

ARB Organic and PM Speciation Profile Files README_SPECIATION

Last Updated December 2000

ARB's Excel files reflect the latest organic and particulate matter (PM) chemical speciation profiles, and how they are assigned to ARB's emission inventory source categories.

By way of background, the speciation profile data are applied to the Total Organic Gas (TOG) or Total Particulate Matter (PM) emissions from a source category to estimate the chemical species composition of the emissions. Further information on how to use the speciation profile Excel files follows.

(1.) The SCC_ASSIGN_FRACTION file for a given year shows which Organic Speciation Profile and which PM Speciation Profile is assigned to each SCC, for the specified inventory year. (Some of the organic profiles for fuels and vehicles are year-specific.)

The file also shows the Fraction of Reactive Organic Gas (FROG) values for each category. The FROG value is the weight fraction of Total Organic Gas that is considered photochemically reactive, or, in other words, the fraction of TOG that is Reactive Organic Gas (ROG). The FROG value is derived from the composition of the organic speciation profile.

The file also shows the PM size fractions for each category. The size fractions are the weight fractions of total Particulate Matter that are less than or equal to 10 microns and less than or equal to 2.5 microns aerodynamic diameter (FRAC PM10 and FRAC PM2.5, respectively) for each category.

(2.) The Organic Speciation Profiles (ORGPROF) file contains the weight fraction data (expressed as percent for ease of display) of each chemical in each profile. Each chemical fraction is multiplied by the Total Organic Gas (TOG) emissions for a source category to get the amount of each specific constituent chemical.

In addition to the chemical name for each chemical constituent, the file also shows the SAROAD code (a 5-digit internal identifier) and the Chemical Abstracts Service (CAS) number, which is a unique identifying code (up to 9 digits) assigned to chemicals by the CAS Registry Service.

(3.) The Particulate Matter (PM) Speciation Profile (PMPROF) file contains the weight fraction data (expressed as percent for ease of display) of each chemical in the profile, within each of the specified size fractions. Another file, the PMSIZE file, shows the PM size fractions for each profile.

The PM speciation profiles are applied in two steps. To get the amount of a specific chemical constituent in the total PM, each PM chemical weight fraction must be multiplied by the appropriate PM size fraction as well as the Total Particulate Matter (PM) emissions amount.

Note that the PM chemical speciation profile file is structured in two halves -- some profiles come in "original format" and some in "newer format". The "newer format" files are for a number of our newer profiles that include some supplemental "Other species" data. For example, some of the newer profiles contain data on Sulfates as well as total Sulfur content. Therefore, these newer-format profiles show these supplemental species separately, so as not to double count toward the total 100%.

For further information, contact eibweb@arb.ca.gov