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Material Usage Calculation Tool Instructions

How to Calculate Emissions of Volatile Organic Compounds and Ammonia

Maricopa County Air Quality Department

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Introduction

These instructions explain how to use the Material Usage Calculation tool to calculate total volatile organic compound (VOC) and ammonia (NH_x) emissions for input into the Maricopa County Air Quality Department Online Portal for emissions inventory reporting. This tool allows you to group multiple materials used for a specific process so that only one emission value needs to be reported for an emission process. Individual materials should not be entered into the AQD Online Portal individually. Individual materials should be entered into the Material Usage Calculation tool and total emissions should be reported in the AQD Online Portal.

When entering material usage into the Material Usage Calculation tool, be sure to enter net material usage. For example, if you purchased 100 gallons of solvent, but sent 10 gallons off-site for recycling, then only report the net 90 gallons of solvent used, not the 100 gallons of solvent purchased.

Green highlighted fields are editable, other sections are locked calculation cells.

Task 1: Enter Usage Record Data

Step 1: Gather Usage Records

Begin by gathering all of your annual usage records for materials as required by your permit conditions.

Step 2: Enter Usage Record Data

Open Material Usage Calculation tool, go to the Usage Records tab, and enter material information. Enter the Process ID (from the AQD Online Portal) and the Name/Description of each material. Select the **Material Type** (drop down or free text), **Units** (drop down), and **Pollutant Type** (drop down).

Step 3: Enter Usage Record Data

Enter the amount of material used during the year by either:

Method One: Monthly Usage

Enter monthly usage (columns F-Q). The annual total will automatically be calculated in column R.

Method Two: Annual Usage

If you only have the annual total usage enter that amount into the Dec/Year column.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Year:	2018																
2	Process ID	Name/Description	Material type	Units	Pollutant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec/Year	Annual Total
3																		
4																		
5																		
6																		
7																		
8																		

Task 2: Enter Emissions on Emissions Calculations Sheet

Step 1: Enter Emissions Factor (EF)

Go to the Emissions Calculations sheet and enter the EF for each material, which can often be found on the manufacturer safety data sheet (SDS).

Step 2: Enter Control Device/Release Point Capture and/or Control Efficiency (if applicable)

Enter the percent capture and control efficiency for any control devices/release points associated with a given material if appropriate. The capture efficiency is the percentage of the emission stream being captured by the control device/release point, while the control efficiency is the percent pollution reduction of the captured emission stream by a control device.

Step 3: Review the Calculated Emissions

Verify there are values listed in Columns K and L, Fugitive Amount, and Stack Amount.

	A	C	D	E	F	G	H	I	J	K	L
1	Process ID	Material type	Annual Amount of Material Used	Units	Pollutant	EF	Units	Capture Efficiency	Control Efficiency	Fugitive Amount (lb)	Stack Amount (lb)
2								100.0%	0.0%		
3								100.0%	0.0%		
4								100.0%	0.0%		
5								100.0%	0.0%		
6								100.0%	0.0%		

Task 3: Update Emissions Table and Facility Info Sheet

Step 1: Go to the Facility Info tab, and Refresh the Table

Click on the Facility Info tab, and right-click the table and select **Refresh** to update the table. The result will be an updated emissions summary table with total pollutant emissions in pounds by pollutant type (VOC or NH_x), sorted by process ID.

	A	B	C	D	E	F	G	H
1	INSTRUCTIONS: Right click within the table below and select Refresh from the menu to update data.							
2								
3	Pollutants (lbs) ▼							
4	NH_x			VOC				
5	Process ID ▼	Fugitive Amount	Stack Amount	Fugitive Amount	Stack Amount			
6	PRC001			14850		558669.19		
7	PRC002			0		75075		

Step 2: Input Emissions Into IMPACT

Enter the totaled process emissions into the AQD Online Portal according to the Process ID listed in the facility tree under the appropriate emission unit. Select the **Emissions** calculation method. Stack Amount are emissions that are captured and/or controlled with a control device (if applicable) or routed through a release point. Fugitive Amount are emissions that are not captured and/or controlled with control devices or release points. If there is not a control device/release point, you will enter zero “0” for stack amount, and enter all of the emissions under the Fugitive Amount emissions category.

Criteria Air Pollutants/Other	Method Used	Hours Uncontrolled	Uncontrolled Emissions Factor (Lbs/Throughput Units)	Time-based Factor (LBS/Hour)	Emissions Reported			Units	Explanation
					Fugitive Amount	Stack Amount	Total		
PM Primary (includes filterables > 10 microns + condensibles)	Throughput-based factor	0	0					TONS	add
PM10 Primary (includes filterables + condensibles)	Throughput-based factor	0	0					TONS	add
PM2.5 Primary (includes filterables + condensibles)	Throughput-based factor	0	0					TONS	add
CO - Carbon Monoxide	Throughput-based factor	0	0					TONS	add
NOx - Nitrogen Oxides	Throughput-based factor	0	0					TONS	add
SO2 - Sulfur Dioxide	Throughput-based factor	0	0					TONS	add
VOC - Volatile Organic Compounds	Emissions		80					TONS	add
Ammonia	Time-based factor - CEM							TONS	add

Information was developed using Arizona Department of Environmental Quality (ADEQ) emissions. The values may be provided to USEPA by the (Arizona) DEQ. You may modify these (Arizona) DEQ-generated emission calculations if you have more an

Step 3: Upload Calculation Spreadsheet into the AQD Online Portal

Upload the material usage calculation tool into the AQD Online Portal as supporting documentation to show your calculations. Documents are attached in the Emissions Inventory Summary page which is the facility icon on the Facility Tree and the Attachment Type should be attached as Calculations. If submitting more than one calculation spreadsheet, be sure to indicate in the Explanation column of the Process & Emissions Detail screen for the selected equipment which spreadsheet was used.

Attachments

Attachment ID	Attachment Type	Description	Trade Secret Document	Trade Secret Justification	Uploaded By	Upload Date
			Add	Printable view	Export to excel	

To Delete the attachment, or to Edit attachment description, click in the Attachment ID column.

*** Attachment Type :** Please select
*** Description :** Please select
*** Public File to Upload :**

- Annual Summary of Emissions
- Calculations
- Emissions Fee Invoice
- Other
- Quarterly Summary of Emissions
- Responsible Official Attest
- Revision Summary Document
- Semi-Annual Summary of Emissions
- Trade Secret Document