

# WV Department of Environmental Protection

## Division of Air Quality

### Air Quality Permitting Guide for Miscellaneous Metal Parts Coating & Spray Painting Operations



Compiled by  
WVDEP Small Business Assistance Program





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## Introduction

Coating sources have become increasingly regulated in recent years under the Clean Air Act (CAA). Since portions of this industry sector were in large part unregulated under the air program in West Virginia in the past, information on how to deal with the rules and requirements, and indeed, how to obtain an air quality permit has been hard to figure out. Outreach efforts via the Internet have increased in recent years and this West Virginia specific guide is designed to be a comprehensive resource for paint/coating shops pertaining to air rules, regulations and permitting history.

The U.S. Environmental Protection Agency (EPA) came out with guidance in the form of memoranda after the 1990 CAA Amendments increased permitting requirements for sources that emit Hazardous Air Pollutants or HAPs (see list on page 35). The volatile organic compounds (VOCs) in paint can contain many HAPs such as xylene, toluene, ethylbenzene, methyl isobutyl ketone, etc. Emission calculations for all of these pollutants are usually based on Potential to Emit (PTE) or how much can be emitted if a facility operates every hour of the year. EPA recognized that this PTE shouldn't apply to paint booths as the most straightforward examples of such inherent limitations are for single-emission unit type operations. One EPA memo from this time period states:

For example, EPA does not believe that the "maximum capacity" language requires that owner of a paint spray booth at a small auto body shop must assume that (even if the source could be in operation year-round) spray equipment is operated 8,760 hours per year in cases where there are inherent physical limitations on the number of cars that can be painted within any given period of time.<sup>1</sup>

And further, EPA recognizes that emissions limitations for some processes can be created through standardized protocols. For example, limitations on potential to emit could be established for VOC sources on the basis of limits on solvent use, backed up by record keeping and by periodic reporting ... In all cases, of course, the technical requirements would need to be supported by sufficient compliance procedures, especially monitoring and reporting, to be considered enforceable.<sup>2</sup>

Essentially, it boils down to this - EPA realizes that very few facilities only paint. For the most part, they also do something else, such as metal fabrication or constructing cabinets. Therefore, the potential should be based on only the time one coats, then expand this throughout all three potential work shifts to get potential emissions.

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<sup>1</sup>John S. Seitz, Director of Office of Air Quality Planning and Standards (MD-10) and Robert I. Van Heuvelen, Director of Regulatory Enforcement (2241), *Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the CAA: A White Paper* (Released 1/25/95) NOTE: Although this example uses cars, the same concept applies to coating miscellaneous metal parts, cabinets, etc. Auto body shops typically do not use a large enough quantity of paint to require an air quality permit.

<sup>2</sup>John S. Seitz, Director of Office of Air Quality Planning and Standards (MD-10), *Approaches to Creating Federally-Enforceable Emissions Limits: A White Paper* (Released November 3, 1993)

# **State Rules**

**Governing Coating/Painting Sources**

## Rule 13 (45CSR13)

In West Virginia, the state rule that governs the construction of minor sources is 45CSR13, or Rule 13. If you paint miscellaneous metal parts, you may require an air quality permit. In order to complete an air quality permit application, you must be able to calculate your actual coating emissions, including VOC's, overspray particulate matter and HAP's (see list on page 35). From these actuals, you must also calculate your PTE to determine if your source is also subject to major source permitting (Title V). This PTE should be based on the amount of time a facility uses its coating operations vs. the total time open doing business.

The next section walks you through doing the needed calculations, using a spreadsheet for coating sources prepared by the West Virginia Division of Air Quality's (DAQ) Small Business Assistance Program (SBAP). The spreadsheet can be accessed at <http://www.dep.wv.gov/daq/small%20business/Pages/EmissionCalculationToolsandOutreach.aspx>

Volatile Organic Compounds

Actual Emissions Estimate

Actual Hours of Total Operation

Coating Operation (hours/year)

	Coating/Stain/Solvent Description	Coating Usage (gal/yr) <sub>Act.</sub>	Coating Usage (gal/yr) <sub>Max.</sub>	VOC Content (lb/gal)		Emission Rate (ton/yr)
1			0			0
2			0			0
3			0			0
4			0			0
5			0			0
6			0			0
7			0			0
8			0			0
9			0			0
10			0			0
11			0			0
12			0			0
13			0			0
14			0			0
15			0			0
16			0			0
17			0			0
18			0			0
19			0			0
20			0			0
21			0			0
22			0			0
23			0			0
24			0			0
25			0			0
26			0			0
27			0			0
28			0			0
29			0			0
30			0			0

Total VOC Emissions      0

Total Avg Hrly VOC Emissions      #DIV/0!

Particulate Matter

Actual Emissions Estimate

0  
0

Transfer Efficiency (%)
0

Settling Chamber Efficiency (%)
0

	Coating/Stain/Solvent Description	Density (lb/gal)	Coating Usage (gal/yr)	PM Content (lb/gal)		Emission Rate (ton/yr)
1	0		0	0		0
2	0		0	0		0
3	0		0	0		0
4	0		0	0		0
5	0		0	0		0
6	0		0	0		0
7	0		0	0		0
8	0		0	0		0
9	0		0	0		0
10	0		0	0		0
11	0		0	0		0
12	0		0	0		0
13	0		0	0		0
14	0		0	0		0
15	0		0	0		0
16	0		0	0		0
17	0		0	0		0
18	0		0	0		0
19	0		0	0		0
20	0		0	0		0
21	0		0	0		0
22	0		0	0		0
23	0		0	0		0
24	0		0	0		0
25	0		0	0		0
26	0		0	0		0
27	0		0	0		0
28	0		0	0		0
29	0		0	0		0
30	0		0	0		0

Total PM Emissions		0
--------------------	--	---

Total Avg Hrly PM Emissions	#DIV/0!
-----------------------------	---------



Hazardous Air Pollutants

Actual Emissions Estimate

0  
0

Coating Operation (hours/year)
0

#	Coating/Stain/Solvent Description	Density (lb/gal)	HAP Constituent	% HAP Content		Emission Rate (ton/yr)
1		0	None			0
2		0	None			0
3		0	None			0
4		0				0
5		0				0
6		0				0
7		0				0
8		0				0
9		0				0
10		0				0
11		0				0
12		0				0
13		0				0
14		0				0
15		0				0
16		0				0
17		0				0
18		0				0
19		0				0
20		0				0
21		0				0
22		0				0
23		0				0
24		0				0
25		0				0
26		0				0
27		0				0
28		0				0
29		0				0
30		0				0
31		0				0
32		0				0
33		0				0
34		0				0
35		0				0
36		0				0
37		0				0
38		0				0
39		0				0
40		0				0

Total HAP Emissions		0
---------------------	--	---

Total Avg Hrly HAP Emissions		#DIV/0!
------------------------------	--	---------





# Coating Spreadsheet Instructions

The next section describes how to calculate your coating facilities emissions for inclusion in a West Virginia air quality permit application.

Some coating facilities have always required permits in West Virginia, such as the larger miscellaneous metal parts coaters and electric motor burnout facilities which paint the rebuilt motors. Others, such as auto body coat-ers, rarely, if ever received air quality permits. The permitting thresholds pursuant to 45CSR13 are as follows:

- 6 Pounds Per Hour (PPH) and 10 Tons Per Year (TPY) or 144 Pounds Per Day (PPD) of criteria pollutants such as Particulate Matter (PM) and Volatile Organic Compounds (VOC's).
- 2 PPH or 5 TPY of Hazardous Air Pollutants (HAPs).

The spreadsheet included with this guide is to help determine permitting applicability for sources, and if a permit is required, calculations for inclusion in the application. The bonus using the maximum emissions estimated via the spreadsheet is that if these amounts are used for the permit, it gives the facility a built in buffer in case of increased paint usage in future years, due to growth.

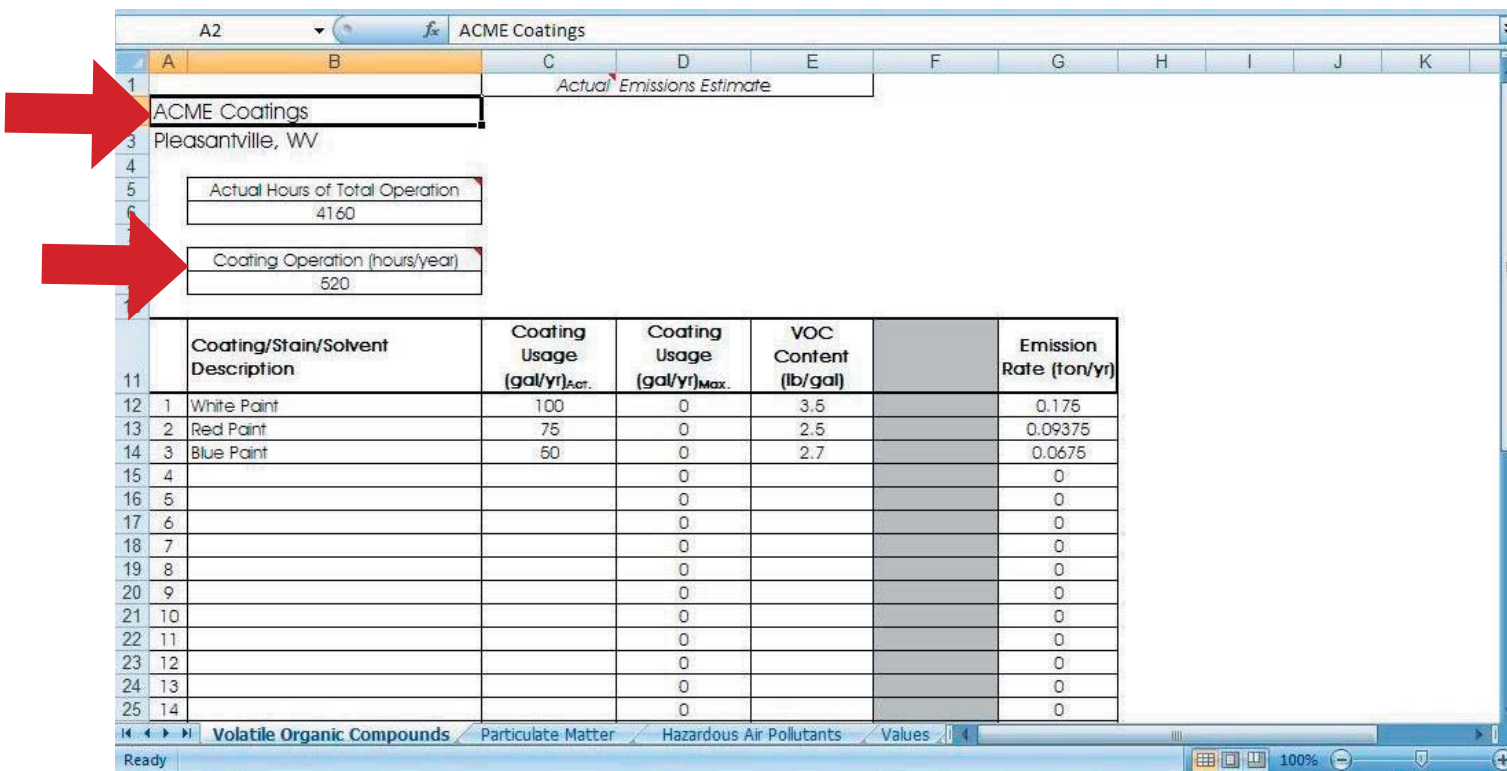
The purpose of the coating spreadsheet is to calculate actual and maximum yearly emissions estimates for VOC, HAP, and PM or overspray.

