

Remediation, Assessment & Industrial Testing



RaPID Assay[®]

Total BTEX / TPH RaPID Assay

Features

- 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 in approximately 60 minutes
- training recommended
- magnetic particle immunoassay
- correlated to TPH methods (knowledge of fuel source required)

Test Result Type

- Quantitative, semi-quantitative or qualitative.

Samples per Kit

- Two kit sizes available:
 - 30 Test Kit (tests up to 20+ samples)
 - 100 Test Kit (tests up to 80+ samples)

Assay Range

- Soil: 0.9 ppm to 30 ppm as Total BTEX Standard
- Water: 0.02 to 3.0 ppm as Total BTEX Standard
- as TPH: range varies based on fuel source.



Sample Preparation

- Soil samples require prior extraction using the SDI Sample Extraction Kit (sold separately).
- The Sample Extraction Kit provides materials for 12 soil sample extractions with methanol.

Sampling Time

- Soil extraction time is typically 2 minutes per sample plus assay run time of approximately 60 minutes.



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Specificity

The Total BTEX/TPH concentrations of the indicated contaminant types in soil samples are expressed below, at each of the three kit calibrator levels, in units comparable to results from GC method 8015 (TPH).

**Total BTEX/TPH RaPID Assay
Total Fuel in Soil (in ppm)**

Contaminant	Std. 1 equiv.	Std. 2 equiv.	Std. 3 equiv.
Gasoline	10	50	500
Jet A	200	500	2500
JP-4	20	80	750
JP-5	40	100	500
Turbine (Jet) Fuel	10	50	1000
Kerosene	50	150	1250
Artic Diesel	3	10	60
Diesel Fuel	10	40	300
Home Heating Oil	20	70	600
Fuel Oils	10	50	500

The Total BTEX/TPH RaPID Assay immunoassay test does not differentiate between BTEX and other petroleum hydrocarbons. 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.

BTEX in Soil (ppm)

Contaminant	LOQ	IC50
BTEX*	0.9	6.55
<i>m</i> -Xylene	2.5	18.0
<i>p</i> -Xylene	4.3	31.0
<i>o</i> -Xylene	6.5	47.0
Ethylbenzene	10.8	78.0
Toluene	10.2	74.0
Benzene	70.6	510
Naphthalene	0.82	5.9
1,2,4-Trimethylbenzene	1.60	11.5
Anthracene	3.60	26.0
Styrene	38.8	280
Phenanthrene	2.2	16.0
Creosote	6.6	47.6
1,3,5-Trimethylbenzene	4.8	35.0
Acenaphthene	8.6	62.0
<i>n</i> -Propylbenzene	6.5	47.0
<i>n</i> -Heptane	99.7	720
<i>n</i> -Hexane	NR	NR
<i>n</i> -Octane	NR	NR
<i>n</i> -Nonane	NR	NR
Cyclohexane	NR	NR
Hexachlorobenzene	NR	NR
<i>n</i> -Decane	NR	NR
Methylene Chloride	NR	NR
Trichloroethylene	NR	NR

Test Kit Components

- Antibody coated magnetic particles for analysis of 30 or 100 test tubes
- Diluent zero, wash, enzyme conjugate, color development and stop reagents
- Standards for 0.09, 0.35 and 3.0 ppm as Total BTEX
- Kit Control at 2.1 ppm as Total BTEX
- 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.
- Storage 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 color solution to direct sunlight.

Required Test Materials

- Total BTEX/TPH 30 tube kit A00161
- Total BTEX/TPH 100 tube kit A00162
- SDI Sample Extraction Kit A00165EA
(for soil samples only)
- Total BTEX sample diluent 100 ml
(as needed to increase range) A00164
- Universal Range Extension Kit
(as needed to extend range) A00235

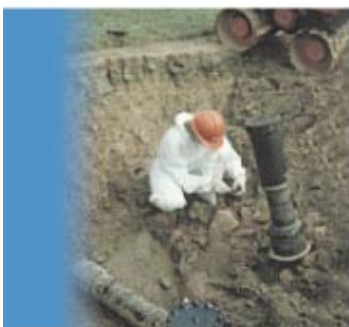
SDI Part

Required Test Equipment

- RaPID Assay Accessory Kit 6050100 purchase
which contains:
RPA-I RaPID Analyzer 6997010 rental
Magnetic Separation Rack A00003
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



Strategic Diagnostics Inc.

111 Pencader Drive
Newark, DE USA 19702

302.456.6789 tele

800.544.8881 tele

302.456.6782 fax

www.sdix.com