

Guide to calculations for ChemTRAC reporting:

Wineries

Version 1.1

February 2013

Contents

How do I use this guide?

Part 1 of this guide will help you understand the ChemTRAC program, collect information about your facility, use the ChemTRAC calculator for Wineries, and report substances to ChemTRAC, if needed.

Part 2 of this guide will help you reduce your facility's environmental impact.

The Appendices provide additional information about emissions calculations.

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

Introduction to the ChemTRAC program.....	1
The Wineries sector	2
Identifying ChemTRAC substances	3
Calculating emissions.....	4
Worksheets for collecting information	5
Using the calculator.....	12
Interpreting results.....	18
Reporting to ChemTRAC.....	19

Part 2: Reducing your facility's environmental impact

Pollution prevention strategies.....	25
Control technologies for reducing emissions.....	25
More ways to reduce costs and improve performance	27
Getting started with pollution prevention.....	28

Additional information

Appendix A. Printer-friendly worksheets	31
Appendix B. Additional material related to the ChemTRAC calculator	34
Appendix C. Combining the Wineries calculator with other sources	38
Appendix D. Reporting Checklist	41

City of Toronto, 2012

*For more information about ChemTRAC, call 3-1-1 or visit **www.toronto.ca/chemtrac***

DISCLAIMER: This guide is for educational and informational purposes only. The City of Toronto assumes no liability for the accuracy or completeness of these materials. Readers are responsible for ensuring compliance with Toronto's Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423). These materials should not be relied upon as a substitute for legal or professional advice. Readers should seek their own legal or professional advice in regard to their use of the information contained in the guide.

Introduction to the ChemTRAC program

There are chemicals in Toronto's environment that can harm our health. These substances come from vehicle exhaust, homes, businesses and other sources.

Toronto Public Health identifies 25 of these chemicals as "priority substances" because they are found in our local environment at levels that are of concern for health. Evidence links these substances to short-term health effects like respiratory problems, and longer-term impacts such as cancer. In a business setting, these substances can come from process heating, cleaning with solvents, welding and other processes.

The list of 25 substances and the reporting thresholds are included in Table 5 on page 39.

ChemTRAC is a City of Toronto program that:

- tracks where businesses use and release these priority substances;
- helps businesses reduce or replace these substances with safer alternatives; and
- provides the public with information on priority substances in their community.

As part of ChemTRAC, Toronto's Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423) requires many businesses to report to the City each year if they use or release a certain amount of priority substances to the environment. Wineries are covered by this bylaw.

This guide is designed to help you:

- understand if your facility uses and releases any ChemTRAC priority substances;
- use ChemTRAC calculators to determine if you are required to report to the City of Toronto;
- use the ChemTRAC online reporting system to submit data to the City; and
- consider ways to reduce your environmental impact.

Additional information on the ChemTRAC program and the Environmental Reporting and Disclosure Bylaw is available by calling 3-1-1 or online at:

<http://www.toronto.ca/chemtrac/>

The Wineries sector

The North American Industrial Classification System (NAICS) code 312130 is comprised of facilities that manufacture wine or brandy, from grapes or other fruits. It includes facilities that grow fruit to manufacture wine, that manufacture wine from purchased fruit, that blend wines, and that distil brandy.

Wineries are required to report their data every year if they use or release any of the 25 substances above the reporting threshold. The report is due by June 30 each year. Annual data that is reported each June should cover the period from January 1 to December 31 of the previous year.

Identifying ChemTRAC substances in wineries

The production of red and white wines results in the release of two ChemTRAC priority substances:

- Acetaldehyde, and
- Volatile organic compounds (VOCs).

Acetaldehyde. Acetaldehyde is an organic compound that occurs widely in a nature and is produced industrially on a large scale. In a winery, it is released in small quantities as a by-product of the fermentation process.

Volatile Organic Substances (VOCs). VOCs are a group of organic chemicals that easily evaporate into the air. You can often smell them. In a winery, VOCs are released primarily from the fermentation process. Small amounts of VOCs (in the form of ethanol) are also released from bottling, pomace screening, and pomace pressing.

Table 1 summarizes the ChemTRAC substances associated with the processes in a typical winery.

The ChemTRAC calculator can help you estimate the levels of these substances in your facility.

Table 1. ChemTRAC substances released in a winery and their source of release

ChemTRAC priority substances	Manufacturing processes		
	Fermentation	Pomace screening and pressing (red wine)	Wine bottling
Acetaldehyde	X		
VOCs	X	X	X

The health effects of VOCs and Acetaldehyde

Acetaldehyde. Acetaldehyde may be carcinogenic to humans. Chronic exposure to low levels of inhaled acetaldehyde may increase the risk of cancer in all parts of the respiratory tract.

VOCs. Short-term health effects of exposure to VOCs may include eye, nose, and throat irritation, headaches, loss of coordination, and nausea. Over longer periods, VOCs can damage the liver, kidneys, and central nervous system.

For more information on the health effects of these substances, as well as other ChemTRAC priority substances, visit

<http://www.toronto.ca/health/chemtrac/substances.htm>.

Calculating emissions

To help Toronto businesses calculate their emissions and comply with the Environmental Reporting and Disclosure Bylaw, Toronto Public Health developed calculators that are specific to industrial sectors and processes. Access these calculators from the ChemTRAC website at <http://www.toronto.ca/health/chemtrac/tools.htm>.

These calculators help businesses do three things:

- Identify which ChemTRAC priority substances are used or released in their facility
- Calculate the amounts of ChemTRAC priority substances used or released
- Determine what they are required to report to the ChemTRAC program.

Appendix B describes how the calculators calculate estimates of the quantities of ChemTRAC priority substances that are released from your facility.

The release of ChemTRAC priority substances can be calculated using methods other than the ChemTRAC calculators. See <http://www.toronto.ca/health/chemtrac/tools.htm> for a list of alternative methods.

In the next section, we will work through worksheets to prepare you to use the ChemTRAC calculator for wineries.

Worksheets for collecting information

The worksheet found on the next page is intended to help you collect all the information needed to use the ChemTRAC calculator for Wineries. Two worksheets are provided:

- Wine production and bottling
- Pomace screening and pressing (red wine)

A printer-friendly version of the worksheets can be found as Appendix A. They can be printed and completed by hand so that you have all information available on-hand for entry into the ChemTRAC calculator.

Note: If your facility has more processes than are included in the ChemTRAC calculator for Wineries, you may need to use additional calculators to identify other emissions. You would then add these amounts to the numbers generated by the ChemTRAC calculator for Wineries. You can use ChemTRAC's "Calculation of Totals" calculator to combine the findings of multiple calculators and determine if you exceed ChemTRAC thresholds. See Appendix C for more details.

Worksheet 1: Wine production and bottling

This worksheet will help you collect information on your facility's annual production and bottling of wine, using the [Worksheet 1 tables](#) on the next two pages. You should collect data on your facility for the period from January 1 to December 31 of a calendar year.

1. What is the total annual volume of red wine *produced* by your facility? What is the total annual volume of white wine *produced*?

You can collect information on your annual wine production in any of the following units:

- Litres
- gallons (US)
- gallons (imperial)
- cubic metres
- barrels (190L)
- cases (12 x 750 mL bottles)

If it is easier, you can start by estimating weekly or monthly production.

