=A x B x C x 60 / 7000**, enter numbers in Column D.
- Step 5**    Add all the results in column D for a total in box X. Divide the total in X by 2000 to convert to tons per year, **Y=X/2000**, enter number in Box Y. If this total does not exceed 5 tons per year you can use the Small Source Registration Notice. If the number exceeds 5 tons per year review hours of operation and fan size for accuracy. Note: Compliance inspectors can ask for documentation of all information of on these forms. If after reviewing the numbers the total still exceeds 5 tons per year you will need an air permit. Contact the Small Business Assistance Program for the additional information you will need to submit to receive an air permit.

**(2) Painting Emissions:**

Column A	Column B	Column C	Column D
Paint Name	Volatile Organic Compounds Content in Coating (VOC-lbs/gal)	Gallons Per Year	Pounds Per Year (VOC)
1. Stains	5.8		
2. Washcoat	4.0		
3. Fillers	4.2		
4. Sealers	4.6		
5. Topcoats	4.6		
6. Solvents	7.0		
7. Other (adhesives, etc.): _____			
8. Other (adhesives, etc.): _____			
<b>Total Emissions in Lbs/yr</b>			<b>Box X:</b>
<b>Total Emissions in Tons/yr</b>			<b>Box Y:</b>

To determine volatile organic compound (VOC) emissions, which is a regulated pollutant, use the procedure below:

- Step 1 Estimate the total gallons of products (use Column A as a guideline for categories) that you use on an annual basis. Include all the chemicals you use at your business. This can be estimated by recording what you use in an average month and then multiplying by 12 to convert to annual basis. Enter number in Column C.
- Step 2 Multiply the gallons per year in Column C by the pounds of VOCs per gallon that is given in Column B. Column B contains typical VOC values for these products. You can use these values or correct the value to match the actual products you use for a more accurate estimate of VOC's per year.  $D = B \times C$ , enter the number in Column D. The VOC content per gallon of coating can be obtained from your Material Safety Data Sheets (MSDS), if the content is not listed in Column B.
- Step 3 Add the numbers in column D and enter total in Box X. Divide Box X by 2,000 to convert pounds to tons,  $Y = X / 2000$ , enter the number in Box Y. If this total does not exceed 5 tons per year you can use the Small Source Registration Notice. If the number exceeds 5 tons per year, review hours of operation and fan size for accuracy. Note: Compliance inspectors can ask for documentation of all information of on these forms. If after reviewing the numbers the total still exceeds 5 tons per year you will need an air permit. Contact the Small Business Assistance Program for the additional information you will need to submit to receive an air permit.

Remember volatile organic compounds are often hazardous air pollutants, so do not forget to estimate the hazardous air pollutants in the paints, solvents and other chemicals used at the business.

## Example:

### Attachment D: Wood Refinisher Worksheet Utah Division of Air Quality

Business Name The Finish House Date 8-15-97

The calculations on this worksheet will help to determine the estimated emissions from the dust collection and painting operations. If the results do not exceed 5 tons per year you are eligible for the Small Source Exemption. After completing this worksheet, enter the emission estimates in **Section IV, Air Emission Information**, of the Small Source Registration Notice. If you need assistance filling out this form please contact the Small Business Assistance Program (SBAP) at the Division of Air Quality at 536-4000, if you live in the Salt Lake City area or 1-800-270-4440, toll-free outside of the Salt Lake City area.

#### (1) Dust Collection Emissions

		Column A	Column B	Column C	Column D
Location/ Name	Type: Cyclone Baghouse	Emission Rate (gr/cu. ft.)	Fan Size CFM (cu.ft/min.)	Hours of Operation Per Year	Emissions (lbs/yr)
1. East Side	Baghouse	0.016	7,000	1,500	1,440
2. West Side	Cyclone	0.055	8,000	1,200	4,525
3.					
Total PM <sub>10</sub> Emissions in Lbs/yr				Box X:	5,965
Total PM <sub>10</sub> Emissions in Tons/yr				Box Y:	2.9

To determine particulate matter (PM<sub>10</sub>) emissions, which is the dust that is discharged to the outside air, use the following procedure. Do not estimate emissions for dust collection systems discharging to interior building spaces.