In order to complete the spreadsheet, you must have a Material Safety Data Sheet (MSDS) or better yet, a Product Data Sheet for each coating, stain, and solvent you use in your facility. You must also know how much of each you use in gallons per year.

To begin, make sure that you are on the first spreadsheet tab. You can do this by clicking on the “Volatile Organic Compounds” tab at the bottom of the spreadsheet (as indicated by the red arrow below).

Coating/Stain/Solvent Description	Coating Usage (gal/yr) <sub>Act.</sub>	Coating Usage (gal/yr) <sub>Max.</sub>	VOC Content (lb/gal)	Emission Rate (ton/yr)
1 White Paint	100	0	3.5	0.175
2 Red Paint	75	0	2.5	0.09375
3 Blue Paint	50	0	2.7	0.0675
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0

First, you need to enter your company and location information in the upper left corner of the spreadsheet. Next, you need to calculate the Actual Hours of Total Operation and Coating Operation.



The Actual Hours of Total Operation is the number of hours your business is open per year. For example, a business that is open 40 hours per week would have 2080 actual hours of total operation (40 hours/week x 52 weeks/year = 2080 hours/year). Enter the number of hours **your company** is open into the box underneath “Actual Hours of Total Operation.”

The Coating Operation is the number of hours each year you spend coating. For example, a business that is open 5 days a week and spends 2 hours per day coating would have 520 hours of coating operation (2 hours/day x 5 days/week x 52 weeks/year = 520 hours/year). Enter the number of hours you have **calculated for your company** into the box below “Coating Operation (hours/year).” This number is key and will have a large part in calculating your potential emissions. Therefore, if you need to keep a record for a few weeks to get it right, please do so.

Next you need to fill out the Volatile Organic Compound (VOC) portion of the spreadsheet by entering information on each coating, stain, and solvent. You will need your MSDS records for this section. You could use a Product Data Sheet (PDS) instead, but it may not list the percent of hazardous air pollutants as the MSDS does.

In the first column, “Coating/Stain/Solvent Description,” enter the name of the coating/stain/solvent as it is named under the product identification section of its MSDS or PDS.

In the second column, “Coating Usage,” enter the amount of each coating that you use, in gallons per year, for either the last full year, or the last rolling year (for example, November to November).

**Leave the third column empty.**

In the fourth column, “VOC Content,” enter the calculated VOC content, excluding water (in pounds per gallon). This can be found under the regulatory information section or under physical and chemical properties on the MSDS or PDS. There is no specified format for an MSDS or PDS, so this information may be found in another section. However, it should be listed in one of the following ways:

- VOC content (lb/gal)- this is the number as you want it
- VOC content (g/L)- you can convert this number to lb/gal by multiplying it by 3.785
- VOC % by weight - You will need to know the density of your coating to convert this number. If the density is not listed on your MSDS or PDS, you can calculate it using its specific gravity or relative density. One of these should be included in your MSDS or PDS. Multiplying the specific gravity or relative density by 8.33 will give you the density of your coating. Then multiply this by the VOC % by weight to get the desired number.
- VOC % by volume- ignore this, it is not useful!

If you are still having problems identifying the VOC content, you may want to call the phone number listed on the MSDS or PDS and speak with the technical department for assistance.

**Enter the VOC content information in lb/gal for each coating or solvent you use at your facility.**

Once you have added this information, the spreadsheet will automatically calculate the numbers in the “Emission Rate (ton/year)” box. Do not delete or change this information.

Next you will complete the Particulate Matter (PM) section of the spreadsheet. To get to this section, click the “Particulate Matter” tab at the bottom of the page.

Coating/Stain/Solvent Description		Coating Usage (gal/yr) <sub>Act.</sub>	Coating Usage (gal/yr) <sub>Max.</sub>	VOC Content (lb/gal)	Emission Rate (ton/yr)
1	White Paint	100	0	3.5	0.175
2	Red Paint	75	0	2.5	0.09375
3	Blue Paint	50	0	2.7	0.0675
4			0		0
5			0		0
6			0		0
7			0		0
8			0		0
9			0		0
10			0		0
11			0		0
12			0		0
13			0		0
14			0		0
15			0		0
16			0		0
17			0		0
18			0		0
19			0		0
20			0		0
21			0		0
22			0		0
23			0		0
24			0		0
25			0		0

At the top of the Particulate Matter page will be two boxes - “Transfer Efficiency” and “Settling Chamber Efficiency.”

Coating/Stain/Solvent Description		Density (lb/gal)	Coating Usage (gal/yr)	PM Content (lb/gal)	Emission Rate (ton/yr)
1	White Paint	8.6	100	5.1	0.03315
2	Red Paint	10.2	75	7.7	0.0375375
3	Blue Paint	9.8	50	7.1	0.023075
4	0		0	0	0
5	0		0	0	0
6	0		0	0	0
7	0		0	0	0
8	0		0	0	0
9	0		0	0	0
10	0		0	0	0
11	0		0	0	0
12	0		0	0	0
13	0		0	0	0
14	0		0	0	0
15	0		0	0	0
16	0		0	0	0
17	0		0	0	0
18	0		0	0	0
19	0		0	0	0
20	0		0	0	0
21	0		0	0	0
22	0		0	0	0
23	0		0	0	0
24	0		0	0	0
25	0		0	0	0



Transfer efficiency is the amount of paint which lands on the part you are painting, and is based on the way you apply the paint. Choose the amount from the following table which corresponds with your method of application, and type it into the box underneath “Transfer Efficiency (%)”.

Application Method	Transfer Efficiency
Air Atomization	30
Airless	45
Electrostatic/Air Atomization	70
Electrostatic/Airless	75
HVLP (High Volume Low Pressure)	75

The settling chamber efficiency is based on the amount of PM or overspray that settles in the area where you are painting. If you are painting in a fully enclosed area, this number will be 80%. If you are not painting in a fully enclosed area it will be 0%. Type the number that best describes your operation in the box underneath “Settling Chamber Efficiency (%)”.

In the main section of the PM page, you will notice that the coating names and coating usage from the page you filled out previously (the VOC page) have been transferred over. You will now be entering the density and coating usage information for these coatings. You will need your MSDS records for this section also.

The screenshot shows an Excel spreadsheet titled "Actual Emissions Estimate". The spreadsheet has columns A through K. Row 1 is the title. Row 2 contains "ACME Coatings" and "Pleasantville, WV". Rows 5-7 contain input boxes for "Transfer Efficiency (%)" with the value 35. Rows 8-9 contain input boxes for "Settling Chamber Efficiency (%)" with the value 80. Row 11 is the start of a table with the following data:

Coating/Stain/Solvent Description	Density (lb/gal)	Coating Usage (gal/yr)	PM Content (lb/gal)	Emission Rate (ton/yr)
1 White Paint	8.6	100	5.1	0.03315
2 Red Paint	10.2	75	7.7	0.0375375
3 Blue Paint	9.8	50	7.1	0.023075
4 0		0	0	0
5 0		0	0	0
6 0		0	0	0
7 0		0	0	0
8 0		0	0	0
9 0		0	0	0
10 0		0	0	0
11 0		0	0	0
12 0		0	0	0
13 0		0	0	0
14 0		0	0	0

In order to find the density of your coatings, you will need to look at the MSDS reports for each. Under the “Physical and Chemical Properties” section, the density, or weight of the coating (in pounds per gallon), may be listed. If so, enter this into the “Density (lb/gal)” column. Repeat this step for each coating.

If this information is not on the MSDS report, you can calculate the density of your coating using the specific gravity or relative density. One of these should be included in the same section of the MSDS. Multiplying the specific gravity or relative density by 8.33 will give you the density of your coating. Type this number into the “Density (lb/gal)” box.

Again, make sure to enter this information for each coating.

The screenshot shows an Excel spreadsheet with the following data in the table:

	Coating/Stain/Solvent Description	Density (lb/gal)	Coating Usage (gal/yr)	PM Content (lb/gal)	Emission Rate (ton/yr)
12	1 White Paint	8.6	100	5.1	0.03315
13	2 Red Paint	10.2	75	7.7	0.0375375
14	3 Blue Paint	9.8	50	7.1	0.023075
15	4 0		0	0	0
16	5 0		0	0	0
17	6 0		0	0	0
18	7 0		0	0	0
19	8 0		0	0	0
20	9 0		0	0	0
21	10 0		0	0	0
22	11 0		0	0	0
23	12 0		0	0	0
24	13 0		0	0	0
25	14 0		0	0	0

Additional information from the spreadsheet:

- Actual Emissions Estimate: 8.6
- Transfer Efficiency (%): 35
- Settling Chamber Efficiency (%): 80

The spreadsheet is currently on the 'Hazardous Air Pollutants' tab, indicated by a red arrow pointing to the tab label.

