

MODERNWATER

RaPID Assay<sup>®</sup>

## Pentachlorophenol (PCP)

RaPID Assay<sup>®</sup> 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: 0.1 ppm to 10 ppm as pentachlorophenol
- Water: 0.1 to 10.0 ppb as pentachlorophenol
- Other applications are also available
- 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 alkaline methanol.

### Sampling time

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

- Rapid field testing procedure for analysis of soil and water samples
- Quantitative data results with excellent analytical precision
- Tests up to 50 samples at once
- Results available in approximately 60 minutes
- Magnetic particle immunoassay
- Training available
- EPA SW-846 method #4010



MODERNWATER



US: +1 302 669 6900  
UK: +44 (0)1483 696 000  
[www.modernwater.com](http://www.modernwater.com)  
[info@modernwater.co.uk](mailto:info@modernwater.co.uk)

## Specificity

The PCP RaPID Assay® immunoassay test does not differentiate between PCP and other organochlorines. The table below shows compounds at the limit of quantitation (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.

PCP IN SOIL (PPM)		
Contaminant	LOQ	IC50
Pentachlorophenol	0.1	2.2
2,3,5,6-Tetrachlorophenol	0.84	4.06
2,3,4,6-Tetrachlorophenol	0.66	14.6
2,3,5-Trichlorophenol	5.4	119
2,3,6-Trichlorophenol	2.86	62.9
Tetrachlorohydroquinone	6.7	148
2,4,6-Trichlorophenol	21.0	463
2,4,5-Trichlorophenol	26.1	574
2,3,4-Trichlorophenol	78.6	1730
2,5-Dichlorophenol	356	7830
2,6-Dichlorophenol	272.3	5990
2,3-Dichlorophenol	>611	>10,000
2,4-Dichlorophenol	>887	>10,000
3,5-Dichlorophenol	>1670	>10,000
Hexachlorobenzene	>1560	>10,000
Hexachlorocyclohexane	>5790	>10,000

## Basic Test Procedure

- Add prepared sample, enzyme conjugate, and antibody coupled magnetic particles. Vortex
- Incubate for 30 minutes
- Separate using the RaPID magnetic separator: decant and wash
- 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 RPA-II spectrophotometer



**MODERNWATER**

## 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 0.1, 2 and 10 ppb as PCP
- Kit control as 1.0 ppb as PCP
- 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) for up to eight hours
- Kits must be brought to 64° to 81°F (18° to 27°C) before use
- Do not expose colour solution to direct sunlight
- Portable spectrophotometer battery should be charged prior to use

## Required test materials

- PCP 100 tube test kit
- Sample extraction kit
- PCP sample diluent (as needed)

## Part #

A00111  
A00128EA  
A00113

## Required test equipment

- RaPID Assay accessory kit which contains
 

	6050100 (p)
	6997010 (r)
- RPA-II RaPID analyser 6000111
- 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

## Other recommended materials

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