Example: $20 \text{ barrels per month} * 12 \text{ months per year} = 240 \text{ barrels per year}$

Enter this data into [Worksheet 1 Table 1 \(red wine\)](#) and [2 \(white wine\)](#) on the next page. You can enter information on different types of red / white wine and add them in the bottom row of each table.

2. What is the total annual volume of wine *bottled* by your facility?

You can collect information on your total annual wine bottling in the same units listed for question 1.

Enter this data into [Worksheet 1 Table 3](#).

3. What VOC control technologies are installed in your facility?

Does your facility use carbon adsorption equipment, catalytic incineration equipment, wet scrubbers, or "other" VOC control technologies?

Descriptions of these technologies can be found on page 25 of this guide.

If you do not operate VOC control equipment, select "none" in [Worksheet 1 Table 4](#). If you do not know if control technologies are installed, assume that none are.

If you have "OTHER" VOC control technologies installed - what is their control efficiency?

*Only if you have VOC control equipment other than carbon adsorption, catalytic incineration, and wet scrubbers – identify the control efficiency of your control technologies. The control efficiency is the percentage of VOCs that are **removed** by the control equipment. For example, thermal oxidizers that can destroy 99% of VOCs would have a control efficiency of 99%.*

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

You can find information by contacting your supplier or by consulting the product guide. Use this information to fill out [Worksheet 1 Table 4](#).

Worksheet 1 Table 1 – Total volume of red wine produced

Type of red wine	Size / Number	Units
_____	_____	<input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)
_____	_____	_____
_____	_____	_____
_____	_____	_____
Total quantity of red wine produced		_____

Worksheet 1 Table 2 – Total volume of white wine produced

Type of white wine	Size / Number	Units
_____	_____	<input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)
_____	_____	_____
_____	_____	_____
_____	_____	_____
Total quantity of white wine produced		_____

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

Worksheet 1 Table 3 – Total volume of wine bottled

	Size / Number	Units
What is the total annual quantity of wine bottled?	_____	<input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)

Worksheet 1 Table 4 – VOC control technologies

What VOC control technologies are installed in your facility?	<input type="checkbox"/> carbon adsorption equipment <input type="checkbox"/> catalytic incineration <input type="checkbox"/> wet scrubbers <input type="checkbox"/> other VOC control technologies
	If “other VOC control technologies”, control efficiency: _____ %

Worksheet 2: Pomace screening and pressing (red wine)

This worksheet will help you collect information on the use of pomace screening and pressing for red wine using the [Worksheet 2 tables](#) below. You should collect data on your facility for the period from January 1 to December 31 of a calendar year.

4. Do you screen your red wine pomace?

If so, what volume of fermented red wine do you screen over the course of the year?

You can estimate the quantity of pomace that is screened based on the total volume of red wine produced. Do not worry about overestimating - emissions from screening are small compared to those from fermentation.

Enter this data into [Worksheet 2 Table 1](#) below.

5. Do you use one or more pomace presses for red wine?

If so, how much (red wine) pomace is pressed over the course of the year?

Pomace presses include horizontal presses, pneumatic presses, and continuous screw presses. Pomace pressing occurs after gravity dejuicing. You can estimate the mass of pomace that is pressed based on the total volume of red wine produced, and the approximate density of 1 kilogram per litre. Do not worry about overestimating - emissions from screening are small compared to emissions from fermentation.

Enter this data into [Worksheet 2 Table 2](#) below.

Worksheet 2 Table 1 – Red wine pomace screening

Do you screen your red wine pomace?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes - what is the total annual quantity of pomace screened?	_____ <input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)

Worksheet 2 Table 2 – Red wine pomace pressing

Do you use one or more red wine pomace presses?	<input type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

If yes - what is the total annual quantity of pomace pressed?	<p>_____</p> <ul style="list-style-type: none"><input type="checkbox"/> kilograms<input type="checkbox"/> pounds<input type="checkbox"/> ounces<input type="checkbox"/> tons (US)<input type="checkbox"/> tons (UK)<input type="checkbox"/> tonnes (metric)
--	--

Using the calculator

To calculate your use and release of ChemTRAC substances, you need to enter the information from the worksheets in this guide into the appropriate sections of the ChemTRAC calculator for Wineries. The ChemTRAC calculator will then automatically calculate the quantities of ChemTRAC substances released from your winery. This section of the guide provides a step-by-step walkthrough of the use of the calculator.

Getting started

The ChemTRAC calculator for wineries can be read with software such as Microsoft Excel or Open Office. To find a copy of the calculator, go to <http://www.toronto.ca/health/chemtrac/tools.htm> and click on the "Wineries" link found under the Food and Beverage Sector.

The calculator consists of four different screens:

- Instructions
- Input-Output
- Calculations
- References

You only have to enter information into the Input-Output screen. The other screens are provided in the calculator mainly for reference. No information needs to be entered in these screens.¹ These additional screens are discussed in Appendix C.

You can navigate between screens by clicking the buttons on the left side of each screen or by clicking on the tabs at the bottom of each screen:

¹ If you have site-specific emission factors for any ChemTRAC substance, they can be entered manually in the Calculator screen. See Appendix B for details.

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

Wineries and Wine Making
Last Update: Nov 10, 2011 JA, YS & ZI

This page contains necessary instructions that will help you use this calculator to estimate the amount of priority substances and other chemicals that are manufactured, processed, otherwise used (MPO) and/or released during the production of wine.

How to use this calculator:

1. Click on the "Input-Output" Tab
2. Fill out the appropriate amounts in the yellow boxes
3. Scroll down to view the Output Summary

Input Summary:

1. Enter the quantity of white wine produced (in litres)
2. Enter the quantity of red wine produced (in litres)
3. Indicate the type of control technology installed to control VOC emission
4. If the control technology used is not listed, enter the control efficiency (contact your supplier if you are not sure)
5. Indicate whether red wine pomace is screened
6. Enter the quantity of fermented red wine screened (in litres)
7. Indicate whether pomace presses were used
8. Enter the quantity of red pomace pressed (in kilograms)
9. Enter the quantity of wine bottled (in litres)

Output summary: This table gives you the estimated quantity of ChemTRAC priority substances this process manufactured, processed, otherwise used and/or released for the reporting year.

Other processes: If your facility has other activities or sources that MPO and/or release ChemTRAC priority substances (chemicals), you will need to calculate the chemical amounts contributed from these activities as well. Please go to the [ChemTRAC website](#) for other calculators and more information.

Total MPO and Releases: Once you have your estimates for activity(ies) or process(es), enter the amounts of MPO and release of each substance from each process into the "Calculation of Totals" calculator (available at [www.toronto.ca/chemtrac](#)) to determine if you need to report.

