

PCB

RaPID Assay® is a rapid field or laboratory enzyme immunoassay method for the analysis of soil and water for remediation, assessment, and industrial testing.

Test result type

- Quantitative, semi-quantitative or qualitative

Samples per kit

- 100 test kit (tests up to 80 samples)

Assay range

- Soil: 0.5 ppm to 10 ppm total PCB's as Aroclor 1254
- Water: 0.25 to 5.0 ppb total PCB's as Aroclor 1254
- Wipes: 5 to 100µg per wipe total PCB's as Aroclor 1254
- Range can be extended with additional dilutions

Sample preparation

- Soil samples require prior extraction using the sample extraction kit (sold separately)
- The sample extraction kit provides materials for 12 soil sample extractions with methanol
- Water samples must be diluted one part sample to one part methanol to prevent adsorptive loss

Sampling time

- Soil extraction time is typically two minutes per sample plus assay run time of approximately 60 minutes.

Specificity

- The table below shows compounds at the method detection limit (MDL) which is the lowest concentration of the compound that can be picked up in the assay. The limit of quantification (LOQ) - an approximate concentration required to yield a positive result at the lowest standard. The IC50 is the concentration required to inhibit one-half of the colour produced by the negative control. It is also used to calculate cross-reactivity values to similar compounds.

- » Rapid field testing procedure for analysis of soil and water samples
- » Quantitative data results with excellent analytical precision
- » Results available in approximately 60 minutes
- » Training available
- » Magnetic particle immunoassay
- » EPA SW-846 method #4020



PCBs IN SOIL (PPM)

Contaminant	MDL	LOQ	IC ₅₀
Aroclor 1254	0.20	0.5	3.60
Aroclor 1260	0.20	0.3	2.3
Aroclor 1248	0.22	0.6	4.22
Aroclor 1242	0.34	1.2	8.80
Aroclor 1262	0.36	0.7	4.74
Aroclor 1232	0.84	2.6	18.76
Aroclor 1268	0.92	3.0	21.80
Aroclor 1016	0.94	3.6	25.6
Aroclor 1221	13.54	22.6	162.6

Basic Test Procedure

- Add calibrators and sample, enzyme conjugate, and antibody coupled magnetic particles to a test tube Vortex
- Incubate for 15 minutes
- Using the RaPID magnetic separator, decant and wash twice
- Add colour solution and incubate for 20 minutes
- Stop the reaction and read colour at 450 nm
- Quantitative results and QC parameters are calculated and printed automatically using the Smart Reader Photometer and Rugged Tablet

Other recommended materials

- » Latex gloves
- » Liquid and solid waste containers
- » Calculator
- » Absorbant paper for blotting
- » Marking pen

p = purchase, r = rental

Test kit components

- » Antibody coated magnetic particles for analysis of 100 test tubes
- » Zero standard, wash, enzyme conjugate, colour development and stop reagents
- » Standards for 0.25, 1.00 and 5.0 ppb as Aroclor 1254
- » Kit control as 3.0 ppb as Aroclor 1254
- » Disposable test tubes
- » Test kit instructions

Storage & precautions

- » Shelf life is typically one year from date of manufacture, with specific kit expiration date information provided on product packaging.
- » Reagents must be stored at 39° to 46°F (4° to 8°C) when not in use
- » Store at ambient temperature 64° to 81°F (18° to 27°C) is acceptable for day of use
- » Kits must be brought to 64° to 81°F (18° to 27°C) before use
- » Do not expose colour solution to direct sunlight

Required test materials

Part

- » PCP 100 tube test kit A00134
- » Sample extraction kit (for soil samples only) A00137EB
- » Sample extraction kit (for wipe samples only) A00137WB
- » PCB sample diluent 100mL A00136

Required test equipment

- » RaPID Assay accessory kit 6050100 (p)
which contains:
 - » RPA-II RaPID analyser 6000081
 - » Printer 6000082
 - » Magnetic separation rack A00004
 - » Repeater pipet A00008
 - » Adjustable volume pipet A00176
 - » Vortex mixer A00014
 - » Portable balance A00131
 - » Digital timer A00015
- » Repeater pipet tips A00009
- » Adjustable pipet tips A00013