

Speciation Profiles Used in CARB Modeling


Speciation profiles provide estimates of the chemical composition of emissions, and are used in the emission inventory and air quality models. CARB maintains and updates estimates of the chemical composition and size fractions of particulate matter (PM) and the chemical composition and reactive fractions of total organic gases (TOG), for a variety of emission source categories.

Definitions explains terms used to describe the profiles and their chemical groupings. References allows access to consolidated listings of the references used for the speciation profiles.

Download Option

From the speciation options, you can also choose the interactive option, which allows the scanning, printing and download of all or selected portions of the data files. The interactive option allows you to search/filter on a variety of data fields.

The download option allows access to the same information that is available from the interactive option, as well as some additional data. The download option files use slightly different terms and data breakdowns from the interactive option. Be sure and read the cautions on the interactive option and/or download option pages describing where the data definitions differ, before attempting to combine data from the two approaches. You are probably best to work with one approach or the other, at least until you are familiar with the two sets of data.

The speciation options provides background information describing how the speciation data were developed, what the terms used in conjunction with the data mean, and how the data can be used to calculate single compound concentrations from nonspeciated total organic gas (TOG) or particulate matter (PM) emission estimates. Using data shows example calculations. The source codes explains how the SCC and/or EIC codes are assigned to the speciation profiles. These SCC and/or EIC codes are also assigned to t.  emission inventory, providing the link between the emissions and the speciation profiles. Definitions explains terms used to describe the profiles and their chemical groupings.

Speciation Profiles

CARB's current PM and Organic Gas Speciation Profiles are available for download from this page as Excel spreadsheet files (PMPROF and ORGPROF). Each speciation profile provides weight fraction data of each chemical species making up the total particulate matter or total organic gas, and is designated by an identification code number. The chemical species are identified by a 5-digit SAROAD code, a 9-digit Chemical Abstract Service (CAS) number (where available), and the chemical name. For PM, there are also PM size fraction tables, which provide the particulate mass within each size fraction (PM total, PM 10, or PM 2.5) for individual source categories. The PMSIZE spreadsheet file contains a summary of the PM size fractions for each PM profile. To compute the amount of a specific chemical constituent in the PM size fraction of interest, each PM chemical weight fraction must be multiplied by the appropriate PM size fraction.

Download Option

CHEM - Chemical species data for source categories

FRAC - Fraction data for source categories

ORGPROF - Organic chemical profiles for source categories

PMPROF - Particulate matter chemical profiles for source categories

PMSIZE - Particle size fraction data for source categories

ORGPROF_REF - Reference number for organic gas profiles

PMPROF_REF - Reference number for PM profiles

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