Before you start make sure you have:

- the quantity of white wine produced during the reporting year
- the quantity of red wine produced during the reporting year
- the type of control technology installed to control VOC emissions
- control technology efficiency if the technology installed is not listed in the Input table (as a percentage)
- the quantity of fermented red wine pomace screened during the reporting year
- the quantity of pomace used in pressing during the reporting year
- the quantity of wine bottled during the reporting year

Note: some of these may not apply to your facility

Navigation buttons

The Instructions screen

The calculator should open on the Instructions screen. This screen contains instructions on how to use the calculator to estimate the amount of ChemTRAC substances and other substances that are used and released by your winery. It also provides a brief overview of the contents of the calculator. **You do not need to enter any information on this screen.**

The Input-Output screen

The Input-Output screen is the screen where you will enter all information applicable to your facility. Information is typed in **yellow boxes** only. Any yellow cells that do not apply to your facility can be left blank. **Dropdown menus** are also used to input some information. The Input-Output screen can be filled out using the responses to the questions found within **Worksheets 1 and 2** of the guide.

Once you input your facility's information into the appropriate yellow boxes and dropdown menus, the calculator automatically calculates the quantities of ChemTRAC substances that are manufactured, processed, otherwise used and released to air from your facility.² The values are displayed in the **Output table** found at the bottom of the Input-Output screen. You should compare the values that are manufactured, processed or otherwise used to the ChemTRAC reporting thresholds to see if you are required to report ChemTRAC substances. See *Interpreting Results* on page 18 for more information. The next pages will walk you through the Input-Output screen. The image below illustrates the different areas of the Input-Output screen.

² The definitions for 'Manufactured', 'Processed', 'Otherwise Used', and 'Released to Air' can be found on the References screen of the ChemTRAC calculator.

Please complete the INPUT tables below.

INPUT

Type of Wine Produced (Select from drop down menu)	Quantity Produced (litres per year)
White	0
Red	0

*if you produce wine other than red or white table wine (ex. sparkling or ice wine), please add the total annual production to the table wine type listed you feel would be most appropriate

Type of control technology installed (please select from drop down menu):	None
Control efficiency (if "other" is selected) (consult your supplier)	0.0 %

Do you screen your red wine pomace?	Select
Quantity of fermented red wine screened in reporting year:	0 L
Do you use one or more pomace presses?	Select
If yes, please provide the quantity of (red) pomace pressed in reporting year:	kg/yr

Quantity of wine bottled in reporting year?	0 L
---	-----

Enter data from Worksheet 1, Question 1 & 3

Enter data from Worksheet 2

Enter data from Worksheet 1, Question 2

Use this box to convert quantities into litres and kilograms

Unit Conversion Table

1 gallons (US)	=	3.79 litres
1 gallons (Imp)	=	4.55 litres
1 cubic metres (m ³)	=	1000.00 litres
1 barrels (190L)	=	190.00 litres
1 cases*	=	9.00 litres
1 pounds	=	0.4536 kg
1 ounces	=	0.02835 kg
1 grams	=	0.001 kg
1 tons (US)	=	907.18474 kg
1 tons (UK)	=	1016.046909 kg
1 tonnes (metric)	=	1000 kg

*assumes 1 case = 12 X 750 mL bottles

OUTPUT SUMMARY (Only ChemTRAC priority substances)

ChemTRAC Priority Substances	Quantity (kg/vr)			
	Manufactured ¹	Processed ¹	Otherwise Used ¹	Released to Air ¹
Acetaldehyde	0	0	0	0
Volatile Organic Compounds (VOCs)	0	0	0	0
...finit...ailal...refer...				

The output values are calculated here

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

Entering information from Worksheet 1: Wine production and bottling

The images below display the area of the Input-Output screen where you enter information on wine production, VOC control technologies, and wine bottling.

Question 1 - quantity of wine produced: A sample user has indicated that their facility produced **100,000** litres of white wine and **150,000** litres of red wine by typing these values in the yellow boxes.

The input box requires data in litres. **If you have collected information in other units (e.g. gallons, barrels, cases), you should use the *Unit Conversion Box* on the right side of the Input-Output screen to convert to litres.** This is discussed on the next page.

Question 3 - type of control technology installed: A sample user has selected “**none**” from the dropdown menu.

INPUT	
Type of Wine Produced (Select from drop down menu)	Quantity Produced (litres per year)
White	100000
Red	150000

*if you produce wine other than red or white table wine (ex. sparkling or ice wine), please add the total annual production to the table wine type listed you feel would be most appropriate

Type of control technology installed (please select from drop down menu):	None	
Control efficiency (if "other" is selected) (consult your supplier)	0.0	%

Question 2 – quantity of wine bottled: A sample user has typed “**250,000**” into the yellow box for **litres** of wine bottled in the reporting year.

The input box requires data in litres. **If you have collected information in other units (e.g. gallons, barrels, cases), you should use the *Unit Conversion Box* on the right side of the Input-Output screen to convert to litres.** This is discussed on the next page.

Quantity of wine bottled in reporting year?	250000	L
---	--------	---

Entering information from Worksheet 2: Pomace screening and pressing

The image below displays the area of the Input-Output screen where you enter information on screening and pressing of red wine pomace.

It shows sample information entered into the appropriate areas of the screen.

Question 4 – pomace screening: A user has selected “**yes**” from the dropdown menu, and has indicated that their facility screened “**100,000**” litres of fermented red wine.

Question 5 – pomace pressing: A user has selected “**yes**” from the dropdown menu, and has indicated that their facility pressed “**100,000**” kg of red wine pomace.

Do you screen your red wine pomace?	<input type="text" value="Yes"/>	
Quantity of fermented red wine screened in reporting year:	100000	L
Do you use one or more pomace presses?	<input type="text" value="Yes"/>	
If yes, please provide the quantity of (red) pomace pressed in reporting year:	100000	kg/yr

Unit Conversion Table

The blue and yellow unit conversion box on the right side of the calculator allows you to convert:

- **Volume of wine produced, bottled, or screened into litres (L)**
- **Quantity of red wine pomace pressed into kilograms (kg).**

Enter the value from Worksheet 1 or 2 in the appropriate yellow box at the left of the table (in gallons, cubic metres, barrels, cases, pounds, etc). The tool will automatically calculate the quantity in litres or kilograms in the blue column at the right of the table. This value can then be entered into the main areas of the input-output screen.

As an example in the illustration on the next page, “**11,200**” **cases** is typed into the yellow box at the left. It is automatically converted to “**100,800**” **litres**, displayed in the blue box at the right of the table.

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

Unit Conversion Table			
1	gallons (US)	=	3.79 litres
1	gallons (Imp)	=	4.55 litres
1	cubic metres (m ³)	=	1000.00 litres
1	barrels (190L)	=	190.00 litres
11200	cases*	=	100800.00 litres
1	pounds	=	0.4536 kg
1	ounces	=	0.02835 kg
1	grams	=	0.001 kg
1	tons (US)	=	907.18474 kg
1	tons (UK)	=	1016.046909 kg
1	tonnes (metric)	=	1000 kg

*assumes 1 case = 12 X 750 mL bottles

Reading the Output table

The Output table displays the quantities of ChemTRAC substances that are manufactured, processed, released, or otherwise used in your facility. These values are the results of all of the calculations based on the information entered in the Input-Output Screen. The Output table below is the result of the sample information entered in the sample screens above.

OUTPUT SUMMARY (Only ChemTRAC priority substances)				
ChemTRAC Priority Substances	Quantity (kg/yr)			
	Manufactured ¹	Processed ¹	Otherwise Used ¹	Released to Air ¹
Acetaldehyde	0	0	0	0
Volatile Organic Compounds (VOCs)	115	0	0	115

¹ Definitions available in references

You should compare the values that are manufactured, processed, otherwise used and released to the ChemTRAC reporting thresholds to see if you are required to report ChemTRAC substances. See Interpreting Results on page 18 for more details.