Once on the Hazardous Air Pollutant page, you will notice that the “Density (lb/gal)” boxes are already filled out. Do not change these numbers. You will only be entering information into the “HAP Constituent” and “% HAP Content” boxes.

A12    1

Actual Emissions Estimate

ACME Coatings  
Pleasantville, WV

Coating Operation (hours/year)  
520

	Coating/Stain/Solvent Description	Density (lb/gal)	HAP Constituent	% HAP Content	Emission Rate (ton/yr)
12	1 White Paint	8.6	Benzene	12	0.0516
13	2 Red Paint	10.2	Napthalene	35	0.133875
14	3 Blue Paint	9.8	Toluene	29	0.07105
15	4	0			0
16	5	0			0
17	6	0			0
18	7	0			0
19	8	0			0
20	9	0			0
21	10	0			0
22	11	0			0
23	12	0			0
24	13	0			0
25	14	0			0
26	15	0			0

Volatle Organic Compounds    Particulate Matter    **Hazardous Air Pollutants**    Values

Under the “Coating/Stain/Solvent Description column,” each cell contains a drop down box with the coatings/ solvents you entered on the first page of the spreadsheet. Click on the box and there will be a drop down menu. Then, click on the downward pointing arrow. This will present a list the solvents you entered on the VOC page. You will be entering data for each solvent.

B12    White Paint

Actual Emissions Estimate

ACME Coatings  
Pleasantville, WV

Coating Operation (hours/year)  
520

	Coating/Stain/Solvent Description	Density (lb/gal)	HAP Constituent	% HAP Content	Emission Rate (ton/yr)
12	1 White Paint	8.6	Benzene	12	0.0516
13	2 White Paint	10.2	Napthalene	35	0.133875
14	3 Red Paint	9.8	Toluene	29	0.07105
15	4 Blue Paint	0			0
16	5	0			0
17	6	0			0
18	7	0			0
19	8	0			0
20	9	0			0
21	10	0			0
22	11	0			0
23	12	0			0
24	13	0			0
25	14	0			0
26	15	0			0

Particulate Matter    **Hazardous Air Pollutants**    Values

To find out whether your coating contains one of the hazardous air pollutants (HAPs), you will need to check its MSDS against the list of HAPs provided at the end of these instructions. The HAPs should be listed under the “Composition/ Information on Ingredients” section or the “Regulatory Information” section. If the coating contains a HAP, you will list it in the “HAP Constituent” box of the coating. Click on the box and there will be a drop down menu. Then, click on the downward pointing arrow. This will present a list of the most common HAPs.

The screenshot shows an Excel spreadsheet with the following data:

Coating/Stain/Solvent Description	Density (lb/gal)	HAP Constituent	% HAP Content	Emission Rate (ton/yr)
1 White Paint	0	Benzene	12	0.0516
2 Red Paint	0	Benzene	35	0.133875
3 Blue Paint	0	Ethylbenzene	29	0.07105
4	0	Formaldehyde		0
5	0	MEK		0
6	0	Methanol		0
7	0	MIBK		0
8	0	Napthalene		0
9	0	Phenol		0
10	0			0
11	0			0
12	0			0
13	0			0
14	0			0
15	0			0
16	0			0

Additional spreadsheet details: The formula bar shows 'Benzene'. A text box in row 8 is labeled 'Coating Operation (hours/year)' with a value of 520. The spreadsheet has tabs for 'Particulate Matter', 'Hazardous Air Pollutants', and 'Values'. The status bar shows 'Ready' and '100%' zoom.

If the HAP in your coating is on the list, click on its name. If it is not, you will have to enter the information on the Values page. To do this, click on the Values tab at the bottom of the screen.



A12    fx    1

Actual Emissions Estimate

ACME Coatings  
Pleasantville, WV

Coating Operation (hours/year)  
520

	Coating/Stain/Solvent Description	Density (lb/gal)	HAP Constituent	% HAP Content	Emission Rate (ton/yr)
12	1 White Paint	8.6	Benzene	12	0.0516
13	2 Red Paint	10.2	Napthalene	35	0.133875
14	3 Blue Paint	9.8	Toluene	29	0.07105
15	4	0			0
16	5	0			0
17	6	0			0
18	7	0			0
19	8	0			0
20	9	0			0
21	10	0			0
22	11	0			0
23	12	0			0
24	13	0			0
25	14	0			0
26	15	0			0

Ready    Volatile Organic Compounds    Particulate Matter    Hazardous Air Pollutants    Values

Once on the Values page, there will be boxes that say "Enter Other HAP HERE." Click on one of these boxes, then go to the formula bar at the top of the screen. Delete the words "Enter Other HAP HERE," and type in the name of the HAP in your coating. This will make that HAP available for selection on the HAP page.

B13    Enter Other HAP HERE

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Yes	None	Actual												
2	No	Benzene	Maximum												
3		Ethylbenzene													
4		Formaldehyde													
5		MEK													
6		Methanol													
7		MIBK													
8		Napthalene													
9		Phenol													
10		Styrene													
11		Toluene													
12		Xylene													
13		Enter Other HAP HERE													
14		Enter Other HAP HERE													
15		Enter Other HAP HERE													
16		Enter Other HAP HERE													
17		Enter Other HAP HERE													
18		Enter Other HAP HERE													
19		Enter Other HAP HERE													
20		Enter Other HAP HERE													
21		Enter Other HAP HERE													
22		Enter Other HAP HERE													
23		Enter Other HAP HERE													
24		Enter Other HAP HERE													
25		Enter Other HAP HERE													
26		Enter Other HAP HERE													
27		Enter Other HAP HERE													
28		Enter Other HAP HERE													

Ready    Particulate Matter    Hazardous Air Pollutants    Values

Return to the HAP page by clicking on its tab at the bottom of the screen. You will now be able to select the HAP that you entered.

Following the name of the HAP on your MSDS should be the percent by weight of the HAP. Enter this number into the “% HAP Content” box. If a range is listed, such as 15-20%, list the higher number (20%).

Repeat this process for each coating.

**If a coating contains more than one HAP**, you will need to add it to the list again. You can do this by clicking on an empty box under “Coating/Stain/Solvent Description.” A drop box will appear with the names of your solvents. Click on the appropriate one, then enter the “HAP Constituent” and “% HAP Content” information as you did before.

This process of entering this information has allowed the spreadsheet to calculate actual emissions estimates for each of the VOC, PM, and HAP materials produced by your facility in total emissions yearly. The total average hourly emissions number is just a multiplier used to calculate the potential emissions, and should not be used for any other purpose. These estimates can be found at the bottom of each page.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K
22	11			0			0				
23	12			0			0				
24	13			0			0				
25	14			0			0				
26	15			0			0				
27	16			0			0				
28	17			0			0				
29	18			0			0				
30	19			0			0				
31	20			0			0				
32	21			0			0				
33	22			0			0				
34	23			0			0				
35	24			0			0				
36	25			0			0				
37	26			0			0				
38	27			0			0				
39	28			0			0				
40	29			0			0				
41	30			0			0				
42											
43											
44											
45											
46											
47											
48											
49											

Summary statistics at the bottom of the spreadsheet:

Total VOC Emissions	0.33625
Total Avg Hrlly VOC Emissions	1.293269231

A red arrow points from the table of data to the summary statistics.

The next step is to allow the spreadsheet to calculate your facility’s potential emissions, or how much your coating operation would emit if your total operation was open every hour of the year (8760 hours per year). However, before you do this, make sure you save the original spreadsheet work you did, and **save it again as a new spreadsheet** named “Maximum Emissions.” With this new spreadsheet, you will need to go to the top of the Volatile Organic Compounds page, and click on the first box of “Actual Emissions Estimate.”

Coating/Stain/Solvent Description	Coating Usage (gal/yr) <sub>Act.</sub>	Coating Usage (gal/yr) <sub>Max.</sub>	VOC Content (lb/gal)	Emission Rate (ton/yr)
1 White Paint	100	0	3.5	0.175
2 Red Paint	75	0	2.5	0.09375
3 Blue Paint	50	0	2.7	0.0675
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0
16		0		0
17		0		0
18		0		0
19		0		0
20		0		0
21		0		0
22		0		0
23		0		0
24		0		0
25		0		0

A downward arrow will appear, click on it. This will reveal a drop down box with the options of “Actual” and “Maximum.” Select “Maximum.”


Coating/Stain/Solvent Description	Coating Usage (gal/yr) <sub>Act.</sub>	Coating Usage (gal/yr) <sub>Max.</sub>	VOC Content (lb/gal)	Emission Rate (ton/yr)
1 White Paint	100	0	3.5	0.175
2 Red Paint	75	0	2.5	0.09375
3 Blue Paint	50	0	2.7	0.0675
4		0		0
5		0		0
6		0		0
7		0		0
8		0		0
9		0		0
10		0		0
11		0		0
12		0		0
13		0		0
14		0		0
15		0		0
16		0		0
17		0		0
18		0		0
19		0		0
20		0		0
21		0		0
22		0		0
23		0		0
24		0		0
25		0		0

This uses a predetermined formula to convert your actual emissions estimates into maximum emissions estimates. The numbers will be converted on all three pages. Once you have chosen “Maximum,” save the new spreadsheet again. The emission totals reflected in this “Maximum Emissions” spreadsheet are the uncontrolled emissions that you will enter into the application. In the case of the VOCs and most HAPs, there are no controls on the emissions and they flash off into the atmosphere, so the uncontrolled emissions are equal to the controlled emissions.

However, make sure to check the HAP list to ensure that a few of your HAPs are not of the PM variety. The only constituent that also, for the most part, has controlled emissions is the particulate matter (PM) or overspray emissions. These are typically controlled by a paint filter. For the controlled overspray (PM) emissions calculation, you can use a default of a 90% control or the control efficiency listed on the filter's specification sheet. The uncontrolled PM emissions  $(1 - 0.90)$  equals controlled PM emissions.