- Step 1 The emission rate, how dirty the air is as it leaves the control device, the Division uses an emission rate of **0.016 grains per cubic foot (gr/cf) for baghouse dust collection systems**, if the manufacturers designed emissions rates are not known. For **cyclone dust collection systems, use 0.055 gr/cf**. Enter the number in Column A for each air pollution control device. Note: Do not include dust emission estimates for equipment discharging to the inside of buildings for this calculation.
- Step 2 Enter your air flow in cubic feet per min (cfm) in Column B. Refer to your manufacturer's manual, name plate data or contact your vendor for this number. A fact sheet titled, *How to Estimate Your Baghouse Discharge*, is available to estimate air flow passing thru equipment.
- Step 3 Estimate the hours you operate your dust collector per year. You can do this on a monthly basis and then multiply by 12 for a yearly estimate. Enter number in Column C.
- Step 4 The emission estimate, column D, is calculated by multiplying Column A by the cfm in Column B. Multiply that number by 60 to convert from minutes to hours. Multiply that number by the hours in Column C. Divide by 7000 to convert grains per year to pounds per year.  $D = A \times B \times C \times 60 / 7000$ , enter numbers in Column D.
- Step 5 Add all the results in column D for a total in box X. Divide the total in X by 2000 to convert to tons per year,  $Y = X / 2000$ , enter number in Box Y. If this total does not exceed 5 tons per year you can use the Small Source Registration Notice. If the number exceeds 5 tons per year review hours of operation and fan size for accuracy. Note: Compliance inspectors can ask for documentation of all information of on these forms. If after reviewing the numbers the total still exceeds 5 tons per year you will need an air permit. Contact the Small Business Assistance Program for the additional information you will need to submit to receive an air permit.

**(2) Painting Emissions:**

Column A	Column B	Column C	Column D
Paint Name	Volatile Organic Compounds Content in Coating (VOC-lbs/gal)	Gallons Per Year	Pounds Per Year (VOC)
1. Stains	5.8	450	2,610
2. Washcoat	4.0	100	400
3. Fillers	4.2	--	--
4. Sealers	4.6 3.2	400	1,280
5. Topcoats	4.6		
6. Solvents	7.0		
7. Other (adhesives, etc.): _____			
8. Other (adhesives, etc.): _____			
<b>Total Emissions in Lbs/yr</b>			<b>Box X: 4,290</b>
<b>Total Emissions in Tons/yr</b>			<b>Box Y: 2.1</b>

To determine volatile organic compound (VOC) emissions, which is a regulated pollutant, use the procedure below:

- Step 1 Estimate the total gallons of products (use Column A as a guideline for categories) that you use on an annual basis. Include all the chemicals you use at your business. This can be estimated by recording what you use in an average month and then multiplying by 12 to convert to annual basis. Enter number in Column C.
- Step 2 Multiply the gallons per year in Column C by the pounds of VOCs per gallon that is given in Column B. Column B contains typical VOC values for these products. You can use these values or correct the value to match the actual products you use for a more accurate estimate of VOC's per year. **D= B x C**, enter the number in Column D. The VOC content per gallon of coating can be obtained from your Material Safety Data Sheets (MSDS), if the content is not listed in Column B.
- Step 3 Add the numbers in column D and enter total in Box X. Divide Box X by 2,000 to convert pounds to tons, **Y= X/2000**, enter the number in Box Y. If this total does not exceed 5 tons per year you can use the Small Source Registration Notice. If the number exceeds 5 tons per year, review hours of operation and fan size for accuracy. Note: Compliance inspectors can ask for documentation of all information of on these forms. If after reviewing the numbers the total still exceeds 5 tons per year you will need an air permit. Contact the Small Business Assistance Program for the additional information you will need to submit to receive an air permit.

Remember volatile organic compounds are often hazardous air pollutants, so do not forget to estimate the hazardous air pollutants in the paints, solvents and other chemicals used at the business.