

Summary of Experiment:

This dataset includes Quartz Crystal Microbalance (QCM) measurements of NPPA vapor adsorption onto various polymer-coated sensors to evaluate their pre-concentration performance. Each polymer was tested in triplicate, and the frequency shift (Δf in Hz) was used to calculate the mass of NPPA adsorbed using the Sauerbrey equation.

Definitions:

- NPPA – N-Phenylpropanamide: A vapor-phase surrogate for fentanyl detection.
- Δf /Frequency shift (in Hz): Represents the change in sensor resonance due to mass loading.
- Δm /Sauerbrey Mass: refers to the mass change on the quartz crystal sensor derived from the Sauerbrey equation, which linearly relates the frequency shift (Δf) to the mass change (Δm) for thin, rigid films.
- PA – Phenyl Acrylate
- BA – Butyl Acrylate
- CyclohexylA – Cyclohexyl Acrylate
- EGMEA – Ethylene Glycol Methyl Ether Acrylate
- Gold sensor (blank) – Uncoated quartz crystal used as a baseline control to measure NPPA adsorption in the absence of polymer coatings.