Another calculation not provided by the spreadsheet is the  $PM_{10}$  emissions, or particulate matter less than 10 microns in diameter.  $PM_{10}$  can be calculated by dividing your PM amount by 2.1.





## Rule 13 (45CSR13)

### RULE 13 AIR QUALITY PERMIT APPLICATION

The Division of Air Quality Application for minor sources can be accessed by going to the NSR Application Forms section found at:

<http://www.dep.wv.gov/daq/permitting/Pages/nsr-forms.aspx>

This webpage shows a variety of different sections for different types of sources. For a paint booth, download the following to complete:

- General Instructions
- Authority of Corp/Government/LLC/LP Form
- Application for NSR Permits and Title V Operating Permit
- Attachment I - Emissions Units Table
- Attachment J – Emissions Points Data Summary Sheet
- Attachment L - General Emissions Unit Data Sheet
- Attachment M - Other Control Device Sheet (filter)
- Example Legal Advertisement
- Plot Plan – Guidelines

If you also have an abrasive blasting operation, in addition to those sections listed above, you would add the following:

Attachment L - General Emissions Unit Data Sheet (filled out for the blast room or booth)

Attachment M - Bag House, Mechanical Collector, or 'Other' Control Device Sheet

## **Other Relevant State Air Quality Rules**





# Rule 7 (45CSR7)

## 45CSR7 - TO PREVENT AND CONTROL PARTICULATE MATTER AIR POLLUTION FROM MANUFACTURING PROCESSES AND ASSOCIATED OPERATIONS

The purpose of this rule is to prevent and control particulate matter air pollution from manufacturing processes and associated operations. It has been deemed that this rule applies to coating and abrasive blasting operations. Therefore your facility must meet the "Process Weight Rate Table" shown in Table 45-7A of this rule (see below in pertinent part). This is meant to set limits for the particulate matter (PM) that you can emit. In order to calculate emissions using the table, you must know the Source Operation Type. For coating and abrasive blast sources, use the Type 'a' column, which represents a physical change to the material being produced. Both coating and abrasive blasting represent a physical change.

**TABLE 45-7A**

Operating Source Operation or Total Duplicate Source Operation Process Weight Rate in Pounds Per Hour<sup>1</sup>

Type 'a'	
0	0
2,500	3
5,000	5
10,000	10
20,000	16
30,000	22
40,000	28
50,000	31
100,000	33
200,000	37
300,000	40
400,000	43
500,000	47
600,000	50
700,000	50
800,000	50
900,000	50
1,800,000 and above	50

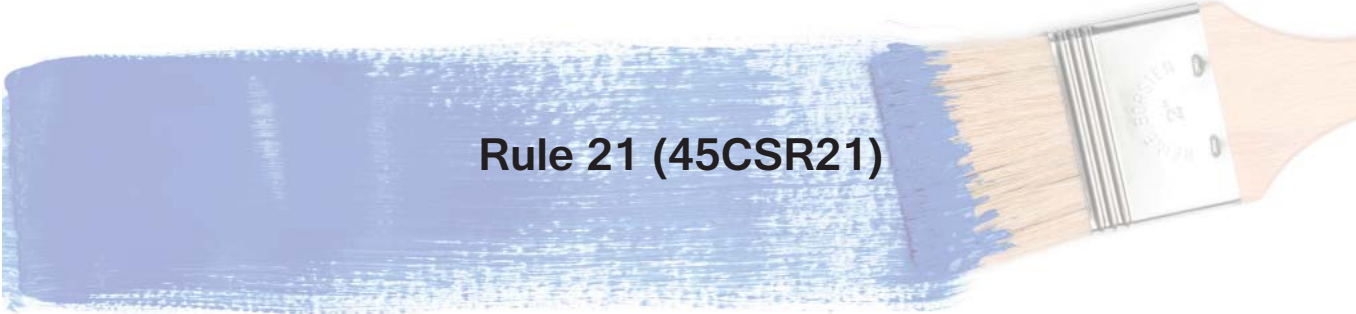
Maximum Allowable Total Stack Emission Rate in Pounds Per Hour for the Appropriate Process Weight and Source Operation Type<sup>1</sup>



## Rule 7 (45CSR7)

The permit engineer will calculate this value, but to show that your facility can meet the “Process Weight Rate,” the best approach to take is to list the item being painted or blasted at its maximum weight. In other words, if you can potentially paint 5 tons of structural steel per hour, use this figure on the Emission Unit Data Sheet (EUDS), not your actual amount of steel painted or blasted. If your potential to emit (PTE) is less than 1 lb/hr PM, and in aggregate less than 1000 lbs/yr, your process is exempt from Rule 7.





## Rule 21 (45CSR21)

### **45CSR21 - REGULATION TO PREVENT AND CONTROL AIR POLLUTION FROM THE EMISSION OF VOLATILE ORGANIC COMPOUNDS**

At one time in West Virginia, five counties were in non-attainment of the one hour ozone standard. In order to show attainment with the standard, 45CSR21 was developed and was incorporated into the State Implementation Plan (SIP). It is now considered a maintenance rule. The rule deals with the emission of VOCs in the five counties specified, as VOCs are a precursor to the formation of ground-level ozone. The scope of Rule 21 states, "it is the intent of the Director that all persons engaged in the manufacture, mixing, storage, use, or application of volatile organic compounds control the emission of volatile organic compounds through the application of reasonably available control technology, or RACT." This regulation applies to sources located in Putnam, Kanawha, Cabell, Wayne, and Wood counties. Note that for the most part, the coating of automobiles and trucks is NOT covered in this rule.


For most coating facilities, the main section of note in this rule is Section 19, which is listed in its entirety below. The main points of this section are basically as follows:

- To meet the rule, most sources have two options - to use compliant coating (3.5 pounds per gallon or less), or to do a Daily Weighted Average (see spreadsheet link on page 26).
- Miscellaneous metal parts coaters that use less than 15 pounds of VOCs per day are exempt from Rule 21's requirements, other than, as in all cases, they have to have the appropriate certification, record-keeping and reporting on site to show they are either meeting the rule, or exempt from it.

#### **§45-21-19 - Coating of Miscellaneous Metal Parts.**

##### **19.1. Applicability.**

- a. This section 19 applies to any miscellaneous metal parts and products coating line.
- b. This section 19 does not apply to the coating of the following metal parts and products that are covered by other sections of this regulation:
  1. Automobiles and light-duty trucks; [reserved, not actually addressed]
  2. Metal cans;
  3. Flat metal sheets and strips in the form of rolls or coils;
  4. Magnet wire for use in electrical machinery;
  5. Metal furniture; and
  6. Large appliances.




## Rule 21 (45CSR21)

- c. This section 19 does not apply to:
  - 1. Exterior of completely assembled aircraft;
  - 2. Exterior of major aircraft subassemblies, if approved by the Director and the U.S. EPA;
  - 3. Automobile and truck refinishing;
  - 4. Customized top coating of automobiles and trucks, if production is less than 35 vehicles /day;
  - 5. Exterior of completely assembled marine vessels; or
  - 6. Exterior of major marine vessel subassemblies if approved by the Director and the U.S. EPA.
- d. The emission limits in this section 19 do not apply to any coating line within a facility whose actual emissions without control devices from all miscellaneous metal part and products coating lines within the facility are less than 6.8 kilograms (kg) (15 pounds [lb]) volatile organic compound (VOC) per day. An owner or operator of a facility whose emissions are below this applicability threshold shall comply with the certification, recordkeeping, and reporting requirements of section 19.7.a.

**19.2. Definitions.** -- As used in this section 19, all terms not defined herein shall have the meaning given them in section 2.

- a. "Air-dried coating" means a coating that is dried by the use of air or forced warm air at temperatures up to 90 degrees C (194 degrees F).
- b. "Clear coating" means a coating that (1) either lacks color and opacity or is transparent and (2) uses the surface to which it is applied as a reflective base or undertone color.
- c. "Drum" means any cylindrical metal shipping container of 13- to 110-gallon capacity.
- d. "Extreme environmental conditions" means any of the following: the weather all of the time, temperatures frequently above 95 degrees C (203 degrees F), detergents, abrasive and scouring agents, solvents, corrosive atmospheres, or similar environmental conditions.
- e. "Extreme performance coatings" means coatings intended for exposure to extreme environmental conditions.
- f. "Miscellaneous metal parts and products coating line" means a coating line in which a coating is applied to any miscellaneous metal parts and products.
- g. "Miscellaneous parts and products" means any metal part or metal product, even if attached to or combined with a nonmetal part or product. Miscellaneous metal parts and products include, but are not limited to:



## Rule 21 (45CSR21)

1. Large farm machinery (harvesting, fertilizing and planting machines, tractors, combines, etc.);
  2. Small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.);
  3. Small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.);
  4. Commercial machinery (office equipment, computers and auxiliary equipment, typewriters, calculators, vending machines, etc.);
  5. Industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.);
  6. Fabricated metal products (metal covered doors, frames, etc.);
  7. Any other industrial category that coats metal parts or products under the Standard Industrial Classification Codes of Major Group 33 (primary metal industries), Major Group 34 (fabricated metal products), Major Group 35 (nonelectric machinery), Major Group 36 (electrical machinery), Major Group 37 (transportation equipment), Major Group 38 (miscellaneous instruments), and Major Group 39 (miscellaneous manufacturing industries); and;
  8. Application of underbody antichip materials (e.g., underbody plastisol) and coating application operations other than prime, primer surfacer, topcoat, and final repair operations at automobile and light-duty truck assembly plants.
- h. "Pail" means any cylindrical metal shipping container of 1- to 12-gallon capacity and constructed of 29-gauge and heavier material.
- i. "Refinishing" means the repainting of used equipment.

