

Statewide Emission Estimate For Aboveground Storage Tanks Calculated Using AP-42 Methodology

California Air Resources Board staff has completed calculating the statewide emission estimates for aboveground storage tanks (ASTs). The emission estimate is calculated based on emission factors and tank populations. The U.S. EPA's AP-42 methodology was used to calculate the emission factors for different categories of ASTs. Tank populations were obtained from a statewide survey of ASTs.

The AP-42 methodology divides California into 16 main regions. It provides ambient temperature data for all these regions, which is used in calculating the emission factors for each region. ASTs in each of these regions are divided into different categories based on their size, type and vapor recovery configuration. Emission factors and tank population numbers were determined for each of the following categories:

- 7 Size ranges (350 gallons or less - 6000 gallons or more)
- 2 Types of tanks for each size range (Non-Insulated and Insulated)
- 3 Vapor recovery configurations for each type and size of AST (None, Phase I and Phase I&II)

Emission factor calculations were done using macros in Microsoft Excel software. There are 15 Microsoft Excel files representing 15 regions in California (one region was excluded based on no ASTs present in that region). Each excel file contains seven sheets with calculations for each size (based on its type and vapor recovery configuration) and one sheet with calculations done to determine the total emission estimate for that region. The annual average statewide emission estimate is obtained by adding all regional emission estimates. This estimate was based on the assumption that all ASTs are closed systems, as used in AP-42 methodology.

However, it is possible that all non-insulated ASTs in no vapor recovery category are open systems. Preliminary results from an in-house study suggest that emissions from an open system are double the emissions from a closed system (i.e. with a P/V valve). Therefore, the AP-42 calculated emissions (standing losses) in this category were doubled to obtain the corrected emission factors.

The annual average AST statewide emission estimate ranges from 2.26-3.47 tons/day.

Emissions in summer are expected to be higher due to high temperatures. ARB staff calculated statewide emission estimate for a summer month. The July AST statewide emission estimate ranges from 3.71-5.77 tons/day.

The following is the list of attached excel files:

- **Emission factor calculations for 15 regions** (15 files)
- **Annual Average AST Statewide Emission Estimate** (1 file)
- **Annual Average AST Statewide Emission Estimate** (with correction for open systems) (1 file)
- **July (summer month) AST Statewide Emission Estimate** (1 file)
(Includes the estimate based on the two possible conditions)