



Open Process Tank Emission Calculator

v1.0 User Guide (November 2025)

NOTE: This emission calculator is a beta tool for estimating emissions from open process tanks. Final permitted emissions may differ from initial estimates generated by this emission calculator.

For more information on methodologies and calculation procedures, please refer to South Coast AQMD [Plating and Process Tank Emissions Guidelines](#)¹.

Acronyms

The following acronyms are used throughout this user guide for reference.

Acronym	Definition
APC	Air Pollution Control equipment
CAS	Chemical Abstracts Service (Chemical Identification Number)
CFM	Cubic Feet per Minute
PM	Particulate Matter
TAC	Toxic Air Contaminant
VOC	Volatile Organic Compound
VP	Vapor Pressure

Quick Guide

1. Enable Macros before using the emission calculator.
2. Input Sheet
 - Enter tank maximum operating parameters.
 - Verify any TACs or VOCs.
 - Clear any “Check” flags and manually enter missing information.
3. VP Sheet
 - Clear any “Check” flags and manually enter Antoine Coefficient information as needed.
4. Summary Sheet
 - Press “Calculate Emissions” to generate results.

¹ South Coast AQMD’s Plating and Process Tank Emissions Guidelines is available online at: <https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/plating-emissions-2022.pdf>

Input Sheet

The Input Sheet is the main data entry sheet for tank operating parameters. Each row represents one chemical in a single tank. Complete all highlighted columns applicable to your process.

Input	Units	Notes
Chemical	-	Chemical name, formula, or CAS number
Tank Number	-	Tank identifier
Tank Name	-	Optional field for a descriptive tank name
Concentration	wt%	Concentration of chemical in tank (0% -100% by wt)
Solution Temperature	°F	Maximum operating temperature for heated or chilled tanks (use 68°F for tanks with no external heating/chilling)
Air Sparging	-	“Yes” if air sparged; leave blank or enter “No” if not air sparged
Rectifier Rating	A	Maximum rectifier amperage
Amp-hr Limit	amp-hr/yr	Optional: Yearly amp-hrs needed
Plating Efficiency	%	Plating efficiency, see reference table in Input Sheet
Ventilation Rate	CFM	Expected exhaust flow rate for vented tanks; leave blank for non-vented tanks
APC Type		Description of APC(s) venting the tank, if any
APC Control Efficiency	%	Control equipment efficiency, see reference table in Input Sheet
Tank Dimensions	ft, in	Tank dimensions

Chemicals may be entered using the chemical name, formula, or CAS number. There is a database of known chemicals built into the calculator; when recognized, chemical name, chemical formula, TAC, VOC, and vapor pressure will automatically be populated. Information for any unrecognized chemicals must be manually entered.

After entering all data, verify that TACs and VOCs (if any) are correctly identified.

VP Sheet

The VP Sheet calculates the vapor pressure of chemicals using the Antoine Equation. Users must input Antoine Coefficients (A, B, C) for any chemicals not listed in the built-in database. Antoine Coefficients may be obtained from Yaw’s Handbook or other reputable source.

$$\log_{10}P = A - \frac{B}{C + T}$$

VP calculations are significant for VOC calculations. Most inorganic compounds (excluding acids) may be assumed to have negligible VP.

Summary Sheet

Once all inputs are verified, press the “Calculate Emissions” button in the Summary sheet. This will generate summary tables for PM, VOC, and TAC emissions. TAC emissions are summarized by source type (Volume, “V” and Point, “P” source) and by average and maximum expected emissions. The sheet includes pivot tables that break down emissions by type and tank.

General Notes

- Chemical concentration refers to concentration in the process tank, not the concentration in the stock/makeup solution. All compounds entered into the calculator should be in their anhydrous form.
- For compounds containing metal TACs (e.g., Cr, Ni, Cu, Cd, Pb), consider establishing an upper limit for the total metal concentration in the tank rather than for the specific compounds containing those metals.
- In the calculator, when a compound containing a metal TAC is entered, the corresponding “TAC” identified by the calculator will be the metal itself and not the entire compound.
(e.g. “Cr” vs “Na₂Cr₂O₇”)
- For drum-shaped tanks, calculate and input the equivalent square dimensions ($L = W = \sqrt{\pi r^2}$).
- If a tank exhausts to multiple APC types or stages, enter the highest single-stage efficiency only. Do not use cumulative or combined efficiencies.
- Average and maximum TAC emission results are included in the Summary Sheet under separate tables and may be used with South Coast AQMD’s online [Health Risk Assessment Tool](#)². Results from the “Average TAC Emissions” table should be used for MICR and HIC calculations, and results from the “Maximum TAC Emissions” table should be used for HIA calculations.

Contact

If you encounter any errors or issues with this emission calculator or have suggestions, please send an email to TeamB@aqmd.gov.

² South Coast AQMD’s Health Risk Assessment Tool is available online at:
https://www.aqmd.gov/assets/aermet/AERMET_files_And_HRA_Tool.html