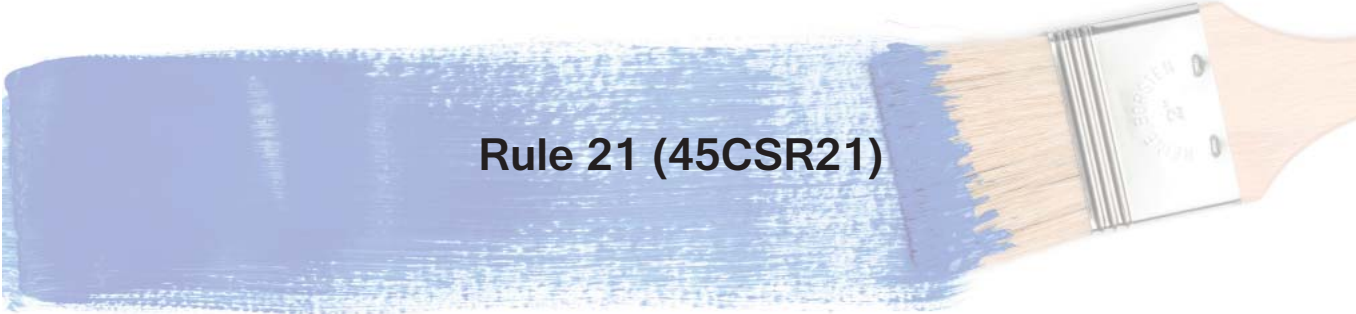
### 19.3. Standards.

- a. No owner or operator of a miscellaneous metal parts and products coating line subject to this section 19 shall cause or allow the application of any coating with VOC content in excess of the emission limits in sections 19.3.a.1. through 19.3.a.5.

	kg/L*	lb/gal*
1. Clear coating	0.52	4.3
2. Steel pail & drum interior coating	0.52	4.3
3. Air-dried coating	0.42	3.5
4. Extreme performance coating	0.42	3.5
5. All other coatings	0.36	3.0

*\*VOC content values are expressed in units of mass of VOC (kg, lb) per volume of coating (liter [L], gallon [gal]), minus water and exempt compounds, as applied.*

- b. If more than one emission limit in section 19.3.a. applies to a specific coating, then the least stringent emission limit shall be applied.



## Rule 21 (45CSR21)

c. As an alternative to compliance with the emission limits in section 19.3.a., an owner or operator of a miscellaneous metal parts and products coating line may meet the requirements of section 19.4. or section 19.5.

**19.4.** No owner or operator of a miscellaneous metal parts and products coating line that applies multiple coatings, all of which are subject to the same numerical emission limitation within section 19.3.a., during the same day (e.g., all coatings used on the line are subject to 0.42 kg/L [3.5 lb/gal]), shall apply coatings on that line during any day whose daily-weighted average VOC content calculated in accordance with the procedure specified in section 43. exceeds the coating VOC content limit corresponding to the category of coating used.

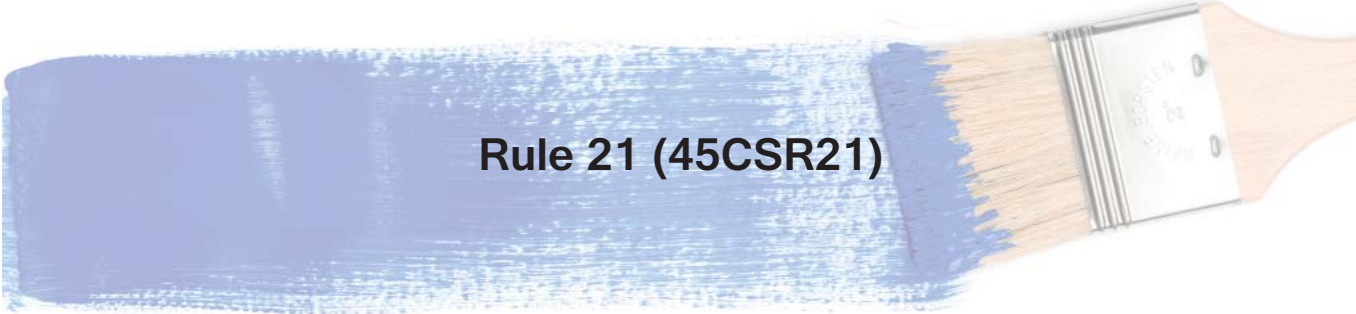
**19.5. Control devices.** -- An owner or operator of a miscellaneous metal parts and products coating line subject to this section 19 shall comply with this section 19 by:

- a. Installing and operating a capture system on that line;
- b. Installing and operating a control device on that line;
- c. Determining for each day the overall emission reduction efficiency needed to demonstrate compliance. The overall emission reduction needed for a day is the lesser of the value calculated according to the procedure in section 43.2. for that day or 95 percent; and,
- d. Demonstrating each day that the overall emission reduction efficiency achieved for that day, as determined in section 44.3., is greater than or equal to the overall emission reduction efficiency required for that day.

**19.6. Test methods.** -- The test methods found in sections 41. through 44. shall be used to determine compliance with this section 19.

**19.7. Recordkeeping and reporting.**

- a. An owner or operator of a miscellaneous metal parts and products coating line that is exempt from the emission limitations in section 19.3 shall comply with the certification, recordkeeping, and reporting requirements in section 4.2.
- b. An owner or operator of a miscellaneous metal parts and products coating line subject to this section 19. and complying with section 19.3. by the use of complying coatings shall comply with the certification, recordkeeping, and reporting requirements in section 4.3.
- c. An owner or operator of a miscellaneous metal parts and products coating line subject to this section 19. and complying with section 19.4. by daily-weighted averaging shall comply with the certification, recordkeeping, and reporting requirements in section 4.4.



## Rule 21 (45CSR21)

- d. An owner or operator of a miscellaneous metal parts and products coating line subject to this section 19. and complying with section 19.5. by the use of control devices shall comply with the testing, reporting, and recordkeeping requirements in section 4.5.

Also, Section 4 states, “to establish the records required under this section 4., the volatile organic compound (VOC) content of each coating, as applied, and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in sections 42. and 44.” It is taken that “as applied” means to include any solvents used to thin the paint, but clean up solvents for paint booths are not to be included in the Daily Weighted Average calculations.

The daily weighted average spreadsheet can be accessed via the Internet at <http://www.dep.wv.gov/daq/small%20business/Pages/EmissionCalculationToolsandOutreach.aspx>

(example page follows)

**FILL OUT DAILY - DAILY WEIGHTED AVERAGING RECORDKEEPING FORM**

MONDAY				
1	2	3	4	5: (3 x 4)
DATE	COATING NAME	VOC CONTENT <small>(LB/GAL)</small>	GALLONS USED <small>(PER DAY)</small>	TOTAL VOC'S <small>(LBS)</small>
Example	Example	4.58	10	45.8
Example	Example	3.5	2	7
Example	Example	2.3	3	6.9
Example	Example	2.1	2	4.2
				0
				0
				0
<b>TOTAL DAILY WEIGHTED AVERAGE (LB/GAL)</b>				<b>3.76</b>
6: $(\sum 5 / \sum 4)$				

TUESDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
Example	Example	2.3	10	23
Example	Example	4.58	5	22.9
				0
				0
				0
				0
				0
<b>TOTAL DAILY WEIGHTED AVERAGE (LB/GAL)</b>				<b>3.06</b>

WEDNESDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
				0
				0
				0
				0
				0
				0
				0
<b>TOTAL DAILY WEIGHTED AVERAGE (LB/GAL)</b>				<b>#DIV/0!</b>

THURSDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
				0
				0
				0
				0
				0
				0
				0
<b>TOTAL DAILY WEIGHTED AVERAGE (LB/GAL)</b>				<b>#DIV/0!</b>

FRIDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
				0
				0
				0
				0
				0
				0
				0
<b>TOTAL DAILY WEIGHTED AVERAGE (LB/GAL)</b>				<b>#DIV/0!</b>

Note: To be in compliance with 45CSR21 you must be at 3.5 LBS/GAL per day or less for air-dried coatings, or use less than 15 LBS per day of VOCs (sum of column 5).

FILL OUT DAILY - WEEKLY PAINT RECORDKEEPING FORM for week starting XX/XX/201X

MONDAY				
1	2	3	4	5: (3 x 4)
DATE	COATING NAME	VOC CONTENT (LB/GAL)	GALLONS USED (PER DAY)	TOTAL VOC'S (LBS)
Example	Example	4.58	10	45.8
Example	Example	3.5	2	7
Example	Example	2.3	3	6.9
Example	Example	2.1	2	4.2
				0
				0
				0
TOTAL				63.90

TUESDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
Example	Example	2.3	10	23
Example	Example	4.58	5	22.9
				0
				0
				0
				0
				0
TOTAL				45.90

WEDNESDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
				0
				0
				0
				0
				0
				0
				0
TOTAL				0.00

THURSDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
				0
				0
				0
				0
				0
				0
				0
TOTAL				0.00

FRIDAY				
DATE	COATING NAME	VOC CONTENT	GALLONS USED	TOTAL VOC'S
				0
				0
				0
				0
				0
				0
				0
TOTAL				0.00

<b>109.80</b>
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# **Federal Rules**

**Subparts 6H and 6X**





## Area Source MACTs

In January 2008, the EPA finalized an area source rule, 40 CFR Part 63, Subpart HHHHHH, addressing air toxic emissions from paint stripping and miscellaneous surface coating operations at area sources. An area source is defined in the CAA section 112(a) as any stationary source of HAP that is not a major source, and a major source is defined as any stationary source or group of stationary sources located within a contiguous area and under common control that emits, or has the potential to emit, considering controls, in the aggregate, 10 tons per year (TPY) or more of any single HAP or 25 TPY or more of any combination of HAP. Potential to emit refers to the highest amounts of certain pollutants that your business could release into the air (even if you have never actually emitted the highest amount).

