



Source Apportionment of the Ambient PM_{2.5} in East St. Louis using Constrained Positive Matrix Factorization

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Source Profiles derived from the PMF analysis of semi-continuous (1-hour) PM_{2.5} speciation data from the St Louis (Missouri, USA) area have been used to provide constraints on up to 8 source types: secondary sulfate and nitrate, gasoline and diesel vehicle emissions and 4 major area point sources, lead and zinc smelters, steel works, and a copper products plant. These profiles can provide target concentrations, upper and lower bound constraints on the profiles obtained by means of standard daily PM speciation data from three monitoring sites in St. Louis area.

The afore-mentioned constraints are implemented in a Constrained PMF by means of the Multilinear Engine (ME-2) scripting language (Paatero, 1999).