Interpreting results

Compare results to thresholds. Once the amounts of ChemTRAC substances manufactured, processed, otherwise used have been calculated, you must compare these amounts to the ChemTRAC reporting thresholds listed in the Environmental Reporting and Disclosure Bylaw.³ These thresholds are also listed in Appendix C of this guide.

Combining multiple calculation methods. Some facilities may need to add results of the ChemTRAC calculator for Wineries with emissions from other processes in the facility. This is discussed in Appendix C.

If there are no other processes and, the ChemTRAC calculator is the only tool used to estimate emissions, the values in the Output Summary table of the calculator can be compared directly to the ChemTRAC reporting thresholds.

If results exceed thresholds you must report. If a ChemTRAC priority substance is manufactured, processed, or otherwise used in an amount equal to or greater than its ChemTRAC reporting threshold, then you would need to report that substance and the quantity released to air. See Appendix C for additional information.

Table 2 below compares the Summary Output table from the *Using the Calculator* section to ChemTRAC thresholds.

Table 2. Comparison of results from the ChemTRAC calculator and reporting thresholds

Output Summary table from the ChemTRAC calculator					Comparison to ChemTRAC thresholds	
ChemTRAC Priority Substances	Manufactured (kg/yr)	Processed (kg/yr)	Otherwise used (kg/yr)	Released to Air (kg/yr)	Reporting threshold (kg/yr)	Is reporting required ?
Acetaldehyde	0	0	0	0	100	No
VOC	115	0	0	115	100	YES

In the Table 2 example, VOCs are **released to air** in an amount greater than the reporting threshold⁴.

Therefore, in this example, the manufacturing and release to air of VOCs would need to be reported to the ChemTRAC program.

³ The full by-law can be found at <http://www.toronto.ca/health/chemtrac/report.htm>.

⁴ Because VOCs are a “group C” ChemTRAC substance, VOCs only need to be reported if the release to air exceeds thresholds. If VOCs are manufactured but are not released, reporting is not required.

Reporting to ChemTRAC

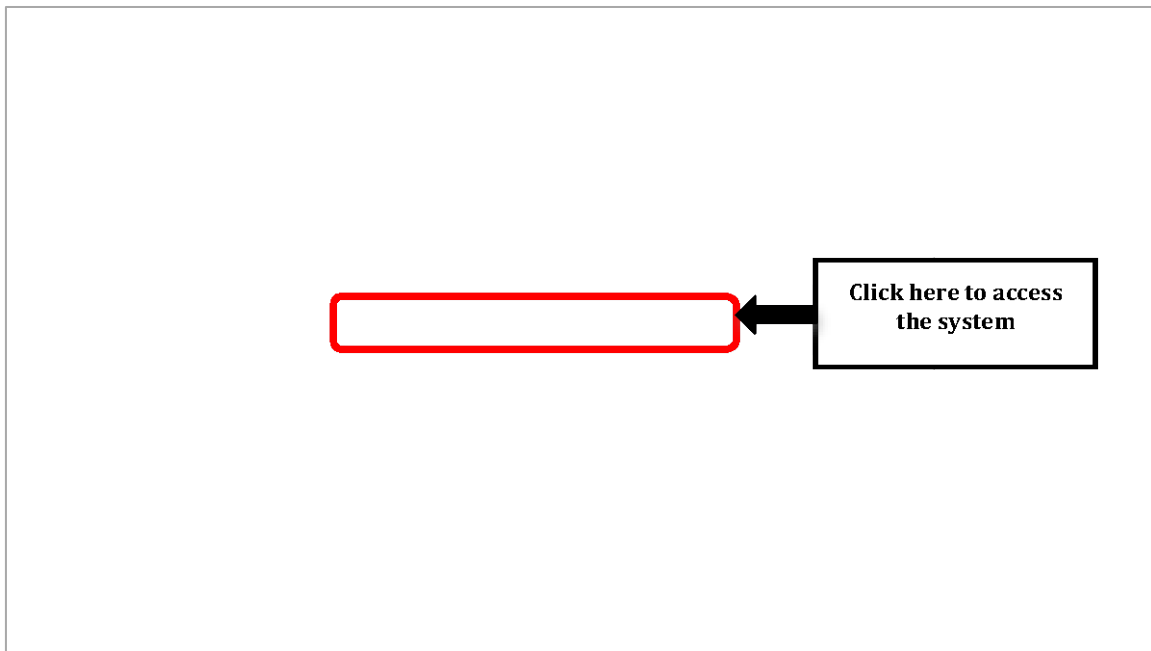
You are only required to report to ChemTRAC if you meet or exceed reporting thresholds for one or more priority substances.

Facilities that meet or exceed reporting thresholds for one or more substances must use the Online Reporting System to report to the ChemTRAC program. You can access the system from any computer with an internet connection. If your facility is exempt or below reporting thresholds, you can use the system to notify the City and volunteer environmental information.

You can find the online reporting system on the ChemTRAC webpage:
<http://www.toronto.ca/health/chemtrac/report.htm>.

You will need the following information to report to ChemTRAC

- Your First Time Access Code **OR** Registration ID
- Your facility name, address, number of employees and contact information
- Your NAICS code
- The names of substances you are reporting
- Quantities of priority substances (in kilograms).



[Home](#)
[Help](#)
[Frequently Asked Questions](#)
[Contact us](#)
[Terms of use](#)
[User Guide](#)

You are in a secure site.



Welcome to the ChemTRAC data reporting system

This application will allow you to:

- Report the use and release of priority substances under Toronto's Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423)
- Indicate if your facility is below reporting thresholds
- Indicate that the reporting requirements do not apply to your facility
- Provide information on your facility's environmental activities

To report online, you will need the **First Time Access Code** or your **Registration ID**.

To protect your privacy and security it is recommended that you close the browser after submitting your information.

To protect the secured exchange of information between you and this secure site, this transaction requires that your browser supports 128-bit data encryption. To continue, you may be asked to download and install the latest version of your browser.

As a security precaution, page sessions will end automatically as indicated at the top of each page.

To proceed with reporting information on chemical use and release you must read and consent to the [Terms of Use](#) and click the **I Agree** button below.

Note: Use of the browser Back button is not supported. Please use the reporting system's back/next button(if applicable) to navigate when necessary.

First Time Access Code for new users

If you are a first time user, you will need a "First Time Access Code" to use the system. The City sends most businesses their First Time Access Code by mail. If you did not receive or have lost your First Time Access Code, please call 3-1-1.

Registration ID for facilities already in the system

If you have already reported in the online system, you have been issued a Registration ID. This ID number is to be used for future visits to the ChemTRAC reporting system. If you have lost your Registration ID, please call 3-1-1.

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

First Time Signing In?

Register with First Time Access Code

Already Registered?

Registration ID:

If you have lost or forgotten your Registration ID, please contact us at (416) 338-7600

Sign In

Once you have entered the online reporting system

The online system has seven steps. You will see your progress at the top of the screen. In the screenshot below, Step 1 is complete and Step 2 is in progress.