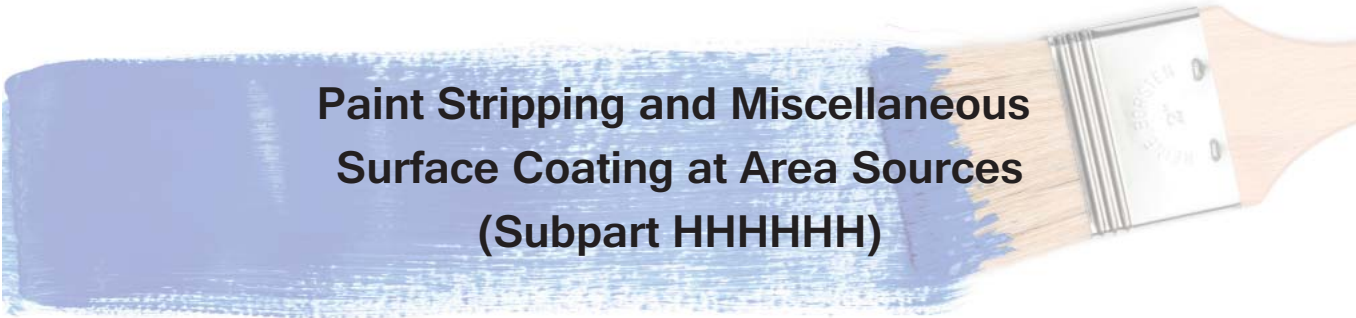
The rule purpose was a reduction in air toxics emitted from sources that include methylene chloride and metal compounds containing cadmium, lead, manganese and nickel. These metal compounds are called target hazardous air pollutants (or HAPs) in the rule. Exposure to these compounds may cause cancer; central nervous system, respiratory system and reproductive issues; kidney damage and acute health disorders such a respiratory and skin irritation.

This rule affects businesses in three categories:

- paint stripping operations using materials that contain methylene chloride (MeCl) to remove old paint from wood, metal, plastic or other substrates
- spray application of coatings to plastic and/or metal parts and products, if the coatings used contain one of the target HAPs
- spray application of coatings to plastic and/or metal parts and products, if the coatings used contain one of the target HAPs

If you have one of these operations, then the rule's requirements apply to the following equipment at your facility:

- mixing rooms and equipment
- spray booths, ventilated prep stations, curing ovens and associated equipment
- spray guns and associated equipment
- spray gun cleaning equipment
- equipment used for storage, handling, recovery, or recycling of cleaning solvent or waste paint
- equipment used for paint stripping at facilities where MeCl is used



## Paint Stripping and Miscellaneous Surface Coating at Area Sources (Subpart HHHHHH)

Does your facility use coatings which contain: Chromium (Cr), Lead (Pb), Manganese (Mn), Nickel (Ni), or Cadmium (Cd)? If you use coatings with one of the five metal HAPs, you are subject to Subpart HHHHHH.

**NEW SOURCES** (facilities which commenced construction after September 17, 2007) must submit initial notification by July 7, 2009 and be in compliance with the rule upon startup after January 9, 2008.

**EXISTING SOURCES** (performed coating prior to September 17, 2007) must submit initial notification by January 11, 2010 and be in compliance by January 10, 2011.

### Highlights of Subpart HHHHHH Compliance for Spray-Applied Surface Coating

1. Coatings must be applied in filtered enclosure:
  - A. That is, fully enclosed with full roof and at least three complete walls or side curtains.
  - B. With a filter system demonstrated to achieve at least a 98% capture efficiency.
2. Use of High Volume Low Pressure (HVLP) guns or equivalent.
3. Must limit spray gun cleaning overspray.
4. Painter training is required on proper spray application, setup and maintenance of spray equipment, and environmental compliance.

To view Subpart HHHHHH in its entirety, go to [www.epa.gov/ttn/atw/area/fr09ja08.pdf](http://www.epa.gov/ttn/atw/area/fr09ja08.pdf)

To view Subpart HHHHHH Fact Sheets, go to [www.epa.gov/ttn/atw/area/psmc\\_fr\\_fs121407.pdf](http://www.epa.gov/ttn/atw/area/psmc_fr_fs121407.pdf)

### Affected Sources

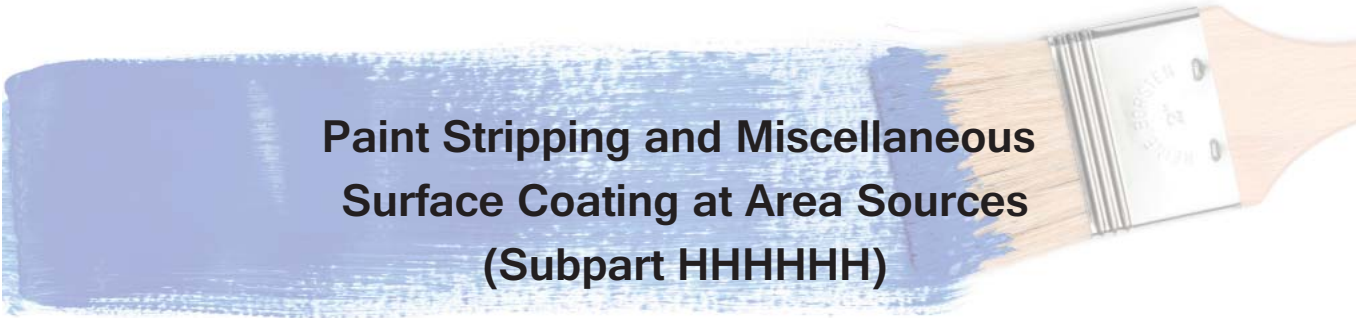
Affected sources include facilities that spray-apply coatings onto metal or plastic parts or products\* where the coatings contain one or more of the following five metal Hazardous Air Pollutants (HAPs): Chromium (Cr), Lead (Pb), Manganese (Mn), Nickel (Ni), or Cadmium (Cd). **Check your MSDS. If your facility does not use and will not use coatings containing one of the five HAPs listed above, it is EXEMPT from this portion of the rule.** Or, if your facility does use coatings with the target HAPs, see if you can find a substitute coating that does not contain the target HAPs. Methylene Chloride paint strippers are covered in Subpart 6H as well.

### Notification Details

Initial notification informs U.S. EPA that you are affected by the rule and provides some information about your facility.

The initial notification must contain:

- company name
- owner/operator name, title, street address, phone, email (if available), and signature
- street address for location of records if different from above
- rule title: 40 CFR part 63, subpart HHHHHH
- description of operations
- new sources – statement of compliance status OR
- existing sources – may include statement of compliance status and avoid second notification
- compliance statements differ by operation



## Paint Stripping and Miscellaneous Surface Coating at Area Sources (Subpart HHHHHH)

Check your MSDS. If your facility does not use and will not use coatings containing one of the five HAPs listed above, you **MUST** request an exemption from the U. S. Environmental Protection Agency.

Or, if your facility does use coatings with the target HAPs, see if you can find a substitute coating that does not contain the target HAPs and petition U.S. EPA for an exemption. Methylene Chloride paint strippers are covered in Subpart 6H as well.

### Exemptions for Auto Body Coating Section of Rule

- Facilities that use only nonrefillable aerosol containers;
- Facilities or portions of facilities that use airbrush guns with a maximum cup capacity of 3 ounces;
- Coating performed onsite at United States military installations (including Coast Guard and National Guard facilities); and,
- Coatings by individuals for personal or hobby use and not for profit, for no more than two (2) vehicles per year.

An example notification is available at: [www.epa.gov/ttn/atw/area/paint\\_strip\\_example.doc](http://www.epa.gov/ttn/atw/area/paint_strip_example.doc)



## Federal Rule Covering Nine Metal Fabrication and Finishing Source Categories (Subpart XXXXXX)

EPA has new requirements to reduce air pollution of compounds of metals such as cadmium, chromium, lead, manganese and nickel from nine metal fabrication and finishing source categories. These compounds pose health risks to anyone who breathes the air when these fumes are present. These compounds are emitted to the air from various operations at metal fabrication and finishing plants.

This is a short summary of things any affected facility in the nine metal fabrication and finishing source categories must do to comply with the new rule. Existing sources must be in compliance with the regulation before **July 25, 2011**. New sources must be in compliance when they begin to operate.

For more details and assistance, please talk to your local environmental contact. These web links to government contacts are a good place to start:

- [http://www.epa.gov/ttn/atw/area/regional\\_contacts.pdf](http://www.epa.gov/ttn/atw/area/regional_contacts.pdf)
- <http://www.smallbiz-enviroweb.org/contacts.aspx>

The rule applies **ONLY** to area sources where the primary activity of the facility is in one of the following nine source categories:

(1) Electrical and Electronic Equipment Finishing Operations (including motor and generator manufacture, and electrical machinery, equipment, and supplies, not elsewhere classified); (2) Fabricated Metal Products; (3) Fabricated Plate Work (Boiler Shops); (4) Fabricated Structural Metal Manufacturing; (5) Heating Equipment, except Electric; (6) Industrial Machinery and Equipment Finishing Operations (including construction machinery manufacturing; oil and gas field machinery manufacturing; and pumps and pumping equipment manufacturing); (7) Iron and Steel Forging; (8) Primary Metal Products Manufacturing; and (9) Valves and Pipe Fittings. (see page 35 for NAICS code listings)

**Many facilities perform the metal fabrication and finishing processes addressed by this rule, but are not subject to Subpart XXXXXX unless they are “primarily engaged” in operations which are classified in one of the listed nine source categories.** To check if you are subject, crosscheck your SIC/NAICS codes with the SIC/NAICS codes that are subject to this rule and listed at this web link:

<http://www.epa.gov/ttn/atw/area/met-fab-6x-applicability.xls>. A more detailed description of the affected source categories is included in the text of the rule, available at <http://www.epa.gov/ttn/atw/area/arearules.html>.

The regulation contains requirements for five specific processes, described below. Any of these processes at a facility in one of the nine source categories listed above are subject to requirements. The requirements only apply when a process uses materials that contain compounds of cadmium, chromium, lead, manganese, and nickel. Low level use of these metals in the processes may be exempt.



