



Minnesota
Pollution
Control
Agency

Alternative for Calculating Potential To Emit for Non-Production Activities

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Potential to Emit (PTE) must be calculated for some activities at your facility even though the activities are not a direct part of your production process. These activities may include correcting product defects, maintenance activities, or cleaning equipment.

The traditional way to determine PTE for correcting product defects involves taking the maximum emissions produced by the correction equipment and multiplying by 8,760 hours per year. If you have the necessary process and product data, you can use an alternative method for calculating the PTE for these processes. For this reason, the alternative methodology will generally only work for calculating the PTE for existing facilities – new facilities will not have the necessary process and production data to use this approach.

Volatile Organic Compound (VOC) PTE from correctional materials

This alternative method allows you to account for limitations in your maximum overall production and the average amount of correctional materials actually used per part produced.

See the EC forms in your permit application packet for directions on how to calculate the maximum hourly rates for VOCs, particulate matter, etc.

You need to have the following information:

1. The maximum number of products you can produce in a certain time period, such as per hour or per year.

You can look at past production numbers, but you must take into account whether you were producing at maximum capacity. You may need to add a safety factor, based on if your production varies. In your application, be sure to state the physical limitations or bottlenecks that limit production.

2. The average amount of correctional material used per part produced.

The following is an example of how to use this information to calculate the PTE from this type of activity. Say that our production records show that we produced 10,000 widgets last year and used 500 gallons of a VOC-containing material (62 percent VOC by weight, eight pounds per gallon) to remove a blemish from some of the widgets. In the example below, only one material was used for this correction process. If more than one material had been used, the material with the highest VOC content would be used to calculate the PTE.

Use the maximum VOC content of the correctional material to come up with the VOC emissions per widget or per unit product. The VOC emissions produced per widget are calculated as follows:

- $(0.62 \text{ lb VOC/lb of correctional fluid}) \times (\text{eight lb correctional fluid/gal of correctional fluid}) \times (500 \text{ gal correctional fluid/year}) \times (\text{one year/10,000 widgets}) = 0.25 \text{ lb VOC/widget}$

3. The maximum number of widgets that can be produced.

We must make one more adjustment at this point because the number above does not represent the maximum VOC per widget produced. So far we accounted for using a higher VOC material, but we also need to adjust for using *more* clean-up material per widget. Review your production data to see if you can determine the short term variability in the amount of material used per widget. If you have such data, adjust the number accordingly. If you do not have actual data, you can adjust the value to add a margin for error such as increasing the value by ten, twenty, etc., percent.

The maximum VOC used per widget produced is then calculated as follows:

- $(0.25 \text{ lb VOC/widget}) \times 1.20 \text{ (adjustment)} = 0.30 \text{ lb VOC/widget}$

Assume that the maximum number of widgets we *could* produce, based on 8,760 hours of operation (and taking into account any physical design limitations) is 20,000 widgets. The annual VOC PTE from the use of the correctional fluid can be calculated as follows:

- $(0.30 \text{ lb VOC/widget}) \times (20,000 \text{ widgets/year}) \times (1 \text{ ton/2000 lbs}) = 3.0 \text{ tons VOC/year}$

This method can also be used to calculate total HAPs or individual HAP PTE.

VOC PTE from cleanup materials

If you are using this method to calculate VOC PTE from a solvent used to clean process equipment, then you would use past records to calculate how much solvent was used per unit of production, adjust this value as discussed earlier, and multiply it by the maximum number of production units that could be produced in 8,760 hours. You would not need to assume that the cleaning of the process equipment took place on an 8,760 hour-a-year basis, as this would not allow for any production and would be physically impossible.

If you calculate your PTE using this method, be sure to submit copies of all your calculations, references, and assumptions with your permit application.