

PERFORMANCE STUDY

U.S. EPA Performance Evaluation Samples: Weathered Gasoline Spike Recovery Analysis Testing Total Petroleum Hydrocarbons

1 TPH: Weathered Gasoline in Soil with Variable Concentrations

Soils with certified TPH concentrations	Sample ID #	siteLAB TPH	Acceptance Limits*	Lab TPH
Weathered Gasoline: 0 ppm	PE S27	1.1	0 - 2	5.12
	PE S28	1.1	0 - 2	13.1
	PE S29	2.1	0 - 2	13.5
Weathered Gasoline: 1,090 ppm	PE S30	520	389 - 1,548	702
	PE S31	490	389 - 1,548	743
	PE S32	590	389 - 1,548	671
Weathered Gasoline: 3,120 ppm	PE S36	1,450	1,110 - 4,430	1,880
	PE S37	1,600	1,110 - 4,430	2,020
	PE S38	1,650	1,110 - 4,430	2,180
Weathered Gasoline: 2,780 ppm	PE S63	1,730	992 - 3,950	1,740
	PE S64	1,670	992 - 3,950	1,980
	PE S65	1,590	992 - 3,950	2,050

Units = ppm (mg/Kg)

2 TPH: Weathered Gasoline in Soil with Spiked Interferences

Soils with certified TPH concentrations	Sample ID #	siteLAB TPH	Acceptance Limits*	Lab TPH
Weathered Gasoline: 3,030 ppm with 2,810 ppm Tetrachloroethylene	PE S45	1,660	1,080 - 4,300	2,540
	PE S46	1,910	1,080 - 4,300	2,160
	PE S47	1,500	1,080 - 4,300	2,450
Weathered Gasoline: 2,800 ppm with 13,100 ppm Tetrachloroethylene	PE S48	1,300	1,000 - 3,980	4,740
	PE S49	1,380	1,000 - 3,980	4,570
	PE S50	1,490	1,000 - 3,980	4,040
Weathered Gasoline: 2,950 ppm with 2,730 ppm Turpentine	PE S57	1,530	1,050 - 4,190	4,410
	PE S58	1,410	1,050 - 4,190	3,870
	PE S59	1,240	1,050 - 4,190	4,440
Weathered Gasoline: 2,620 ppm with 12,900 ppm Turpentine	PE S60	1,260	935 - 3,720	12,800
	PE S61	1,750	935 - 3,720	11,200
	PE S62	1,250	935 - 3,720	14,600

Units = ppm (mg/Kg)

TPH Analysis Comparison:

- These tables compare the performance of *siteLAB*® TPH recoveries to each sample's TPH Acceptance Limit and Lab GC result.
- Table 1 consists of soils spiked with weathered gasoline only. Tables 2 & 3 consist of soil samples spiked with weathered gasoline plus (1) non-petroleum interferences and (2) petroleum additives/products. *siteLAB*® is not sensitive to these type of non-aromatic compounds.
- *Performance Acceptance Limits listed are used to closely approximate the 95% confidence interval based on the certified weathered gasoline spike values, and were developed by analytical verification GC data/studies for the U.S. EPA.

3 TPH: Weathered Gasoline in Soil with Spiked Additives

Soils with certified TPH concentrations	Sample ID #	siteLAB TPH	Acceptance Limits* Weathered Gasoline Only	Acceptance Limits* TPH Weathered Gasoline + Spiked Additives	Lab TPH
Weathered Gasoline: 2,830 ppm with 1,100 ppm MTBE	PE S39	1,320	1,010 - 4,020	1,320 - 5,250	1,900
	PE S40	1,370	1,010 - 4,020	1,320 - 5,250	1,750
	PE S41	1,560	1,010 - 4,020	1,320 - 5,250	2,210
Weathered Gasoline: 2,490 ppm with 1,760 ppm MTBE	PE S42	890	889 - 3,540	1,390 - 5,510	2,150
	PE S43	1,030	889 - 3,540	1,390 - 5,510	2,320
	PE S44	1,030	889 - 3,540	1,390 - 5,510	2,560
Weathered Gasoline: 2,770 ppm with 2,900 ppm Stoddard Solvent	PE S51	1,580	989 - 3,930	2,600 - 10,400	4,350
	PE S52	1,580	989 - 3,930	2,600 - 10,400	4,760
	PE S53	1,490	989 - 3,930	2,600 - 10,400	4,110
Weathered Gasoline: 2,730 ppm with 15,400 ppm Stoddard Solvent	PE S54	1,650	970 - 3,880	7,850 - 31,200	10,300
	PE S55	2,490	970 - 3,880	7,850 - 31,200	14,300
	PE S56	2,010	970 - 3,880	7,850 - 31,200	11,000

Units = ppm (mg/Kg)

Source: ITVR# EPA/600/R-01/080, September 2001

Sitelab data was generated in the U.S. EPA's Superfund Innovative Technology Evaluation (SITE) Program's "Field Measurement Technologies for Total Petroleum Hydrocarbons in Soil," directed by EPA's Office of Research and Development. Date: June 2000.

Disclaimer: EPA does not endorse any product offered for sale by developers in the SITE Program.

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