## Federal Rule Covering Nine Metal Fabrication and Finishing Source Categories (Subpart XXXXXX)

- **Dry Abrasive Blasting:** Most dry abrasive blasting operations must be enclosed, with a filtration control device. Large objects (> 8 feet) may be blasted without control devices. Small “glove box” operations have lesser requirements.
- **Dry Grinding and Dry Polishing with Machines:** Emissions must be captured and vented to a filtration control device, and dust in the surrounding areas must be minimized, as practicable.
- **Dry Machining:** Dust in the surrounding areas must be minimized, as practicable.
- **Spray Painting:** Spray paint must be applied with high volume low pressure (HVLP) spray guns (or equivalent), workers must be properly trained, and spray guns must be cleaned properly. Most spray painting of objects < 15 feet must be performed in a booth with filters to capture metal particulates. Note: Spray painting operations painting objects > 15 feet, or spray painting any objects in the Fabricated Structural Metal source category are not required to comply with the paint booth and filter requirement.
- **Welding:** Welding operations must implement one or more of the following management practices to minimize emissions, as practicable, and in accordance with sound welding engineering principles while maintaining weld quality: (i) Use welding processes with reduced fume generation capabilities; (ii) Use welding process variations which can reduce fume generation rates; (iii) Use welding filler metals, shielding gases, carrier gases, or other process materials which are capable of reduced welding fume generation; (iv) Optimize welding process variables to reduce the amount of welding fume generated; and (v) Use a welding fume capture and control system.

The regulation requires periodic monitoring for some operations. Visible emissions monitoring using Method 22 is required for abrasive blasting performed on large objects (i.e., greater than 8 feet in any dimension) that is not performed in an enclosure vented to a filtration control device. If visible emissions are detected, corrective actions are required until the visible fugitive emissions are eliminated. Visible emissions monitoring using Method 22 is also required for welding operations. Welding operations that only use small amounts of rod or wire that contain any of the five metals may be exempt. If visible emissions are detected, corrective actions are required until the visible fugitive emissions are eliminated. However, if visible emissions from welding operations are detected more than one time in a year, opacity testing using Method 9 is then required. An opacity reading of more than 20 percent then results in the requirement to prepare and implement a site-specific welding emissions management plan.

For Method 9, see: <http://www.epa.gov/ttn/emc/methods/method9.html>

For Method 22, see: <http://www.epa.gov/ttn/emc/methods/method22.html>

There also are reports that facilities must submit.

- Initial Notification – must be submitted by **July 25, 2011** for existing sources and 120 days after startup for new sources. This must be submitted by every facility in one of the nine source categories whether or not any process at the facility is subject to the standards and management practices.
- Notification of Compliance Status report – must be submitted by **November 22, 2011** for existing sources and 120 days after initial startup for new sources.
- Annual certification and compliance reports.

**Subpart XXXXXX - 9 METAL FABRICATION APPLICABILITY - By NAICS Code, with EPA Source Category**

	<b>NAICS Code</b>	<b>NAICS Description</b>	<b>EPA Source Category</b>
1	<b>332111</b>	Iron and Steel Forging	Iron and Steel Forging
2	<b>332117</b>	Powder Metallurgy Part Manufacturing	Fabricated Metal Products, NEC
3	<b>332312</b>	Fabricated Structural Metal Manufacturing	Fabricated Structural Metal Manufacturing
4	<b>332313</b>	Plate Work Manufacturing	Fabricated Plate Work (Boiler Shops)
5	<b>332410</b>	Power Boiler and Heat Exchanger Manufacturing	Fabricated Plate Work (Boiler Shops)
6	<b>332420</b>	Metal Tank (Heavy Gauge) Manufacturing	Fabricated Plate Work (Boiler Shops)
7	<b>332618</b>	Other Fabricated Wire Product Manufacturing	Primary Metals Products Manufacturing
8	<b>332919</b>	Other Metal Valve and Pipe Fitting Manufacturing	Valves and Pipe Fittings, NEC
9	<b>332999</b>	All Other Miscellaneous Fabricated Metal Product Mftg	Fabricated Metal Products, NEC
10	<b>333120</b>	Construction Machinery Manufacturing	Industrial Machinery & Equipment: Finishing Ops
11	<b>333132</b>	Oil and Gas Field Machinery and Equipment Mftg	Industrial Machinery & Equipment: Finishing Ops
12	<b>333414</b>	Heating Equipment (except Warm Air Furnaces) Mftg	Heating Equipment, except electric
13	<b>333911</b>	Pump and Pumping Equipment Manufacturing	Industrial Machinery & Equipment: Finishing Ops
14	<b>335312</b>	Motor and Generator Manufacturing	Electrical & Electronic Equipment Finishing Ops
15	<b>335999</b>	All Other Misc. Electrical Equipment & Component Mftg	Electrical & Electronic Equipment Finishing Ops



112(b)

**Hazardous Air Pollutants**  
and related information

## HAZARDOUS AIR POLLUTANTS

Per 1990 Clean Air Act Amendments, §112(b)

### HAZARDOUS AIR POLLUTANTS

75070 Acetaldehyde (voc)	111444 Dichloroethyl ether (Bis(2-chloroethyl)ether)(voc)
60335 Acetamide (voc)	542756 1,3-Dichloropropene (voc)
75058 Acetonitrile (voc)	62737 Dichlorvos (voc)
98862 Acetophenone (voc)	111422 Diethanolamine (voc)
53963 2-Acetylaminofluorene (voc)	121697 N,N-Diethyl aniline (N,N-Dimethylaniline)(voc)
107028 Acrolein (voc)	64675 Diethyl sulfate (voc)
79061 Acrylamide (voc)	119904 3,3-Dimethoxybenzidine (voc)
79107 Acrylic acid (voc)	60117 Dimethyl aminoazobenzene (voc)
107131 Acrylonitrile (voc)	119937 3,3-Dimethyl benzidine (voc)
107051 Allyl chloride (voc)	79447 Dimethyl carbamoyl chloride (voc)
92671 4-Aminobiphenyl (voc)	68122 Dimethyl formamide (voc)
62533 Aniline (voc)	57147 1,1-Dimethyl hydrazine (voc)
90040 o-Anisidine (voc)	131113 Dimethyl phthalate (voc)
1332214 Asbestos (TSP)	77781 Dimethyl sulfate (voc)
71432 Benzene (including benzene from gasoline) (voc)	534521 4,6-Dinitro-o-cresol, and salts (voc)
92875 Benzidine (voc)	51285 2,4-Dinitrophenol (voc)
98077 Benzotrichloride (voc)	121142 2,4-Dinitrotoluene (voc)
100447 Benzyl chloride (voc)	123911 1,4-Dioxane (1,4-Diethyleneoxide) (voc)
92524 Biphenyl (voc)	122667 1,2-Diphenylhydrazine (voc)
117817 Bis(2-ethylhexyl)phthalate (DEHP) (voc)	106898 Epichlorohydrin (l-Chloro-2,3-epoxypropane)(voc)
542881 Bis(chloromethyl)ether (voc)	106887 1,2-Epoxybutane (voc)
75252 Bromoform (voc)	140885 Ethyl acrylate (voc)
106990 1,3-Butadiene (voc)	100414 Ethyl benzene (voc)
156627 Calcium cyanamide (voc)	51796 Ethyl carbamate (Urethane) (voc)
105602 Caprolactam (voc) delisted 61FR30816, 6/18/96	75003 Ethyl chloride (Chloroethane) (voc)
133062 Captan (voc)	106934 Ethylene dibromide (Dibromoethane) (voc)
63252 Carbaryl (voc)	107062 Ethylene dichloride (1,2-Dichloroethane) (voc)
75150 Carbon disulfide (voc)	107211 Ethylene glycol (voc)
56235 Carbon tetrachloride (voc)	151564 Ethylene imine (Aziridine) (voc)
463581 Carbonyl sulfide (voc)	75218 Ethylene oxide (voc)
120809 Catechol (voc)	96457 Ethylene thiourea (voc)
133904 Chloramben (voc)	75343 Ethylidene dichloride (1,1-Dichloroethane) (voc)
57749 Chlordane (voc)	50000 Formaldehyde (voc)
7782505 Chlorine	76448 Heptachlor (voc)
79118 Chloroacetic acid (voc)	118741 Hexachlorobenzene (voc)
532274 2-Chloroacetophenone (voc)	87683 Hexachlorobutadiene (voc)
108907 Chlorobenzene (voc)	77474 Hexachlorocyclopentadiene (voc)
510156 Chlorobenzilate (voc)	67721 Hexachloroethane (voc)
67663 Chloroform (voc)	822060 Hexamethylene-1,6-diisocyanate (voc)
107302 Chloromethyl methyl ether (voc)	680319 Hexamethylphosphoramide (voc)
126998 Chloroprene (voc)	110543 Hexane (voc)
1319773 Cresols/Cresylic acid (isomers and mixture)(voc)	302012 Hydrazine (voc)
95487 o-Cresol (voc)	7647010 Hydrochloric acid
108394 m-Cresol (voc)	7664393 Hydrogen fluoride (Hydrofluoric acid)
106445 p-Cresol (voc)	123319 Hydroquinone (voc)
98828 Cumene (voc)	78591 Isophorone (voc)
94757 2,4-D, salts and esters (voc)	58899 Lindane (all isomers) (voc)
3547044 DDE (voc)	108316 Maleic anhydride (voc)
334883 Diazomethane (voc)	67561 Methanol (voc)
132649 Dibenzofurans (voc)	72435 Methoxychlor (voc)
96128 1,2-Dibromo-3-chloropropane (voc)	74839 Methyl bromide (Bromomethane) (voc)
84742 Dibutylphthalate (voc)	74873 Methyl chloride (Chloromethane) (voc)
106467 1,4-Dichlorobenzene(p) (voc)	71556 Methyl chloroform (1,1,1-Trichloroethane)
91941 3,3-Dichlorobenzidene (voc)	60344 Methyl hydrazine (voc)
	74884 Methyl iodide (Iodomethane) (voc)
	108101 Methyl isobutyl ketone (Hexone) (voc)



