

NewFields Note

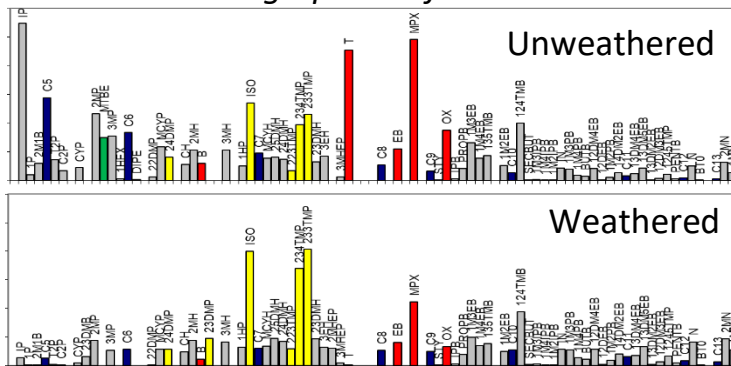
Automotive Gasoline Fingerprinting

Contaminant Identification, Differentiation, and Source Attribution

NewFields Note: Technical information in a condensed, easily digestible format that is intended to promote environmental science education, knowledge transfer, and empowerment ... *one note at a time.*

Fingerprinting Gasoline: Not all gasoline is/was created equal. By measuring and understanding the oft-regulated chemical changes in gasoline over time, the variation among different blends/grades, and the effects of weathering, the source and “age” of gasoline-derived contamination can be determined or constrained when interpreted in light of site conditions and history. NewFields scientists have developed and applied detailed gasoline fingerprinting techniques to address environmental forensic questions involving service stations, terminals, pipelines, refineries for 30+ years, including **PIANO fingerprinting, Lead, Oxygenates, and Alcohol Speciation and Concentration, and Total Sulfur.**

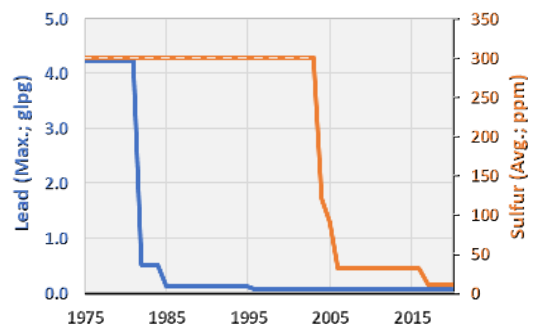
PIANO Fingerprints of Gasoline NAPLs



CONSIDERATIONS IN GASOLINE FINGERPRINTING

- Blending stock chemistry
 - Reformates
 - Straight-Run Gasolines
 - Cat/Hydro/Steam-Cracked Gas
 - Alkylates
 - Isomerates
- Gasoline blending practices
 - Simple vs. Complex
 - Conventional vs. Oxy-Fuel vs. Reformulated Gasoline
 - Gasoline Additives – *What, When and Where?*
 - Lead, Benzene & Sulfur Limits
- Weathering and water/soil gas/air partitioning effects

Statutory Lead & Sulfur Limits



Applications of Gasoline Fingerprinting Studies

- Distinguish recent/on-going vs. historic release(s)
- Distinction of and allocation among commingled sources/plumes
- Quantify source zone depletion (mass loss) due to remediation or natural attenuation
- Dissolved and vapor phase fingerprinting in groundwater and soil gas/indoor air.

For additional information, please contact your NewFields Technical Lead. Or send us an email at Science_Info@newfields.com

<https://www.newfields.com>

