The **SPECIATE** Database

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What is SPECIATE?

EPA's repository of emissions source-based speciation profiles that provides the chemical composition of organic gas such as volatile organic compounds (VOC), particulate matter (PM) and other pollutants (such as mercury)
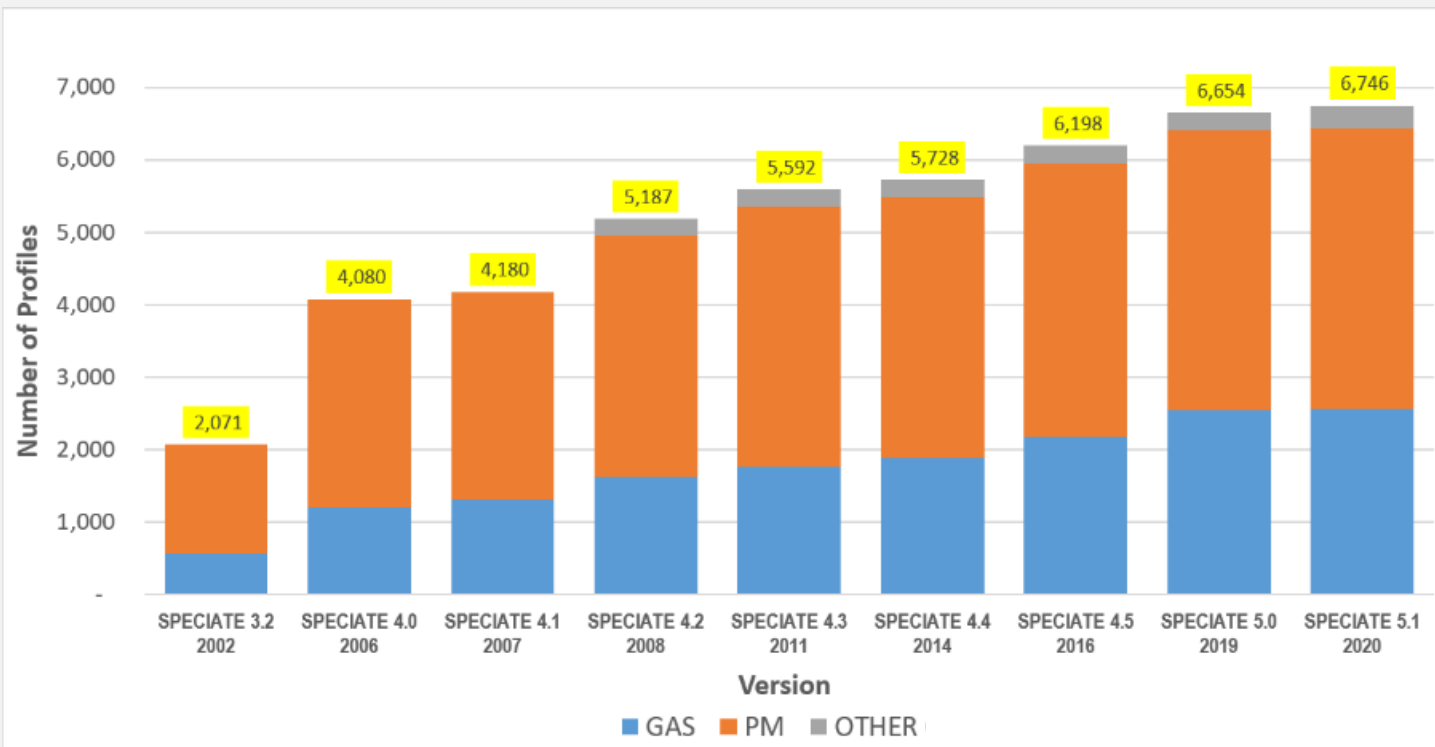
Example Sources: wildfires, household product usage, oil and gas operations, charbroiling and frying, road dust

Purpose of SPECIATE: To organize and make available scientifically sound organic gas, PM and mercury speciation profile data

Uses of SPECIATE:

- Regulatory model applications (Air quality standards, transport rules)

- Research model development (Secondary organic aerosol treatment, Chemical mechanisms, Specific sector analysis: Volatile chemical products, Oil and gas)

- Assessments and health studies (e.g., **National Air Toxics Assessment**)

- Estimate black carbon and organic carbon for use in carbon emission assessments and inventories

- Source apportionment

- Estimate **air toxics emissions**

- Used in international community for addressing PM and VOC speciation needs

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SPECIATE 5.1: Expansion of the Database

SPECIATE 5.1
6,746 profiles
# of Profiles Added:
16 Gas,
18 PM$_{2.5}$
58 mercury

Each version is a cumulative update of the previous version

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Updates for Version 5.2

- New Profiles in 5.2 (Release planned in Summer/Fall 2022)
  - Volatile chemical products profiles for "solvents" related emission source sectors
  - Pesticide profile (eliminating "unknown" from profile)
  - Minor corrections to existing profiles
- Species Properties Table update (special thanks to H. Pye and CRACCM team)
  - Updated the entire species properties table to assign a "representative" species for those species that are lumps of species. Ensures a consistent approach to estimating the chemical and physical properties when exact values are not known.