MODERNWATER | RaPID Assay®

2, 4-D

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: 0.15 ppm to 7.5 ppm as 2, 4-D
- Water: 1.0 to 50.0 ppb as 2, 4-D
- Range can be extended with additional dilutions

Sample preparation
- Soil samples require prior extraction as indicated in the application procedure

Sampling time
- A 16 hour extraction time is recommended for soil Method 4015

- Rapid field testing procedure for analysis of soil and water samples
- Quantitative data results with excellent analytical precision
- Test up to 50 samples at one time
- Results available in approximately 60 minutes
- Training available
- Magnetic particle immunoassay
- EPA SW-846 method #4015

MODERNWATER

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Basic Test Procedures

- Add standards, prepared sample, enzyme conjugate , and antibody coupled magnetic particles. Vortex.
- Incubate for 30 minutes
- Using the magnetic separator, decant and wash
- Add colour solution, incubate 20 minutes
- Stop the reaction and read colour at 450 nm
- Quantitative results and QC parameters are calculated and printed automatically using the RPA-11 spectrophotometer

Specificity

The 2, 4D RaPID Assay immunoassay test does not differentiate between 2,4-D and other chlorophenoxy acids. 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 color produced by the negative control. It is also used to calculate cross-reactivity values to similar compounds.

2, 4-D IN WATER (PPB)

Contaminant	LOQ	IC50
2, 4-D	1.0	15.0
2, 4-D Propylene Glycol Ester	0.053	0.79
2, 4-D Ethyl Ester	0.055	0.82
2, 4-D Isopropyl Ester	0.096	1.44
2, 4-D Methyl Ester	>0.12	1.64
2, 4-D Butyl Ester	>0.19	2.40
2, 4-D Sec-Butyl Ester	0.147	2.20
2, 4-D Butoxyethyl Ester	0.207	3.10
2, 4-D Butoxy-Propylene Ester	2.07	31.1
2, 4-D Isooctyl Ester	>2.08	30.0
2, 4, 5-T	12.7	190
2, 4-DB	9.27	139
MCPA	10.6	159
MCPB	98	1470
4-Chlorophenoxy acetic acid	81.3	1220
Dichloroprop	500	7500
Silvex (2, 4, 5-TP)	>167	2060
Dichlorophenol	238	3570
Triclopyr	>830	>10,000

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 1, 10 and 50 ppb as 2, 4-D
- Kit control as 35 ppb as 2, 4-D
- 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 up to 8 hours
- 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 #
• 2, 4-D 100 tube kit	A00082
• 2, 4-D sample diluent	A00079

Required test equipment

• RaPID Assay accessory kit which contains	6050100 (p) 6997010 (r)
RPA11 analyser	6000081
Magnetic separation rack	A00004
Repeator pipet	A00008
Adjustable volume pipet	A00176
Vortex mixer	A00014
Portable balance	A00131
Digital timer	A00015
• Repeator pipet tips (12.5 mL)	A00009
• Adjustable pipet tips	A00013

Other recommended materials

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

p = purchase, r = rental