624839 Methyl isocyanate (voc)	7550450 Titanium tetrachloride (TSP)
80626 Methyl methacrylate (voc)	108883 Toluene (voc)
1634044 Methyl tert butyl ether (voc)	95807 2,4-Toluene diamine (voc)
101144 4,4-Methylene bis(2-chloroaniline) (voc)	584849 2,4-Toluene diisocyanate (voc)
75092 Methylene chloride (Dichloromethane)	95534 o-Toluidine (voc)
101688 Methylene diphenyl diisocyanate (MDI) (voc)	8001352 Toxaphene (chlorinated camphene) (voc)
101779 4,4-Methylenedianiline (voc)	120821 1,2,4-Trichlorobenzene (voc)
91203 Naphthalene (voc)	79005 1,1,2-Trichloroethane (voc)
98953 Nitrobenzene (voc)	79016 Trichloroethylene (voc)
92933 4-Nitrobiphenyl (voc)	95954 2,4,5-Trichlorophenol (voc)
100027 4-Nitrophenol (voc)	88062 2,4,6-Trichlorophenol (voc)
79469 2-Nitropropane (voc)	121448 Triethylamine (voc)
684935 N-Nitroso-N-methylurea (voc)	1582098 Trifluralin (voc)
62759 N-Nitrosodimethylamine (voc)	540841 2,2,4-Trimethylpentane (voc)
59892 N-Nitrosomorpholine (voc)	108054 Vinyl acetate (voc)
56382 Parathion (voc)	593602 Vinyl bromide (voc)
82688 Pentachloronitrobenzene (Quintobenzene) (voc)	75014 Vinyl chloride (voc)
87865 Pentachlorophenol (voc)	75354 Vinylidene chloride (1,1-Dichloroethylene) (voc)
108952 Phenol (voc)	1330207 Xylenes (isomers and mixture) (voc)
106503 p-Phenylenediamine (voc)	95476 o-Xylenes (voc)
75445 Phosgene (voc)	108383 m-Xylenes (voc)
7803512 Phosphine	106423 p-Xylenes (voc)
7723140 Phosphorus (voc)	0 Antimony Compounds (TSP)
85449 Phthalic anhydride (voc)	0 Arsenic Compounds (inorganic including arsine)(TSP)
1336363 Polychlorinated biphenyls (Aroclors) (voc)	0 Beryllium Compounds (TSP)
1120714 1,3-Propane sultone (voc)	0 Cadmium Compounds (TSP)
57578 beta-Propiolactone (voc)	0 Chromium Compounds (TSP)
123386 Propionaldehyde (voc)	0 Cobalt Compounds (TSP)
114261 Propoxur (Baygon) (voc)	0 Coke Oven Emissions (voc)
78875 Propylene dichloride (1,2-Dichloropropane) (voc)	0 Cyanide Compounds 1 (TSP)
75569 Propylene oxide (voc)	0 Glycol ethers 2 (voc)
75558 1,2-Propylenimine (2-Methyl aziridine) (voc)	0 Lead Compounds (TSP)
91225 Quinoline (voc)	0 Manganese Compounds (TSP)
106514 Quinone (voc)	0 Mercury Compounds (TSP)
100425 Styrene (voc)	0 Fine mineral fibers 3 (TSP)
96093 Styrene oxide (voc)	0 Nickel Compounds (TSP)
1746016 2,3,7,8-Tetrachlorodibenzo-p-dioxin (voc)	0 Polycyclic Organic Matter 4 (voc)
79345 1,1,2,2-Tetrachloroethane (voc)	0 Radionuclides (including radon) 5
127184 Tetrachloroethylene (Perchloroethylene) (voc)	0 Selenium Compounds (TSP)

NOTE: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

1. X'CN where X = H' or any other group where a formal dissociation may occur. For example, KCN or Ca(CN)<sub>2</sub>
2. Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethyleneglycol R-(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>-OR' where n = 1, 2, or 3R = alkyl or aryl groups R' = R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH<sub>2</sub>CH)<sub>n</sub>-OH. Polymers are excluded from the glycol category.
3. Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1micrometer or less.
4. Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C.
5. A type of atom which spontaneously undergoes radioactive decay.

## Glycol Ethers Guidance

(7/26/2005)

"Glycol Ethers" is a hazardous air pollutant defined in Iowa Administrative Code (567) rule 22.100 as follows:

*567 IAC 22.100, definition of "hazardous air pollutant" --*

Glycol Ethers<sup>2</sup>, except CAS #111-76-2, ethylene glycol mono-butyl ether, also known as EGBE or 2-Butoxyethanol

<sup>2</sup>Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>-OR' where n=1,2, or 3; R=alkyl or aryl groups; R'=R,H, or groups which, when removed, yield glycol ethers with the structure R(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>-OH. Polymers are excluded from the glycol category.

There are literally thousands of compounds included in the glycol ethers category. The definition of glycol ethers in the Iowa Administrative Code is taken directly from 40 CFR 63.21, and is consistent with the definition for certain glycol ethers used in Toxics Release Inventory program. For this reason, the Iowa DNR suggests using the EPA document entitled "Toxics Release Inventory: List of Toxic Chemicals Within the Glycol Ethers Category (December 2000)" for a listing of glycol ethers. This document is available at <http://www.epa.gov/ttn/atw/glycol2000.pdf>.

### Common Glycol Ethers\*

Chemical Name	CAS Number
Diethylene glycol dimethyl ether	111-96-6
Diethylene glycol monobutyl ether acetate	124-17-4
Diethylene glycol monobutyl ether	112-34-5
Diethylene glycol monoethyl ether acetate	112-15-2
Diethylene glycol monoethyl ether	111-90-0
Diethylene glycol monohexyl ether	112-59-4
Diethylene glycol monomethyl ether acetate	629-38-9
Diethylene glycol monomethyl ether	111-77-3
Ethylene glycol dibutyl ether	112-48-1
Ethylene glycol diethyl ether	629-14-1
Ethylene glycol dimethyl ether	110-71-4
Ethylene glycol monoacetate	542-59-6
Ethylene glycol monobutyl ether acetate	112-07-2
Ethylene glycol monoethyl ether acetate	111-15-9
Ethylene glycol monoethyl ether	110-80-5
Ethylene glycol monohexyl ether	112-25-4
Ethylene glycol monomethyl ether acetate	110-49-6
Ethylene glycol monomethyl ether	109-86-4
Ethylene glycol monoethyl ether	10020-43-6
Ethylene glycol monophenyl ether	122-99-6
Ethylene glycol monopropyl ether	2807-30-9
Triethylene glycol	112-27-6
Triethylene glycol dimethyl ether	112-49-2
Triethylene glycol monoethyl ether	112-50-5
Triethylene glycol monomethyl ether	112-35-6

### Delisted Glycol Ethers:

Chemical Name	CAS Number
Ethylene glycol mono-butyl ether, also known as EGBE or 2-Butoxyethanol	111-76-2  Delisted 11/29/2004 (69FR69320)
Surfactant alcohol ethoxylates & their derivatives (SAED)	N/A  Delisted 8/2/2000 (65FR47342)

\*This is only a partial list of common glycol ethers. A more complete listing is available at: <http://www.epa.gov/ttn/atw/glycol2000.pdf>

# Miscellaneous



## Powder Coating

### What is Powder Coating?

Powder coating is a dry paint. Instead of being dissolved or suspended in a liquid medium; such as solvent or water, powder is applied in its dry form, finer than ground pepper, courser than flour, directly to the surface to be coated. Contained within each powder particle is the resin, pigments, and modifiers; and if it is a reactive system, a curing agent.

The complete process of powder manufacturing can be subdivided into six stages for the purpose of simplification:

1. Resin, pigment, hardener, and additives are dry mixed intensively in a mixer.
2. Homogenization and dispersion at temperatures of 90 degrees to 120 degrees C (194 degrees to 248 degrees F) in an extruder. These units are special extruders with heating and cooling zones, an adjustable worm speed, and generally an infinitely adjustable metering worm for the feed hopper. It is important that maximum intensity wetting of the pigment by the binder is achieved over a relatively short period.
3. The molten material is cooled, rolled, and coarsely ground.
4. Fine grinding is carried out according to particle size requirements.
5. The material is sieved to exclude any large particles.
6. Inspection and laboratory control are conducted.

The powder coating process itself may not need permitted, but the bake oven combustion emissions may.

### Hazardous Waste Information

Every auto body paint shop is considered a conditionally exempt small quantity generator (CESQG) due to its coating/solvent waste alone and must apply for an identification number from the U.S. Environmental Protection Agency (EPA). To obtain a hazardous waste I.D. number, go to the Division of Water and Waste Management section of the West Virginia Department of Environmental Protection's (DEP) website at <http://www.dep.wv.gov/WWE/Programs/hazwaste/notreq/Pages/default.aspx> and select the "EPA Form 8700-12 - RCRA Subtitle C Site Identification Instructions" option, as well as the "RCRA Subtitle C Site Identification Form." If you have any questions in this regard, you can contact Margie Skeens, the DEP's "Hazardous Waste Management Data Steward" at (304) 926-0499 ext. 1297.



# Coating Notes

Substituting hi-solids, waterborne, or powder coatings can greatly reduce the harmful air emissions from a facility.

Changing from 30% transfer-efficient equipment to 65% transfer-efficient equipment would reduce materials usage by approximately 50%.

If you move into a building that has old coatings and solvents stored inside, they become your responsibility.

Make sure to store coating materials and waste products in well-marked and tightly sealed containers.

Keep MSDS on site at all times and update regularly.

Keep a log of paint booth maintenance and filter changes.

Reduce, reuse, recycle.

When constructing a paint booth, it pays to put the stack or vent as far away from populated areas as possible.

Be sure to check pressure drop gauges if used on a daily basis.

VOC content means pounds per gallon of coating or solvent or grams per liter (gm/l).

Waterborne coatings and low HAP coatings usually still contain VOCs and HAPs.

Overspray and odors don't make good neighbors.

Paints and solvents should be kept in segregated flame-proof cabinets.

Paint consists of solids (resins, pigments, additives) and liquids, including VOC solvents, H<sub>2</sub>O and "exempt solvents."