Toronto

ChemTRAC
You are in a secure site.

Frequently asked questions
Contact us
Terms of use
User Guide

Step 1
Facility Registration

Step 2
Reporting Period

Step 3
Chemical Selection

Step 4
Use & Release (0 of 0)

Step 5
Environmental Statement

Step 6
Summary Notification

Step 7
Confirmation & Print

15min Note: This registration session will automatically end fifteen minutes after this Web page has finished loading.

To move to the next step, you must enter all the required information on the screen and click the “Next” button at the bottom of the screen. You can use the “Back” button to change the information you provided in previous steps.

Please remember to have all your information ready before you enter the system. **You will only have fifteen minutes to complete each screen before the system logs you out.** If your session expires before you hit the "submit" button, you will need to re-enter all your information. If you are running out of time, you can reset the countdown without losing information by switching to a different page then returning to the page you were working on.

Step 1. Facility registration

In Step 1, you will enter your facility name, address, number of employees and company contact information. You will also enter your **NAICS code** in the section entitled “Type of facility”. You must begin by selecting the 2-digit NAICS code from the dropdown menu. For wineries, this will be “31 – Manufacturing”.

Then, you can select the appropriate 4-digit code (3121), and finally, the 6 digit code (312130).

NAICS 2-Digit: 31 – Manufacturing

NAICS 4-Digit: 3121 – Beverage Mfg.

NAICS 6-Digit: 312130 – Wineries

Step 2. Reporting period

In Step 2, you will choose the calendar year from the dropdown menu and select “Yes” in response to the statement “I am ready to report for the year above”.

If your calculations showed you to be below the reporting threshold, you can enter “No” in response to the statement “I am ready to report for the year above” and then enter “I do not meet the threshold.”

Step 3. Chemical selection

In Step 3, you will identify the substances that your facility used or released at or above reporting thresholds. In the Table 2 example, Volatile Organic Compounds (VOCs) was the only substance that exceeded thresholds. The associated online chemical section is illustrated below.

<input type="checkbox"/>		Polycyclic Aromatic Hydrocarbons (PAHs)
<input type="checkbox"/>	11104-93-1	Nitrogen Oxides (NOx)
<input type="checkbox"/>		Particulate Matter 2.5 (PM 2.5)
<input checked="" type="checkbox"/>		Volatile Organic Compounds (VOCs) Total

Step 4. Use and release

In Step 4, you will enter information for each substance that you identified in Step 3. You will begin by determining whether a substance was used or released, and from where / to where.

In the Table 2 example, VOCs are “manufactured” and “released to air”.







Next, you will need to **enter the total quantity of the substances that your facility manufactured and released, in kilograms and without decimals.** For example, 17.2 kg would be rounded to 17 kg and 17.6 kg rounded to 18 kg.

Finally, you will select an estimation method from the dropdown menu.

Select “ChemTRAC calculator” if you have used the ChemTRAC calculator.

Part 1: Gathering data, using the calculator, and reporting to ChemTRAC

The example on the next page illustrates how to complete Step 4 for VOCs using sample information.

Volatile Organic Compounds (VOCs) Total (Reporting Threshold = 100.0 kg)	
Quantity (kg)	Estimation Method
If you used more than one method to estimate data, please choose the main one	
Manufactured:  115	ChemTRAC calculator
Processed:  <input type="text"/>	- Select Estimation Method From List -
Otherwise Used:  <input type="text"/>	- Select Estimation Method From List -
Total Use: 115	
Release to Air:  115	ChemTRAC calculator
Release to Land:  <input type="text"/>	- Select Estimation Method From List -
Release to Surface Water:  <input type="text"/>	- Select Estimation Method From List -
Total Release: 115	

Step 5. Environmental statement

In Step 5, you have the option of entering information about your environmental activities including: if you have completed environmental training courses, created a Pollution Prevention Plan, or adopted an Environmental Management System. Pollution Prevention Plans are discussed briefly in Part 2 of this guide. You will also specify if you report to the National Pollutant Release Inventory or to the Toronto Sewer Use Bylaw.

Steps 6 and 7. Summary notification, confirmation and printing

In Steps 6 and 7, you will not enter any new information. You will review the information you provided, submit your report, and receive a printable record.

Optional reporting for facilities below threshold levels of priority chemicals

For those businesses or facilities that do not meet or exceed ChemTRAC thresholds, the online reporting system allows you to identify yourself as a “non-reporter”. This will allow you to stay informed on ChemTRAC program initiatives. It will also help Toronto Public Health assess trends over time and gauge the effectiveness of the ChemTRAC program.

Part 2: Reducing your facility's environmental impact

Part 2: Reducing the environmental impact of your facility

This section of the guide provides information about reducing the environmental impact of your facility.

- *It provides an overview of pollution prevention strategies*
- *It identifies relevant control technologies for reducing emissions*
- *It provides guidance on getting started with pollution prevention.*

Pollution prevention strategies

The ChemTRAC program requires facilities to report on substances that are manufactured, processes or otherwise used in quantities that are equal to or greater than ChemTRAC reporting thresholds. Although it is not required as part of the ChemTRAC program, it is good business practice for facilities to also take action to reduce the creation, use and release of ChemTRAC priority substances.

Minimizing the use and release of harmful substances at the source is called pollution prevention (or P2) and is widely recognized as good business practice. Collecting data for ChemTRAC gives you the information you need to consider P2 options in your facility.

How can a business benefit from pollution prevention (P2)?

- P2 can reduce operating costs from the use of chemicals and energy
- P2 can reduce the costs of waste management and the risk of liability
- P2 can improve worker health and safety
- P2 can improve community relations and build a business' reputation as socially and environmentally responsible
- P2 can improve a business' ability to respond to consumer demands for "greener" products

Pollution prevention strategies

Businesses have many options for reducing the use of harmful substances in their facilities. Not all of the options will be relevant to all businesses. Three types of strategies and examples are presented below.

1. **Use low-cost, good operating practices.** Simple changes to normal practices can reduce the use and release of harmful chemicals at no cost to business owners.
For example: Well-maintained tanks and equipment reduce waste, save money, and reduce emissions.
2. **Install control technologies or equipment.** New control technologies and equipment can reduce the release of harmful chemicals and save money by improving operating efficiency.
For example: Install equipment to destroy VOCs from fermentation. VOC control equipment can reduce emissions by 90%.
3. **Modify products or inputs.** Traditional products and processes can be replaced with alternatives that use and release less harmful chemicals.
For example: Switch to water-based biodegradable cleaners. Though not discussed in the guide, caustic or acidic cleaners emit VOCs.

Control technologies for reducing emissions

Control technologies can reduce, but not eliminate, the quantity of ChemTRAC substances that are released from wineries.

VOC control equipment

There are three common control technologies that can decrease the volatile organic compounds that are released from wine production operations: carbon adsorbers, catalytic incinerators, and wet scrubbers.

Carbon adsorbers. Carbon adsorbers remove VOCs from an air stream by adsorbing the vapour onto an activated carbon surface. They are estimated to remove about 90% of VOCs.

Catalytic incinerators. In a catalytic incinerator, VOCs are destroyed by oxidation at low temperatures on a catalytic bed. They are compact systems that have low operating costs and remove about 70% of emissions.

