

# Mercury Speciation in Soils, Sediment & other Solids

Brooks Applied Labs provides practical solutions for determining concentrations of mercury (Hg) forms and fractions in soils and sediments using advanced separation techniques such as **5-Step Selective Sequential Extraction (5-Step SSE)** and **EPA Method 3200**.

## 5-Step SSE

Classifies Hg compounds as fractions that are:

- water-soluble
- weak-acid soluble
- organo-complexed
- strongly-complexed
- mineral-bound

	Mercury Classification	Primary Compounds Extracted
F1	Water-soluble, i.e. salts	HgCl <sub>2</sub>
F2	Weak acid-soluble/ "stomach acid" soluble	HgSO <sub>4</sub> HgO
F3	Organo-complexed	Hg-humics Hg <sub>2</sub> Cl <sub>2</sub> CH <sub>3</sub> Hg (MeHg)
F4	Strongly-complexed	mineral lattice bound Hg <sub>2</sub> Cl <sub>2</sub> Hg <sup>0</sup> (liquid elemental)
F5	Mineral-bound	HgS (cinnabar) m-HgS (meta-cinnabar) HgSe (amalgam) HgAu (amalgam)

If elemental mercury is a concern, ask us about the addition of an initial "F0" analysis for volatile mercury analysis.

## EPA Method 3200

Classifies the Hg compounds as fractions that are:

- extractable organic
- extractable inorganic
- semi-mobile
- non-mobile

	Mercury Classification	Primary Compounds Extracted
Extractable Mercury	Extractable organic	CH <sub>3</sub> HgCl CH <sub>3</sub> CH <sub>2</sub> HgCl
	Extractable inorganic	HgO HgCl <sub>2</sub> HgSO <sub>4</sub> Hg(OH) <sub>2</sub> Hg(NO <sub>3</sub> ) <sub>2</sub> Hg <sup>2+</sup> complexes
Non-Extractable Mercury	Semi-mobile	Hg <sup>0</sup> -M Hg <sub>2</sub> Cl <sub>2</sub> (minor) Hg <sup>0</sup> Hg <sup>2+</sup> complexes
	Non-mobile	HgS Hg <sub>2</sub> Cl <sub>2</sub> (major) HgSe