

## U.S. EPA Performance Evaluation Samples: Liquid Neat Material & Interference Analysis Testing Total Petroleum Hydrocarbons

Thirty-six samples tested during the SITE demonstration consisted of liquid performance evaluation samples. Neat (liquid) samples of weathered gasoline and diesel fuel were analyzed by both **siteLAB®** and the reference laboratory to evaluate accuracy and precision. Because extraction of the neat samples was not necessary, the results provided information strictly associated with the analyses and were not affected by soil extraction procedures. In addition, neat (liquid) samples containing a variety of different petroleum and non-petroleum hydrocarbon compounds were selected by EPA and analyzed as a quasi-control to evaluate the effect of each interferent by both **siteLAB®** and the reference laboratory.

### 1 Liquid TPH: Weathered Gasoline & Diesel Fuel

Liquid Neat Materials with Certified TPH Concentrations:	Sample ID #	siteLAB® TPH	Lab GC TPH
Weathered Gasoline 814,100 mg/L	PE L119	606,700	656,000
	PE L120	574,880	611,000
	PE L121	576,200	677,000
Diesel Fuel 851,900 mg/L	PE L116	719,800	1,090,000
	PE L117	762,200	1,020,000
	PE L118	737,400	1,160,000

Units = mg/L

### 2 Liquid TPH: Interferent Samples

Liquid Interferents with Estimated Spike Concentrations:	Sample ID #	siteLAB® TPH	Lab GC TPH
Methyl-tert-butyl ether (MTBE) 740,000 mg/L	PE L122	15	309,000
	PE L123	15	272,000
	PE L124	15	270,000
		Response: 0%	Response: 38%
	PE L125	8	303,000
	PE L126	8	313,000
	PE L127	8	282,000
	Response: 0%	Response: 40%	
Tetrachloroethene (PCE) 1,621,000 mg/L	PE L128	30	269,000
	PE L129	30	270,000
	PE L130	30	277,000
		Response: 0%	Response: 17%
	PE L131	6	290,000
	PE L132	6	288,000
	PE L133	6	307,000
	Response: 0%	Response: 18%	
Stoddard Solvent 771,500 mg/L	PE L134	10,040	561,000
	PE L135	8,220	628,000
	PE L136	8,480	606,000
		Response: 1%	Response: 78%
	PE L137	150	703,000
	PE L138	8,290	NR
	PE L139	8,330	713,000
	Response: 1%	Response: 92%	
Turpentine 845,600 mg/L	PE L140	15	504,000
	PE L141	15	459,000
	PE L142	15	442,000
		Response: 0%	Response: 55%
	PE L143	12	523,000
	PE L144	12	353,000
	PE L145	12	349,000
	Response: 0%	Response: 48%	
1,2,4-Trichlorobenzene 1,439,000 mg/L	PE L110	110	711,000
	PE L111	30	620,000
	PE L112	30	732,000
		Response: 0%	Response: 48%
	PE L113	6	754,000
	PE L114	6	756,000
	PE L115	6	752,000
	Response: 0%	Response: 52%	

Units = mg/L

### TPH Analysis Comparison:

- Table 1 compares the performance of **siteLAB®** TPH recoveries to results reported by the Lab GC testing high concentration liquid neat materials containing (1) weathered gasoline and (2) diesel fuel.
- Table 2 compares the performance of **siteLAB®** TPH results & responses to those reported by the Lab GC testing high concentration liquid interference samples. Liquid interferent spike concentrations were estimated using its density and purity. The mean responses were calculated by dividing the mean TPH result for a triplicate set by the interferent concentration and then multiplying by 100.

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.