Wet scrubbers. In a wet scrubber, pollutants are removed from a gas stream by dissolving or absorbing them into the liquid. They are estimated to remove about 90% of VOCs.

The ChemTRAC calculator can be used to estimate a control technology's emission reduction potential.

Without changing any other values entered in the Input-Output screen, select "wet scrubber" as a control technology for VOCs (Question 3). Check the new level of VOCs in the output table – it should be much lower than before. If you do not have any other control technology installed, it should be 90% lower than the original number.

The table below summarizes control technologies in Wineries.

Table 3. Control technologies for wineries

Manufacturing process	Control technology	ChemTRAC substance being controlled	Reduction ability of the control technology
	Carbon adsorbers	Volatile organic compounds	Reduces VOC creation by up to 90%
Wine fermentation, screening and pressing	Catalytic oxidizers	Volatile organic compounds	Reduces VOC creation by up to 70%
	Wet scrubbers	Volatile organic compounds	Reduces VOC creation by up to 90%

More ways to reduce costs and improve performance

Minimizing the use and release of harmful substances is one aspect of improving environmental performance. Facilities can also take other steps to improve their economic and environmental sustainability.

1. **Reduce energy use.** By reducing energy use, wineries can save money on energy bills and reduce their environmental impact. Many energy-efficiency technologies have very short payback periods. Utilities also offer incentives for energy efficiency measures.

To reduce energy use, low-cost, good operating procedures can be adopted, and new technology or equipment can be installed. This includes:

- Undergoing an energy audit to identify opportunities for savings
- Encouraging employees to turn off lights and equipment when not in use
- Replacing old equipment with more efficient equipment
- Use refrigeration jackets to reduce energy use for cooling tanks
- Installing a programmable thermostat to control heating and cooling

2. **Reduce water use.** Working to reduce water use can save money and provide environmental benefits. Wineries can do a number of things to reduce water use.

To reduce energy use, low-cost, good operating procedures can be adopted, and new technology or equipment can be installed. This includes:

- Sweeping floors and machines instead of hosing them down with water
- Posting signs near sinks and hoses to encourage employees to use less water
- Purchasing high pressure, low volume cleaning equipment
- Purchasing self-cleaning presses and vacuum pumps to reduce water use in pressing and bottling
- Purchasing water sprayers with automatic shut-off nozzles.

Getting started with pollution prevention

The good news is that you've already started by calculating emissions of ChemTRAC priority substances.

Next steps can include:

1. Evaluating actions to reduce use and release of energy, water and ChemTRAC substances.
2. Identifying funding for upgrades to facilities and equipment.
3. Implementing all cost-effective upgrades.
4. Tracking changes in the use and release of energy, water and substances.

To help in these steps, ChemTRAC is offering **free technical assistance visits**, **free training workshops** and additional resources to help businesses create an inventory of chemicals used at their facility, comply with the ChemTRAC program, and identify opportunities to improve their facilities' environmental performance.

For more information, visit:

http://www.toronto.ca/health/chemtrac/assistance_program.htm and
<http://www.toronto.ca/health/chemtrac/gogreen.htm>.

Additional resources on reducing the environmental impact of wineries include:

- Bay Area Green Business Program. Becoming a Green Winery. <http://www.greenbiz.ca.gov/BGWinery.html>
- Dalhousie University. 2008. Fact Sheet: Eco-Efficiency in the Food Processing Industry. http://eco-efficiency.management.dal.ca/Files/Business_Fact_Sheets/food_processing_fs.pdf
- El Rayes Environmental Corp. 1997. Technical Pollution Prevention Guide for Brewery and Wine Operations in the Lower Fraser Basin. Environment Canada. research.rem.sfu.ca/frap/9720.pdf
- New York State Department of Environmental Conservation. March 2001. Environmental Self-Assessment for the Food Processing Industry. <http://www.fpeac.org/poultry/EnvironmentalSelfAssessmentforFoodProcessingIndustry.pdf>
- Toronto Public Health, ChemTRAC. December 2010. Resource for Greening Food and Beverage Manufacturing: Pollution Prevention Information. www.toronto.ca/health/chemtrac/pdf/GreenFoodBev.pdf
- US EPA. 2002. Practical Guide to Environmental Management for Small Businesses. http://www.smallbiz-enviroweb.org/Resources/smallbizfiles/EM_Guide0902.pdf

Part 2: Reducing your facility's environmental impact

- Weber, Melissa and Mark Bahner. 1999. Pollution Prevention for the Wine Industry. Research Triangle Institute.
www.c2p2online.com/documents/P2forwineindustry.pdf

Appendices

The remaining pages of this guide offer additional material for your reference:

Appendix A. Printer-friendly versions of the four worksheets.

Appendix B. Additional material related to the ChemTRAC calculator.

- *Descriptions of the remaining calculator screen*
- *How the calculator uses emission factors to calculate quantities of ChemTRAC substances*
- *How emission factors can be changed to site-specific values.*

Appendix C. Combining the ChemTRAC calculator with other sources:

How to combine the ChemTRAC calculator for Wineries with emissions data from other sources.

Appendix A. Printer-friendly worksheets

These worksheets can be printed and completed by hand so that all information can be readily available for entry into the ChemTRAC calculator.

Worksheet 1: Wine production and bottling

1. What is the total annual volume of red wine *produced* by your facility?
 What is the total annual volume of white wine *produced*?

Worksheet 1 Table 1 – Total volume of red wine produced

Type of red wine	Size / Number	Units
_____	_____	<input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)
_____	_____	_____
_____	_____	_____
Total quantity of red wine produced		_____

Worksheet 1 Table 2 – Total volume of white wine produced

Type of white wine	Size / Number	Units
_____	_____	<input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)
_____	_____	_____
_____	_____	_____
Total quantity of white wine produced		_____

Additional material

2. What is the total annual volume of wine *bottled* by your facility?

Worksheet 1 Table 3 – Total volume of wine bottled

	Size / Number	Units
What is the total annual quantity of wine bottled?	_____	<input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)

3. What VOC control technologies are installed in your facility? *If you have "OTHER" VOC control technologies installed - what is their control efficiency?*

Worksheet 1 Table 4 – VOC control technologies

What VOC control technologies are installed in your facility?	<input type="checkbox"/> carbon adsorption equipment <input type="checkbox"/> catalytic incineration <input type="checkbox"/> wet scrubbers <input type="checkbox"/> other VOC control technologies
	If "other VOC control technologies", control efficiency: _____ %

Additional Material

Worksheet 2: Pomace screening and pressing (red wine)

4. Do you screen your red wine pomace?
If so, what volume of fermented red wine do you screen over the course of the year?

Worksheet 2 Table 1 – Red wine pomace screening

Do you screen your red wine pomace?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes - what is the total annual quantity of pomace screened?	_____ <input type="checkbox"/> litres <input type="checkbox"/> gallons (US) <input type="checkbox"/> gallons (imperial) <input type="checkbox"/> cubic metres <input type="checkbox"/> barrels (190L) <input type="checkbox"/> cases (12 bottles)

5. Do you use one or more pomace presses for red wine?
If so, how much (red wine) pomace is pressed over the course of the year?

Worksheet 2 Table 2 – Red wine pomace pressing

Do you use one or more red wine pomace presses?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes - what is the total annual quantity of pomace pressed?	_____ <input type="checkbox"/> kilograms <input type="checkbox"/> pounds <input type="checkbox"/> ounces <input type="checkbox"/> tons (US) <input type="checkbox"/> tons (UK) <input type="checkbox"/> tonnes (metric)

Appendix B. Additional material related to the ChemTRAC calculator

This appendix describes the remaining screens of the ChemTRAC calculator. You do not need to enter any information into these screens. However, if site-specific emission factors are known, they can be entered manually in the Calculations screen.

This appendix also describes emission factors and how the ChemTRAC calculator makes use of them.

The ChemTRAC calculator Calculations screen

The Calculations Screen provides a summary of ChemTRAC priority substances and other substances used and/or released by your facility, based on the information entered in the Input-Output screen. Note that the CAS# refers to a unique identifier for the substance as given by the Chemical Abstracts Society. The CAS# is provided for reference only.

ChemTRAC Substances	CAS #	Quantity (kg/yr)			
		Manufactured	Processed	Otherwise Used	Released to Air
Acetaldehyde	75-07-0	0.0	0.0	0.0	0.0
Volatile Organic Compounds (VOCs)	n/a	28.2	0.0	0.0	28.2
Other Substances					
Ethanol	64-17-5	28.2	0.0	0.0	28.2
Methanol	67-56-1	0.0	0.0	0.0	0.0
n-Propanol	71-23-8	0.0	0.0	0.0	0.0
n-Butanol	71-36-3	0.0	0.0	0.0	0.0
sec-Butanol	78-92-2	0.0	0.0	0.0	0.0
Isobutanol	78-83-1	0.0	0.0	0.0	0.0
Isoamyl alcohol	123-51-3	0.0	0.0	0.0	0.0
Hydrogen Sulfide	7783-06-4	0.0	0.0	0.0	0.0

n/a - not applicable

The Calculations screen also includes the formulas and emission factors used to calculate emissions from the data entered in the Input-Output screen.

You do not need to enter any information on this screen. However, emissions factors can be modified if site-specific information is available. You can modify the emission factors for individual substances or for total VOCs associated with fermentation of red or white wine. You can also modify the emission factors for ethanol associated with red wine pomace screening and pressing. The locations of these emission factors are identified in the image on the next page.

If you are entering facility-specific emission factors, be sure that they are entered in the right units: pounds per 1,000 gallons (lbs/10³ gallons) for fermentation, and kilograms per cubic metre (kg/m³) for pomace screening and pressing.

Other than to enter site-specific emission factors, all data, sample calculations and information presented in the Calculations screen are for reference only. They should not be modified in any way.

Additional material



References

Last Update: Nov 10, 2011 JA, YS & ZI

Instructions	This page provides all the reference information for the emission factors and assumptions used in the Calculations spreadsheet. Click on the links below to view the source documents.
Input-Output	
Calculations	Emission factors and an assessment of their data quality are provided the US EPA AP-42 "Wines and Brandy", Section 9.12.2, 1995 http://www.epa.gov/ttn/chief/ap42/ch09/final/c9s12-2.pdf and in the Australian National Pollutant Inventory Emission Estimation Technique Manual for Wine and Spirits http://www.npi.gov.au/handbooks/approved_handbooks/pubs/wine.pdf
References	

Definitions¹

Manufacture - To produce, prepare or compound a priority substance and includes the coincidental production of a priority substance as a by-product.

Process - The preparation of a priority substance, after its manufacture, for commercial distribution and includes the preparation of a substance in the same physical state or chemical form as that received by the facility, or preparation which produces a change in physical state or chemical form.

Otherwise Use - Any use, disposal or release of a priority substance at a facility that does not fall under the definitions of "manufacture" or "process." This includes the use of the priority substance as a chemical processing aid, manufacturing aid or some other use.

Release - The emission or discharge of a priority substance, whether intentional, accidental or coincidental, from a facility into the environment.

¹For details refer to the Environmental Reporting and Disclosure Bylaw available at the [ChemTRAC website](#)

Additional Material

Emission factors for wineries

The ChemTRAC calculators are all based on published estimates of the emissions associated with different industrial processes. These estimates are called “emission factors”. Emission factors indicate the amount of a specific substance (e.g. nitrogen oxides) emitted by a specific activity (e.g. burning one cubic metre of natural gas).

The ChemTRAC calculator uses the emission factors for VOCs listed in Table 4 to estimate emissions from wineries. If site-specific emission factors are available for the facility or processes, they can be entered in the Calculations sheet of the calculator. This is detailed in the discussion of the calculator’s Calculations screen.

Table 4. Emission factors for VOCs used in the Wineries ChemTRAC calculator

Source	Substance	Emission Factor	
Fermentation	Volatile organic compounds	Red wine	4.63 lb / 1,000 gal
		White wine	1.81 lb / 1,000 gal
Screening red wine	Volatile organic compounds (ethanol)		0.06 kg / m ³
Pressing red wine pomace	Volatile organic compounds (ethanol)		0.0082 kg / m ³
Bottling	Volatile organic compounds		0.012 kg / m ³

Example: Using emission factors to estimate VOC emissions from bottling

Table 4 shows that 0.012 kg of VOCs is emitted for every cubic metre (m³) of wine bottled.

Assume a facility bottled 250,000 L of wine in 2011 (250 m³).

Emissions of VOCs for 2011 from bottling

= Emissions per unit of wine bottled * Volume of wine bottled in 2011

= 0.012 kg / m³ * 250 m³

= 3 kg of VOCs

Appendix C. Combining the Wineries calculator with other sources

Depending on your business, you may need to use more than one calculator to calculate the use and release from all processes at your facility. The "Calculation of Totals" calculator can be used to compile your data.⁵ In this calculator, you can enter the values for each process at your facility. The calculator returns the total manufactured, processed or otherwise used amounts for the facility, by substance, and then compares it to the corresponding reporting threshold.

CHEMTRAC
Calculation of Totals
Last Update: October 21, 2011 by YS, JA, & ZI

Instructions

- This page gathers information to help you determine your facility-wide substance manufacture, process, otherwise use (MPO) and release estimates.
- For each source of priority substances, enter the process name and then provide the quantity of each substance manufactured, processed, otherwise used and released.
- In the "MPO" column, identify whether the priority substance was Manufactured, Processed or Otherwise used. To do this you may consult the "Guide to Reporting" available at www.toronto.ca/chemtrac. The definitions are provided in the Examples tab.
- At the end of each row, you will find the facility-wide totals that need to be compared with the Mass Reporting Thresholds.
- The last 4 columns indicate the amount of each substance that you must report to the City of Toronto.

Calculation

Example

Calculation of Totals

Group	Chemical/Name	Process #1				Process #2				Total to be compared with threshold (kg/yr)	Mass Reporting Threshold (kg/yr)	Reportable?	To be reported			
		Manufactured	Processed	Otherwise Used	Released to Air	Manufactured	Processed	Otherwise Used	Released to Air				Total Manufactured (kg/yr)	Total Processed (kg/yr)	Total Otherwise Used (kg/yr)	Total Released to Air (kg/yr)
	Acetaldehyde*									0	100	No	---	---	---	---
	Acrolein*									0	100	No	---	---	---	---
	Benzene*									0	100	No	---	---	---	---
	1,3-Butadiene*									0	100	No	---	---	---	---
	Carbon tetrachloride*									0	100	No	---	---	---	---
	Chloroform (Trichloromethane)*									0	100	No	---	---	---	---
	Chromium (hexavalent)*									0	100	No	---	---	---	---
	1,2-Dibromoethane (Ethylene dibromide)									0	100	No	---	---	---	---
	1,4-Dichlorobenzene*									0	100	No	---	---	---	---
	1,2-Dichloroethane (Ethylene dichloride)*									0	100	No	---	---	---	---
A	Dichloromethane (Methylene chloride)									0	100	No	---	---	---	---
	Formaldehyde*									0	100	No	---	---	---	---
	Manganese*									0	10	No	---	---	---	---
	Nickel*									0	100	No	---	---	---	---
	Perchloroethylene (Perchloroethylene)									0	100	No	---	---	---	---
	Tetrachloroethylene*									0	100	No	---	---	---	---
	Vinyl chloride									0	100	No	---	---	---	---
	Cadmium*									0	1	No	---	---	---	---
	Chromium (trivalent)*									0	10	No	---	---	---	---
	Lead									0	10	No	---	---	---	---
	Mercury*									0	1	No	---	---	---	---
B	Total polycyclic aromatic hydrocarbons (PAHs)*									0	10	No	---	---	---	---
	Nitrogen oxides (NOx)									0	200	No	---	---	---	---
C	Particulate matter 2.5 (PM2.5)									0	30	No	---	---	---	---
	Total Volatile organic compounds (VOCs)*									0	100	No	---	---	---	---

The total quantities of ChemTRAC substances that would have to be reported are listed here

The total combined release of substances (whether from the ChemTRAC Wineries calculator only, or from other substance quantification methods as well) should be compared to the mass reporting thresholds listed in Schedule A of the Environmental Reporting and Disclosure Bylaw and provided in Table 5 on the following page.

⁵ The Calculation of Totals calculator can be found under the Totals bullet at <http://www.toronto.ca/health/chemtrac/tools.htm>.

Additional Material

Table 5. ChemTRAC priority substances and their reporting thresholds (adapted from Schedule A of the Environmental Reporting and Disclosure bylaw)

ChemTRAC substance	ChemTRAC Mass reporting threshold (kg/yr)	Concentration threshold ^c % w/w
Group A: report if sum of quantity manufactured, processed and otherwise used exceeds thresholds		
Acetaldehyde	100	1
Acrolein	100	1
Benzene	100	1
1,3-Butadiene	100	1
Cadmium and its compounds	1	0.1
Carbon tetrachloride	100	1
Chloroform (Trichloromethane)	100	1
Chromium, Hexavalent and its compounds	10	0.1
Chromium, Non-hexavalent and its compounds	100	1
1,2-Dibromo ethane (Ethylene dibromide)	100	1
1,4-Dichlorobenzene	100	1
1,2-Dichloroethane (Ethylene dichloride)	100	1
Dichloromethane (Methylene chloride)	100	1
Formaldehyde	100	1
Lead and its compounds	10	0.1
Manganese and its compounds	10	1
Mercury and its compounds	1	0
Nickel and its compounds	100	1
Tetrachloroethylene (Perchloroethylene)	100	1
Trichloroethylene	100	1
Vinyl chloride	100	1
Group B: report if sum of quantity released, disposed and transferred exceeds thresholds		
Polycyclic Aromatic Hydrocarbons (PAHs)	10	N/A ^b
Group C: report if quantity released to air exceeds thresholds		
Nitrogen Oxides (NOx)	200	N/A
Particulate Matter 2.5 (PM _{2.5})	30	N/A
Volatile Organic Compounds (VOCs) total	100	N/A

Notes:

- N/A = not applicable
- The concentration threshold % w/w is not relevant to the emissions quantified using the ChemTRAC calculator for Wineries

Appendix D. Reporting Checklist

Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423)

Checklist for Facilities in Toronto

Make sure the data you submit in your reports are accurate. Here is a checklist to help you.

- Enter complete facility and contact information. If you are a consultant, identify yourself as the technical contact.
- Submit a **separate** report for **each** facility in Toronto.
- Complete the statement of certification.
- Report **all** of the priority substances (chemicals) that meet or exceed (equal to or greater than) the reporting thresholds.
- Report **both use and release** amounts of all priority substances that meet or exceed the reporting thresholds.
- Estimate use and release for **all** sources and processes in your facility.
 - This includes process such as heating by natural gas combustion, welding, equipment cleaning, drilling, grinding, crushing, sanding, and blending.
- Review the exemptions in the bylaw, such as building heating, and do not include these in your calculations.
- Compare current year estimates with that of previous years (if available) and explain any differences if present.
- **If you report to NPRI and there is a difference between the amount of a substance reported to ChemTRAC and NPRI, explain the reason for the difference.**
- **You may need to make your records available for audit purposes. Securely store the records you based your report on and document:**
 - Assumptions and parameters used for calculation and estimation of emissions
 - Procedures and methods used to measure emissions
 - Calibration records of any equipment used to measure emissions

Additional Material

Use and Release Calculations

- There are many sources of information that can help you identify the priority substances in your facility. Be sure to check all of them, including:

purchase records	year-end inventory	Material Safety Data Sheets (MSDS)
raw materials	Certificate of Approval or Environmental Compliance Approval	correspondence with supplier

- Use the best available method for use and release estimation. Use (if any) the most appropriate and most recent ChemTRAC calculator (available at toronto.ca/health/chemtrac/tools.htm).
- Enter all the reportable data in kilograms (kg).
- Calculate the **total** amount of a substance used and released in **all** processes.
 - For example, process 1 used 90 kg VOC and released 75 kg. Process 2 used 60 kg VOC and released 56 kg. The total amount of use would be $90+60=150$ kg and release $75+56=131$ kg.
 - To help with these calculations you can use the free online ChemTRAC totals calculator.
- Double check that **decimal places** are entered in the correct place (e.g. 3.47 vs. 347)
- Check that the **total release** amount (release to land+water+air) is equal to or less than **total use** amount (manufactured+processed+otherwise used).
- Use the **average value** for use and release estimation if the substance content is listed in a range (e.g. 10-12% VOCs) on Material Data Safety Sheets or on other sources of substance data.
- The following priority substances are VOCs. Be sure to report them separately **and also include** them in your VOC estimation:

Acetaldehyde	Acrolein	Benzene
1,3-butadiene	Carbon Tetrachloride	Chloroform
1,4-Dichlorobenzene	1,2-Dichloroethane	Formaldehyde
Trichloroethylene	Vinyl chloride	Polycyclic Aromatic Hydrocarbons (PAHs)

Additional Material

- Consider the effects of pollution control devices (e.g. filter) in the emission calculations.
- Consider the amount of waste transferred off-site (if any) in emission calculations.

Disclaimer: This checklist is for information only. The City of Toronto assumes no liability for accuracy or completeness. Readers are responsible for ensuring compliance with Toronto's Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423). This information should not be relied upon as a substitute for legal or professional advice. Readers should seek their own legal or professional advice in regard to their use of the information contained in it.